Environmental Protection in the Canadian High Arctic: Tallurutiup Imanga/Lancaster Sound as a Case Study for Re-Conceptualising Governance.

Kevin G. Rattue. D.Phil.
School of Geography and the Environment
University of Oxford



February 2021

ABSTRACT

§

The diminishing ice cover has accelerated the ability for commercial shipping through the navigable routes of the Northwest Passage in the Canadian High Arctic. Shipping movement through ecologically fragile marine areas represents new environmental risks that could result from oil spills in these northern waters. Yet, existing preparedness and response systems have not been tested, as no response has been required to a large-scale spill in this region. The empirical research undertaken reveals that the Government of Canada is under mounting pressure to demonstrate how damage to marine ecosystems and northern peoples' lifestyles would be mitigated. Broad actor consensus is that systems are not in place to reduce the risks of detrimental environmental impacts that could dramatically change the community livelihoods and lifestyles. Compounding pressure on the government, research findings indicate conflicting perspectives within indigenous northern communities concerning commercial development of the Canadian Arctic. In confronting this challenge, this thesis introduces a new governance paradigm to the field of Arctic stewardship that applies pre-emption and precautionary logic to protect this vulnerable environment from problems associated with commercial development and the emergence of environmental risks. Existing frameworks for managing unintended impacts are disrupted by repositioning new and existing actors into new constructs of shared knowledge, power over decision-making, responsibility for resource management and wellbeing. The prevailing 'top-down' and rigid hierarchical structure dominated by the federal branch of the Government of Canada is disrupted by a shift towards an emergent arrangement to allow actors to facilitate interactions to operationalise agreed upon measures. This innovative form of governance can enable debate on the merits of reconstructing epistemological scales to conceptualise environmental protection measures in the context of global environmental change and the potential impact to local communities.



The Inukshuk – A Meaningful Messenger

Today, the Inukshuk are a tangible symbol of communication – a universal means of speaking about our concerns for one another, and our dependence on one another. Because of its history, the Inukshuk is an effective vehicle to acknowledge and convey enlightened management and human resource practices, the importance of personal communication, responsible environmental leadership and an invitation to speak with one another on a higher level about what really matters.

Reprinted from Wee Gates, Inc. Box 608, Erin, Ontario, N0B 1TO. https://www.weegates.com.

ACKNOWLEDGEMENTS

Foremost, I want to thank my supervisor, Dr. Richard Powell, for his unwavering support. Dr Powell's guidance in all aspects of research design, fieldwork completion, and the preparation of this manuscript is very much appreciated.

To the Nunavut Research Institute, I wish to express my gratitude for issuing the licenses that allowed me to complete interviews with residents of Arctic Bay, Clyde River, Pond Inlet, and Iqaluit, Nunavut. To representatives of the Government of Nunavut with the Department of Environment in Iqaluit, Confidential Participant, Transport Canada and the Canadian Energy Board, thank you for participating in this research. I also wish to acknowledge representatives of World Wildlife Fund-Canada, PEW Charitable Trusts, the Arctic Council, the International Owners Tanker Pollution Trust Fund, the Norwegian Coastal Administration, the Norwegian Polar Institute and former employees of BP Exploration (Alaska) and the Alaska Department of Environment for their willing participation. To those in academia: Associate Professor Rob Huebert, Professor Emeritus Oran Young, Professor Tore Henricksen, Dr. Natalia Loukacheva, and Dr. Jessica Shadian, thank you, also, for your participation. To my family: a very special thank you for all the support provided over the last few years, which has enabled me to complete this research. It is very much appreciated.

CONTENTS

LIST OF TABLES IX

LIST OF FIGURES X

ACRONYMS XI

CHAPTER 1 INTRODUCTION 1

1.1 Background 4

1.2 The Canadian Arctic and Commercial Development 9

1.3 Nunavut and Social, Economic, and Ecological Complexity 10

1.3.1 Nunavut and Nunavummiut Societal Values 10

1.4 Tallurutiup Imanga/Lancaster Sound as a Space of Engagement and a Vulnerable Risk-Scape 21

1.5 Coupling Climate Change and the Emergence of Environmental Risks 30

1.6 Actor and Elite Representative – Role Definition and Applied Usage 38

1.7 Research Questions and Thesis Structure 39

CHAPTER 2 ENVIRONMENTAL GOVERNANCE AND THE ARCTIC 44

2.1 Introduction 44

2.2 Environmental Governance 46

2.3 Environmental Philosophy and Contemplation of Pragmatism 58

2.4 Restoration and Recovery Equilibrium; Complexity of Dynamic Human-environmental Systems 62

2.5 Environmental Governance of the Arctic 68

2.6 Arctic Shipping and Emergent Environmental Risks 75

2.6.1 The Northwest Passage – an internal water or an international strait? .. 77

2.7 Governing that Which Needs to be Governed – Seemingly Straightforward? 81

2.8 Confronting Feasibility and Necessity: Is Collision Inevitable? 91

CHAPTER 3 PREVAILING GOVERNANCE IN THE CANADIAN HIGH ARCTIC 94

3.1. Actors' Roles and Responsibilities in Prevailing Governance 96

3.2 Collective-action model grouping 97

3.2.1 Maritime role for the Canadian Rangers 98

3.2.2 Role for the CCG 100

3.2.3 GN and Engagement of Nunavummiut 103

3.2.4 Nunavut Marine Council 105

3.3 Social-practice Model Grouping 106

3.4 Transparency of Network Interplay and Practicality of Arctic Governance 116

3.4.1. Power-over, Power-of and Power-in relationships in Prevailing Governance 117

3.5 Discussion 125

CHAPTER 4 RESEARCH FRAMEWORK AND METHODOLOGY 130

4.1 Positionality 130

4.2 Selection of Research Methods 132

4.3 Research Participant Selection 135

4.4 Fieldwork Planning and Coordination 138

4.5 Examining Insider-Outsider Dialectic within the Research Framework 142

4.6 Consideration of Informal Mechanisms to Promote Regional Governance 148

4.7 Elite Interview Selection and Completion 149

4.8 Interview Schedule and Location 155

4.9 Interview Structure, Positionality and Sensitivities 156

4.10 Interview Methods 162

CHAPTER 5 PARTICIPATORY GOVERNANCE IN THE CONTEXT OF MULTI-LEVEL ENGAGEMENT 170

5.1 Plausibility of Participatory Governance to Yield Desired Environmental Outcomes 170

5.2 Transforming Canadian High Arctic Governance - If Not Now, When? .. 172

5.3. Discussion 185

CHAPTER 6 PREVAILING GOVERNANCE FRAMEWORK: ACTOR ROLES, INTERPLAY AND POWER DYNAMICS 188

6.1 Introduction 188

6.2 Actor Roles in Prevailing Governance of the Canadian High Arctic 190

6.3 Non GOC Actor Roles Re-Imagined 197

6.4 Discussion 210

CHAPTER 7 SCALE RE-CONSTRUCTION IN A CONCEPTUALISED FORM OF GOVERNANCE 212

7.1 Resources, Knowledge, and Well-Being: New Scale Constructs 213

7.2 Construction of Resources 214

7.2.1 The Canadian Rangers 214

7.2.2 A North Baffin Emergency Response Organization (NBERO) 216

7.2.3 A North Baffin Community Responder Group (NBCRG) and Shoreline Clean-up Team (SCT) 224

7.3 Construction of Knowledge 226

7.3.1 Nunavut Marine Council 226

7.3.2 Norwegian Coastal Administration 227

7.3.3 International Tanker Owners' Pollution Fund 229

7.3.4 Non-government Organizations 231

7.3.5 Arctic Council 232

7.4. Construction of Well-Being 233

7.5 Conceptualisation of an Environmental Governance Framework 240

7.6 Imagining Functionality and Operational Elements of Governance 247

CHAPTER 8 GOVERNANCE IMAGERY OF SPATIAL AND FUNCTIONAL SCALING 270

8.1 Beneficial Usage as a Driver for Transformational Process: Opening Passages of Discovery? 273

8.2 Directional Paths towards Multi-governance Frameworks – Corridors for Opportunity? 277

8.3 Discussion 287

CHAPTER 9 CONCLUSION.....291

REFERENCES 299

APPENDIX 1.....325

APPENDIX 2.....328

APPENDIX 3.....331

APPENDIX 4.....333

APPENDIX 5.....337

LIST OF TABLES

Table 2.1 Summary of International Framework Agreements on Arctic Governance Key to Environmental Governance....85

Table 2.2 Framework Strengths and Weaknesses in Consideration of High Canadian Arctic Environmental Protection....86

Table 2.3 The Arctic Council Working Groups and Guidelines....89

Table 2.4 Analysis of Arctic Council Strengths and Weaknesses....90

Table 3.1 Social-Practice Model Grouping....108

Table 3.2 Power-Over, Power-in, and Power-of Actor Relationships Between Actors in Social Practice and Collective Action Model Groups....121

Table 3.3 Situation Analysis and Gaps in Prevailing Governance Arrangement....129

Table 4.1 Interview Participants and Coding....158

Table 7.1 Senate Committee in December 2009....220

Table 7.2 Dr. Mark Whittington (ITOPF) on High Arctic Spill Planning Interview Quotations....236

Table 7.3 Power-over Relationships between the Government of Canada and Other Actors – Ranking and Power Descriptors....243

Table 7.4 Constructs of Resources, Knowledge, and Wellbeing....249

Table 7.5 Applying Chaudhury's Ghana Adaption to Tallurutiup Imanga/Lancaster Sound....258

Table 7.6 AMAP's Characteristics of Governance and Attributes of the Proposed Conceptual Governance....264

LIST OF FIGURES

Figure 1.1 Currency Balloon, from the exhibit Eisbergfreistadt (Ice-berg Free state 2008). 3

Figure 1.2 Grand Pinnacle Iceberg, East Greenland (2006). 4

Figure 1.3 The location of Tallurutiup Imanga/Lancaster Sound, Nunavut. 22

Figure 1.4 The location of Tallurutiup Imanga/Lancaster Sound, Nunavut relative to Baffin Bay, Devon Island and Baffin Island. 23

Figure 1.5 A map of upper Baffin Bay shows the North Water Polynya, or Pikialasorsuaq. 24

Figure 1.6 Marine response equipment located throughout Canada. 28

Figure 1.7 Arctic shipping routes – Northwest Passage and Northern Sea Route. 34

Figure 2.1. Ecological assumptions to the assessment of recovery from an environmental accident. 65

Figure 2.2 Shipping movement in Davis Strait, Baffin Bay and through the routes of the NWP in September 2018. 78

Figure 2.3 Worldwide number of spills (>7 tonnes) from 1970 to 2017. 83

Figure 3.1 Power dynamics and scale frames in governance processes. 118

Figure 3.2 Manson's (2008) epistemological scale continuum. 124

Figure 5.1 The strategic environment assessment area. 183

Figure 7.1 Oil spill locations at which ITOPF has responded. 230

Figure 7.2 Re-positioning of actor influence in a constructionist scale frame. 245

Figure 7.3 An adaptation and re-construction of Manson's (2008) epistemological scale adapted for this thesis. 248

Figure 7.4 Prevailing and conceptual forms of governance. 251

Figure 7.5 Positionality of new and existing actors in conceptualised governance arrangement. 252

Figure 7.6 Chaudhury's five steps applied to the conceptual form of governance. 259

ACRONYMS

10th Conference of Parties Agreement	COP10
12th Conference of Parties Agreement	COP12
Alaska Clean Seas	ACS
Arctic Council Emergency Prevention Emergency Preparedness and Response	EPPR
Arctic Council Protection of the Arctic Marine Environment	PAME
Arctic Environmental Protection Strategy	AEPS
Canadian Coast Guard	CCG
Convention on Biological Diversity	CBD
Department of Environment	DOE
Department of Fisheries and Oceans	DFO
Eastern Canada Response Corporation	ECRC
European Union	EU
Exxon Valdez Oil Spill Trust Council	Trust Council
Government of Canada	GOC
Government of Canada's Transportation Ministry (Transport Canada)	TC
Government of Nunavut	GN
Hunters and Trappers Association	HTA
Hunters and Trappers Organization	HTO
Indigenous and Northern Affairs Canada	INAC
International Maritime Organization	IMO
International Tanker Owner's Pollution Fund	ITOPF
Inuit Tapiriit Kanatami	ITK
Marine Environment Working Group	MEWG

National Marine Conservation Area	NMCA
Non-Government Organizations	NGOs
North Water Polynya	Polynya
Northern Sea Route	NSR
Northwest Passage	NWP
Northwest Territory/Nunavut Spills Working	Spills Working Agreement
Norwegian Coastal Administration	NCA
Norwegian Polar Institute	NPI
Nunavut Impact Review Board	NIRB
Nunavut Land Claims Agreement	NLCA
Nunavut Marine Council	NMC
Nunavut Planning Commission	NPC
Nunavut Research Institute	NRI
Nunavut Tunngavik Incorporated	NTI
Nunavut Water Board	NWB
Nunavut Wildlife Management Board	NWMB
Particularly Sensitive Sea Areas	PSSAs
Persistent organic pollutants	POPs
PEW Charitable Trusts	PEW
Polychlorinated biphenyls	PCBs
Qikiqtani Inuit Association	QIA
Saint Lawrence Seaway Development Corporation	SLSDC
Saint Lawrence Seaway	Seaway
Strategic Environmental Assessment	SEA
United Nations Convention on the Law of the Sea	UNCLOS
World Wildlife Fund for Nature – Canada	WWF-Canada

CHAPTER 1

INTRODUCTION

Classical Greek philosophers held a fascination of the northern latitudes; a mythical and wondrous place that inspired 'fanciful images that belied reality' (Grant 2011, p.5). In Greek, *arktos* means bear and the name Arctic originated from this word as Greek astronomers positioned this mystical place beneath the constellation Ursa Major, the Great Bear. It is a place that explorers for centuries have sought navigable sea passages to connect the Atlantic and Pacific Oceans to enable trade. Explorers' intentions were to chart and establish routes from Europe to the Orient, but never to settle or occupy the region on behalf of the merchants, religious groups, or countries that sponsored their voyages. The Arctic was an obstacle to those that sought to establish linkages along an east-west axis, and occupancy was not the objective.

Vilhjalmur Stefanson (1879-1962), however, an Icelandic-Canadian American explorer, never viewed the Arctic as simply a place for transit; but rather, a land not inhospitable to man and one to be developed (Grant 2010). Emerson (2011, p.17) described Stefansson's unwavering passion for northern development saying that he 'devoted his life to correcting what he considered to be the romantic and literary misappropriation of the Arctic, and to overturning a set of prejudices about its possibilities.' The concept that latitudes and civilisation are unbreakable, and that the course of history can be disrupted through a 'northern turn' in how society views the Arctic, is enshrined on Stefanson's tombstone in Hanover, New Hampshire - the inscription reads 'Prophet of the North' (Emerson 2011, p.17). In Stefanson's book *The Friendly Arctic*, he prophesised that "when the polar regions are once understood to be friendly and fruitful, men will easily and quickly penetrate their deepest recesses'

(Stefanson 1921). Sixty years after his death, the profound changes in the Arctic now occurring, give credence to how the 'Prophet of the North' imagined the emergence of this region for commercial development and settlement by those other than indigenous peoples. Stefanson's contribution to Arctic history could be summarized saying that 'the way the world works today has diminishing congruence with how we have understood it to work for centuries' (Mendenhall 2016, p.62).

The melting of sea-ice through global warming is resulting in a 'new' Arctic – an Arctic that is undergoing rapid change through geophysical, biological, and social-economic process (Mendenhall 2016). As a material place, the Arctic is being altered in ways that few of us might have imagined, even as recently as the beginning of this century. Fascinating to note is that the conditions that are now associated with a new Arctic are being powerfully portrayed through paintings and photographs available in the public domain. Nicholas Kahn and Richard Selesnick are two artists, both born in 1964, that project imagery to portray contemporary issues, such as commercial development, in the context of Arctic history and climate change (Matilsky 2013). In *Currency Balloon,* from the exhibit Eisbergfreistadt (Ice-berg Free state 2008), one of the artists is inserted in the photograph and shown as 'a suave aviator scouting out the landscape from his dirigible, plastered with real and fictional bank notes from German city states in Figure 1.1 (Matilsky 2013, p.75). This artwork portrays the materialism of economic gain, or greed, as Matilsky suggests, confronting humanity's response to contemporary issues against a backdrop of polar exploration and the Arctic environment. Bank notes on the balloon and the explorers clothing are emblazoned with factory chimneys emitting pollutants into the air saying, 'To burn oil from Azerbaijan to Tibet puts the world on fire.' Kahn and Selesnick's exhibition deliberately linked modern-day industrialism with climate change. In *Currency Balloon*, the artists also

show a polar bear to bring attention to its endangered status and as a symbol of how the loss of Arctic species, including caribou and marine mammals, would severely impact community lifestyles. Thirty percent of the Arctic's polar bear population is expected to disappear over the next 30 years due to climate change and the loss of sea ice, according to the World Conservation Union (Matilsky 2013).



Figure 1.1 Currency Balloon, from the exhibit Eisbergfreistadt (Ice-berg Free state 2008). Photo Imagery by Nicholas Kahn and Richard Selesnick. Reproduced from Vanishing Ice (2013).

In drawing upon other photographs to help understand the significance of climate change impacts in the Arctic, it is poignant to introduce the work of Camille Seamen who is of Native American decent and part of the Shinnecock tribe. Seamen, born in 1969, uses melting icebergs in her photographs as emotional and metaphorical illustrations of change occurring in the *new* Arctic. In *Grand Pinnacle Iceberg, East Greenland* (2006), Seaman 'presents a beautiful but sorrowful ode to the Arctic' (Matilsky 2013, p.119). The black and white photograph in Figure 1.2 shows an isolated melting iceberg as a 'forlorn presence within a sombre atmosphere.' I include this photograph because Seaman is guided by 'the belief that everything contains a life force' and conceives melting iceberg 'as portraits of individuals, much like family photos of ancestors' (p.120). As this thesis unfolds, the spiritual relationship between

the residents of the Canadian Arctic and non-human objects is made clear in terms of the relevancy to environmental governance and the protection of the natural environment. I examine dislocation of humans, animals, and non-living objects as defined through the protection of wildlife habitats, community lifestyles, and the natural environment. Also examined is who, or what, is a potential victim, within the context of the new Arctic, and what are the circumstances that might account for victimization? Conversely, who the opportunists are, both in and outside the Arctic, must be examined to help understand for what reasons might the impact of climate change and the melting of ice provide benefits not previously realised.



Figure 1.2 Grand Pinnacle Iceberg, East Greenland (2006). Photograph taken by Camille Seaman and reproduced from Visions of Ice (2013).

1.1 Background

Most of today's four million Arctic residents live in Russia (approximately two million) with indigenous and non-indigenous peoples living throughout the circumpolar North (Dodds and Nuthall 2019). These authors report that an estimated ten percent of Arctic residents are indigenous peoples. An Inuit population of approximately 160,000 reside primarily in Greenland, northern Canada and Alaska and their ability to live in such distant, remote and hostile locations 'represents one of the most extraordinary environmental adaptions found on earth' (Dodds and Nuttall 2019, p.37). To sustain

these lifestyles, Inuit are dependent on hunting marine and terrestrial wildlife and fishing. Inuit (meaning 'people') is applied widely throughout the Arctic, but diversity exists in terms of different Inuit groups. These include; Kalaallit in west Greenland, Iivit in east Greenland, Inughuit in northwest Greenland, Inupiat, Yip'iit and Alutiiq in Alaska, Yuit in Siberia, and Inuit and Inuvialuit in Canada. To help understand the significance of the natural environment to support Inuit lifestyle, we must first turn to ice, itself, and what it means to Inuit. In *The Meaning of Ice: People and sea ice in three Arctic communities* (Gearheard et al. 2013) these following words portray the deep connection that exists between ice and the residents of the Arctic that require its presence for the survival of their lifestyles.

> 'If you were born by the sea, played as a child on the sea ice, raised a family of your own on the sea ice, depend on it, work with it, think and dream about it, day in and out -how do you describe such an integral part of your life, something exotic to most people, but so familiar to you?...Of sea ice itself it shares depth of knowledge, but more importantly, it shares great depth of knowing, and what knowing sea ice means to those who live with and from it' (Gearhead et al. 2013, p.xxxiii).

The Intergovernmental Panel on Climate Change reported in 2013 that by 2050 the Arctic is likely to see September virtually free of ice based on climate models (Henson et al. 2014). New Arctic realism is that as open water replaces ice-covered marine areas, terrestrial animal migration patterns will shift; tide and marine current movements will be altered causing accelerated coastal erosion and create instability of shoreline structures that will eventually require relocation of residents. On the Chukchi Sea coastline lies the remote village of Kivalina, Alaska which is located eighty-three miles above the Arctic Circle. Iñupiat people of the community hunt bowhead whales from camps atop the sea ice that stretches out from the icy shores. Due to the thinning ice, it will be too dangerous for residents to stay in Kivalina, according to the U.S. government, as less sea ice means that powerful waves will wash across the village. To

move the people of Kivalina to a safer location nearby, either inland or further down the coast, would cost upwards of a hundred million dollars. For Kivalina and many other Arctic communities, climate change is now a daily threat due to changes in weather conditions, loss of traditional means of sustenance and loss of land.[1]

'Trouble seems to beget trouble when it comes to far-northern climate' as the Arctic's climate system balances on the freezing point of water (Henson 2014, p.102). Like a finely tuned sports car, Henson notes, the Arctic reacts very sensitively to small changes in temperature variations. It is 'positive feedback' and 'self-reinforcing' mechanisms that result in the Arctic warming faster than any other part of the world in response to greenhouse gases. Polar scientists refer to the *darkening of surfaces* meaning areas that absorb more sunlight than lighter surfaces and warm the air above more strongly. Snow and ice absorb approximately ten percent of solar energy reaching it compared with over ninety percent for ocean water. Unlike in more southerly latitudes, the evaporation rate off open water in the Arctic is very low and this compounds air warming as sunlight energy reaches the water directly. Another self-reinforcing feedback is that the Arctic troposphere, the weather layer, is thin relative to southern latitudes and typically between 8 to 10 kilometres. Accordingly, less energy is required to produce a given amount of warming. Troubling also is that in cold and crisp conditions, the Arctic landscapes can experience inversion, which is a thin layer of air that lies above the land surface that is colder than the air several hundred meters higher-up. Accelerated ground warming occurs when the inversion is pierced through a loss of snow or ice cover, or changes in the atmospheric circulation systems, and the air warms dramatically (Henson 2014). All the above are contributing to the positive feedback

[1] https://www.washingtonpost.com/news/energy-environment/wp/2015/02/24/the-remote-alaskan-village-that-needs-to-be-relocated-due-to-climate-change/

mechanisms that will result in ever-increasing open water areas. The prediction of 'when we'll see the first summer days with a wide-open Arctic is one of the great forecasting endeavours of our time, especially given the rollercoaster developments of the last decade' (Henson 2014, p.104). Sea-ice melting and freezing dynamics are complex and impacted by oceanic currents, cloud cover, ambient air, water temperatures, and ice thickness. Concerningly, ice loss is occurring more rapidly than models have predicted, and worse, according to Mark Serreze with the National Snow and Ice Data Center in Boulder, Colorado, ice is becoming younger and thinner. Stefason may not have been able to predict the impact of climate change on diminishing ice cover, but his hypothesis that commercial development can occur in the Arctic is now proven.

The Arctic's uniqueness as a pristine, remote, and ice-covered landscape is no longer the reality and its future protection will require us to critique prevailing measures and to consider and conceptualise new forms of governance arrangements to confront the nature of emergent environments to this *new* Arctic. As a material construct, it requires us to confront how beneficial aspects of commercial development might result in material loss to the environment and position its peoples as victims, or casualties of environmental impairment. Understanding discursive frames can then inform us on how forward-looking policy shaping considers the emergence of environment risk in new governance arrangements that address the materiality of change-impacts. To do so requires analysis of the interplay between and within these interest groups and a greater understanding of power dynamics and power relationships to understand levels of representation in governance.

For the purposes of this thesis and in the context of potential oil spill impairment analysis, risk means the existence of uncertainties and unknowns. Herein,

oil spill impairment is defined as an uncontrolled release of oil (or oil derivatives) from either a stationary or moving vessel, or other type of marine facility, into marine waters.[2] Oil spill impairment is a nuanced process, which is heavily influenced by how risk is viewed in terms of its urgency and who is responsible for it. It is my epistemological position that today's oil spill governance in the Canadian Arctic requires immediate examination as the potential risk of an oil spill poses a severe threat to marine ecological systems. Roe (2019) described the need to understand the urgency of taking action to address emerging risk by introducing 'chronic stressors' to today's governance arrangements and suggested that 'the crisis is right here, right now, no distance between us and it: it is impossible to ignore and altogether unavoidable; no one can stand idle' (p.88). I agree with Roe in his viewpoint that when '*exceptiona*l circumstances give rise to *extraordinary* threats and thus to emergency measures' we should not be 'left with the impression that we face intractable problems when at such limits' (p.90). Moreover, in adopting an epistemological position that oil spill mitigation in the Canadian Arctic is a real threat to the Arctic environment – based on my own experience working on oil spill mitigation in Alaska and northern Canada – then I am able to critically ask if prevailing governance is appropriate in the context of emerging risks. Furthermore, I agree with Roe's sense of urgency in the question: 'could we be positioned to do something about an unfolding crisis and not even know it?' (p.92). Through association with this forward-looking and anticipatory doctrine, I must then ask: what form of environmental protectionist measures can be introduced in

[2] An oil spill is a form of environmental pollution. It is the release of a liquid petroleum hydrocarbon into the environment as a result of human activity. The term 'oil spill' is most commonly used in the context of marine oil spills where crude oil, refined petroleum products or by-products, ships' bunkers, oily refuse or oil mixed in waste is released into the ocean or coastal waters. Marine oil spills may take place due to variety of reasons including mistakes on the part of the oil tanker owner, breaking down of equipment in the tanker/vessel, or acts of terrorism and intentional oil spills. Source: https://definitions.uslegal.com/o/oil-spill/

the Canadian Arctic using governance arrangements that are pre-emptive of a crisis and precautionary in nature?

As used in this thesis, 'precaution is not tantamount to systematic renunciation, prohibition, stalling or stonewalling' shipping activity in the Canadian Arctic (Whiteside 2006, p.400). Knol's (2011) extensive work related to marine protection associated with oil and gas activities in the Barents Sea involves the application of precautionary politics to frame how 'traditional cost-benefit analysis to assess environmental values in monetary terms' (Knol 2011, p.400). Knol (2011) concluded that other considerations are necessary for precautionary instruments and that 'precaution is not about regulating scientific uncertainty only, but about governing the more complex dynamic of interrelated scientific and political issues' (p.403). Knol suggested that precautionary-based measures as applied to ecosystem governance, might best be implemented *in situ* rather than through broader spatial application. She also noted that costs-driven decision-making might not always be appropriate to mitigate environmental harm when precautionary politics are considered.

1.2 The Canadian Arctic and Commercial Development

Specific to the Canadian Arctic, it is not difficult to envisage how it could become a 'pivot area' around which arguments are constructed both against and in favour of commercial development, and how engagement of multiple state and non-state entities, industry, NGOs and other stakeholders will become increasingly complex (Mendenhall 2016). Mendenhall's (2016) work attaches the concept of a pivot area to 'axial and integral character of domains with significant power potential' (p.19). Applied in this manner, the Canadian Arctic is a pivot area that is becoming increasingly used by the extractive industries and commercial shipping companies. It is

a region that is already ‘playing host to a great geopolitical and geo-economic game that has roots far from the Pole’ (p.20). Close to the top of the world, the Canadian Arctic occupies a unique geographic position as it serves as an area in which shipping nations, such as China, South Korea, Japan, the U.S. and many European countries wish to seek economic gains while debate continues over if the routes through the Canadian Arctic are internal waters or serve as an international strait. If, as suggested by Mendenhall, Canadian Arctic waters will become a well-used passageway for global marine traffic then locations previously not accessible will be ‘open’ for economic exploitation. Following this narrative, this pivotal area then posits the Canadian Arctic as a region connected with global commerce as an enabler of connectivity and resource development. As such, the demands on the Government of Canada to administer systems to approve, regulate and enforce commercial activities can be expected to intensify and the governance of the natural environment to become increasingly complex.

1.3 Nunavut and Social, Economic, and Ecological Complexity

1.3.1 Nunavut and Nunavummiut Societal Values

Nunavut consists of twenty-five communities located in three regions, including Baffin/Qikiqtaaluk, Kivalliq, and Kitikmeot (Henderson 2007). These were created when the Nunavut Territory was part of the Northwest Territory and social services were administered through these regional authorities. Today, the regions are mainly the basis for the organisation of Inuit associations, but also serve a program delivery purpose for municipal government. According to Henderson (2007), less than three percent of Nunavummiut in Baffin identify the region as their primary identity group.

Baffin residents associate with the Qikiqtani Inuit Association (QIA).[3] QIA's role is to uphold the land claims agreement in the Baffin region. Representatives of QIA, together with other Inuit associations, sit on the board of Nunavut Tunngavik Incorporated (NTI), a public body that represents all Inuit beneficiaries in Nunavut.[4] Showing support for Nunavut Territory institutions to reflect Inuit values, Dacks (1993) stated that 'The people of Nunavut deserve to have a government that, within the general constitutional principles of Canada, they can recognise as embodying their values' (Dacks 1993, p.36). Respectful of the land, animals, and the environment, the people of Nunavut regard themselves as stewards of resources and wish to find a balance between responsible development and sustaining lifestyles.[5]

Decision-making through discussion and consensus building (Aajiiqatigiinniq), working together for a common cause (Piliriqatigiinniq), being innovative and resourceful (Qanuqtuurniq), and being respectful of land, animals, and the environment (Avatittinnik Kamatsiarniq) are beliefs of Nunavut communities.[6] The western basis for existing governance arrangements contradicts Inuit values, which historically do not include a formal concept of governance in tradition and practice (Loukacheva 2007). Western-pattern institutions were provided to the people of Nunavut through democratic representation. Canadian style institutions are embedded in the legislative and executive bodies of Nunavut, which contradicts Inuit tradition. Traditional Inuit methods of decision-making have had little effect on modern governance arrangements,

[3] The QIA represents approximately 14,000 Inuit in the Qikiqtani (Baffin) Region of Nunavut. Its mission is to administer and advance the rights and benefits of the Qikiqtani Inuit, including Inuit traditions, environmental values, and economic, social, and cultural well-being, in an open and democratic forum. Available at: http://qia.ca (accessed November 8, 2019).
[4] The NTI organization ensures that promises made under the Nunavut Agreement are carried out. The management of land, water and wildlife is coordinated and managed by NIT, as set out in the Nunavut Agreement, and ensures that the federal and territorial governments fulfill their obligations. Available at www.tunngavik.com (accessed June 21, 2016).
[5] Available at www.canada.ca/en/parksCanada/news/2017/08/tallurutiup_ imangalancastersoundinhigharctictobecanadaslargestpr.html (accessed May 2, 2018).
[6] Available at www.gov.nu.ca/information/inuit-societal-values (accessed February 21, 2018).

as Loukacheva (2007) has contended, based on interviews completed in Nunavut. Efforts to address this concern have included the introduction of an elders' advisory council (Katimajiit), to provide advice on how to include Inuit culture, tradition, and values factor into government policy development.[7] In 2014, Premier Peter Taptuna (GN 2014) envisaged a Nunavut that could manage and develop resources and create employment, while protecting the environment through collaborative partnerships with local, regional, national and international entities.

In completing this research, I needed to understand if and how Nunavut communities are marginalised in Canadian Arctic governance. Specific to oil spill mitigation, this marginalisation is an under-developed area of scholarly research; in the context of Arctic governance, it needs to be examined more fully in relation to climate-change and potential resultant impacts to the Arctic environment. Marginalisation as defined in the Oxford Dictionary means 'to render or treat as marginal; to remove from the centre or mainstream; to force (an individual, minority group, etc.) to the periphery of a dominant social group; (gen.) to belittle, depreciate, discount, or dismiss.'[8] Schiffer and Schatz (2008) described a marginalised group as being situated outside of mainstream society. Most often, a dominant central actor (e.g., the government) has the power of influence over a marginalised group, which has unequal representation in policy-shaping and decision-making. In the protection of the Canadian Arctic, the Government of Canada is the dominant actor that has complex political relationships with the Government of Nunavut, Nunavut organisations and its people.

[7] The Inuit Qaujimajatuqangit Katimajiit is supported by the Director of Department of Culture and Heritage, GN. Available at www.gov.nu.ca/culture-and-heritage/information/inuit-qaujimajatuqangit-katimajiit (accessed August 12, 2019).
[8] Oxford English Dictionary

Through western-style processes, the legacy of colonialism can still be seen in representations of environmental governance in the Canadian Arctic (Connon and Simpson 2018). The reality is that absent representation at the political level, Inuit concerns about environmental protection and sustainability cannot shape policy to the same extent as the Government of Canada is able to do. As critical geographers, we are in a position to consider and construct alternative forms of governance to better protect places upon which residents of coastal communities are dependent for the preservation of lifestyles. Communities can shape policies and implement measures that align with the nature of emergent environment risks; this does not have to be through forms of conflict, as it might help alleviate stress for the government in tackling the complexity of oil spill mitigation in the Arctic. In this thesis, my epistemological position is that Inuit living in the remote and distant coastal communities of Nunavut are at a much greater risk to adverse lifestyle impacts, through disruption effects of melting sea ice and oil spill impairment due to acceleration of shipping activity, than people living in other coastal areas of the country. As a critical geographer, I contend that traditional, state-led governance arrangement to manage place-based risks needs to be critically examined. I believe that accepting that the Government of Canada is able to protect the waters offshore Nunavut is too simplistic and this thesis offers an alternative form of political action to position government alongside the people of Nunavut and Inuit organisations, such as the Inuit Circumpolar Council (ICC) to share responsibility for protecting the Arctic.

The ICC has attempted to achieve success in fostering a culture of collective governance on environmental management by seeking discussion and resolution of a matter of concern common to all Inuit. Inuit representation in the Arctic Council is an example, but again, my own epistemology guides me to challenge thought processes

that believe that place-based environmental protection can be served through circumpolar forums. This is because place-based protection, in my view, requires function-specific governance that takes into consideration social, economic and environmental interactions, which can be complex in remote and distant locations. In this thesis, I confront how vulnerable Nunavut communities can be brought into governance, rather than being excluded or marginalized. In conceptualizing new possibilities of governance, critical geography can then open a space of engagement to recognize and explore alternative modes of community representation that shift power relationships and reduce imbalances between the government of Canada and the Nunavut communities and other stakeholders, including NGOS, industry, academia and non-state organisations. If, as I believe, the Nunavut communities are at greater risk from the impacts of global climate change, then representational reform could enable them to have a greater voice in managing these risks. Completing this research has enabled me to reimagine how governance might be structured using both theoretical frameworks and empirical terms.

As a model of government, Nunavut is the only Canadian territory that has its origin through a land claim agreement (Rodon 2014). It creates a 'special set of obligations and entrenches a horizontal governance model between the Government of Canada, the Government of Nunavut, NTI which is a 'nonprofit beneficiary organization, representing the Inuit of Nunavut' (p.250). Rodon (2014) referred to Nunavut as a new type of sub-national unit that includes primarily Inuit and a form of self-governance. In Nunavut, there exist 'two poles of governance' (p.253). The Government of Nunavut is the 'public' pole responsible for daily governance and funded through the Government of Canada. The other is the Inuit pole, represented through NTI, which is not an Inuit government. NTI receives its funding through land

claims monies associated with land development and natural resource development royalties. In February 2020, NTI published a document through its Media page – *Inuit urge protection and preparation now – To avoid paying the ultimate cost*[9] – which is extremely timely in relation to the presentation of this thesis within the field of Arctic governance. More specifically, this document underscores the relevance of my research for the protection of Nunavut's marine environment in the face of emerging environmental risks. Parts of the media release, shown in the following section, address Inuit concerns and how NTI is looking toward governments, industry and other stakeholders to work together to address the potential threats to the marine environment. I provide extended comments from the media release that demonstrate Inuit concerns, expressed early in 2020, over the threat of oil spill impairment offshore Nunavut.

> Inuit voices were among those sounding an early warning regarding climate change many years ago, before the world started to heed the warnings of scientists around the globe. Then, and now, Inuit are witnessing firsthand the changes occurring in the Arctic and in our communities. Increasingly more ships are coming to the Arctic – as the earth's climate changes, ice recedes, waterways open. Inuit involvement in marine management by working with industry and governments to protect our ecosystems today and into the future is crucial.
>
> As Inuit, we are the custodians of this region and in turn, it provides for our needs, now and in the future. We continue to depend on the marine environment; we live on the coast, ocean, and rely on the sea ice. – Aluki Kotierk, President, Nunavut Tunngavik Incorporated
>
> The main concerns relating to the use of Heavy Fuel Oil by container ship are persistent contamination to the people and communities in the event of an oil spill, as there are currently no effective way to deal with an HFO spill in the Arctic, and the effects of black carbon emissions. As such, for over 15 years, ICC has engaged in discussions on safe Arctic shipping at the Arctic Council and recently through the International Maritime Organization (IMO).
>
> When the Government of Canada and the shipping industry commit to support vital Arctic infrastructure, including shipping, commit to being

[9] See www.tunngavik.com/news/inuit-urge-protection-and-preparation-now-to-avoid-paying-the-ultimate-cost/

> global leaders in the shipping community and show that vessels entering the Arctic must also comply to the highest environment standards, we all win. To help prepare for safe, responsible shipping in Arctic waters, the Canadian government (and other governments) may consider a refund scheme, tax credits, subsidies or other mechanisms to offset vessel retrofits to meet the highest standards to protect the Arctic marine environment, without forcing remote Arctic communities to bear the cost.
>
> These are difficult waters to navigate, on one hand we need protection for our Arctic waters and animals, and on the other hand we are told this protection will result in inflated prices of the already expensive goods we depend on. By working together, we will find a way forward to support the shipping industry, protect the environment and foster responsible community development. – Lisa Koperqualuk, Inuit Circumpolar Council Canada, Vice President International
>
> NTI and ICC's position is clear: As a country, we must take measures to ensure safe Arctic shipping in a manner that respects Inuit reliance on the land and ice. Inuit seek to work with industry and the government to effect change that will protect the Arctic marine environment and support its peoples.

While Inuit can exert authority through Inuit institutions to manage 'common affairs,' representation is not 'found at the level of implementation of policies or decision-making' (Pelaudeix 2012, p.187). Pelaudeix (2012) has argued for new balances of power between regional, national, and international actors through procedures to include Inuit, which focus on centre and periphery forms of governance. These are 'vulnerable populations when their political representation is deficient at the regional and national levels' (Pelaudeix 2012, p.182). Proposed seismic tests in Tallurutiup Imanga/Lancaster Sound function as a useful example to highlight the nature of interplay between Inuit organisations and the GOC to illustrate political power dynamics.

Seismic testing was scheduled in Tallurutiup Imanga/Lancaster Sound by a German scientific group using RV Polastern in 2010 (Wingrove 2000). Through an injunction, QIA requested that the testing be stopped, claiming it would result in the potential for significant harm to marine wildlife. In approving the seismic work, a judge

for the Nunavut Court of Justice ruled on August 8, 2010, that the GOC had not sufficiently engaged with Nunavut communities in decision-making and the testing was suspended. The Nunavut Research Institute (NRI) and the NIRB were proponents of seismic testing, while Nunavut coastal communities, as represented by QIA, did not participate in the decision-making process. QIA suspected that seismic testing was for the purposes of assessing the potential oil and gas entrapment in strata beneath Tallurutiup Imanga/Lancaster Sound, and not to delineate the extent of the continental shelf as indicated to the GOC. Lack of transparency and lack of engagement of actors with divergent or competing interests create issues, indicating that governance frameworks should be clear on intent to minimise dispute (Pelaudeix 2012). Pelaudeix added, 'A huge contrast exists between local issues in isolated communities entered on social and economic concerns, global environmental changes, and the internationalization of the economy' (Pelaudeix 2012, p.188). He commented further: 'Undoubtedly Inuit governance has reached a stage that requires new balances of power between regional, national, and international institutions therefore, a renewed reflection on centre and periphery to re-imagine the place the South could have in the North.'

It is important, in relation to this research, to reflect on epistemological construction of scale and how the inclusion of actors who, today, have weak or moderate power of influence with the GOC might be situated. This process requires inquiry into both how governance has historically been shaped and whether it is appropriate in the context of today's emerging environmental risks. Van Lieshout's (2014a) work on the concept of 'frames of subsequent episodes' is also relevant to this debate, as it allows us to theorise anticipatory processes that would bring together actors to confront and determine what 'sufficiency of governance' means in terms of capacity-building and the availability of resources proximal to potential spill locations.

Karkkainen (2004) has argued that 'a post-sovereign' account of environmental governance is needed to analyse emergent hybrid, problem-solving governance arrangements' (Karkkainen 2004, p.88). A conceptualised arrangement that includes the GOC, the GN, Nunavut communities, NGOs, industry, and academia when 'spatial and conceptual boundaries are defined not by reference to fixed, territorial jurisdictional lines' (Karkkainen 2004, p.77) would be innovative. Further, such an arrangement could facilitate a positive disruption to the current governance arrangement and, in doing so, enables us to conceptualise a new form of governance that considers the re-construction of the epistemological scale and the inclusion of actors that remain marginalised or excluded in today's governance structures.

In Nunavut, the completion of environmental assessments are administered through the Nunavut Land Claims Agreement (NLCA) and the Nunavut Planning and Project Assessment Act (NuPPAA).[10] In addition, three co-management boards, the Nunavut Planning Commission (NPC), the Nunavut Impact Review Board (NIRB), and the Nunavut Water Board (NWB) manage regulatory and other project oversight tasks in the territory. NIRB is responsible for both the screening and impact assessment of proposed development in Nunavut. One such example is associated with the approvals and permissions of copper mining at Mary River, Nunavut. NIRB is active in the review and approvals process and the preparation of Screening Decision Report that are delivered to the responsible GOC Minister. This report includes a full environmental and socio-economic impact review due to potential significant environmental impacts and land reclamation plans to return project development proposals to the claimant for abandonment of the mine site.

[10] Available at www.rcaanc-cirnac.gc.ca/eng/ (accessed December 12, 2016).

Mary River is in the Qikiqtani Region of Baffin Island. Baffinland is a Canadian open-pit mining company that mines iron ore. It is a producer of high-grade iron ore with corporate head offices in Oakville, Ontario, Canada. Baffinland also operates a regional office in Iqaluit, Nunavut to service its northern operations.[11] In 1986, Baffinland started exploration and development of the Mary River property. On April 29, 2014, the Federal Minister of Aboriginal Affairs and Northern Development Canada approved the positive recommendation by the NIRB. Based on an Early Revenue Phase (ERP) approval was given for seasonal shipping of 3.5 million tons of iron ore from Milne Inlet on the north coast of Baffin Island. Mining operations include a phased development approach pursuant with agreements made with Inuit corporations: Nunavut Tunngavik Inc. (NTI),[12] the QIA,[13] and the Government of Nunavut. Baffinland transports ore from the mine using trucks to Milne Port and ships to markets from Milne Port during the open water season. Acceleration in the shipping of ore from Milne Point through Baffin Bay is increasingly raising concern (Nunatsiaq News 2020).

Some of these concerns are expressed in a memo on February 11, 2020, from Greenland's directorate for environment and nature to the Government of Canada. It states that 'The iron ore has to be transported down through Baffin Bay for processing in Europe, and there are severe environmental impacts both in Canada and along West Greenland that will affect wildlife in Greenland, and probably also for hunting and fishing.' According to the memo, the two major environmental issues are ice breaking and noise disturbances caused by shipping that could affect marine mammals. Baffinland is proposing to increase shipping activity to 176 voyages per year (transit to and from the Milen Point) up from 71 voyages made in 2018. These voyages are

[11] Available at www.baffinland.com/media-centre (accessed May 13, 2020).
[12] Available at www.tunngavik.com (accessed May 13, 2020).
[13] Available at www.qia.ca (accessed May 13, 2020).

planned during a 137-day period, between July and mid-November. Under the Convention on Environmental Impact Assessment in a Transboundary Context, also known as the Espoo Convention (because it was signed in Espoo, Finland, in 1991), Denmark is asking to be included in a shipping assessment through Baffin Bay.[14] It is a convention of the United Nations Economic Commission for Europe and it defines the obligations of all signatory countries to notify and consult one another on projects with environmental impacts that cross international borders. According to Nunatsiaq News' May 13, 2020 report, Canada's Impact Assessment Agency wrote to NIRB, which is currently overseeing the assessment of Baffinland's expansion plans, at Denmark's request. At issue, is that Canada signed the Espoo Convention, and did so under a restriction that it would apply only to environmental assessments under federal jurisdiction. NIRB's recommendations have been put forward to the Government of Canada for a final decision on Denmark's request for an assessment. On these grounds, expansion of Baffinland's operation and shipping activity could be seen as being under federal jurisdiction and not Nunavut institutions. At the community level, Pond Inlet, Nunavut is the closest hamlet to Mary River and Inuit staff are included in the field work portion of environmental monitoring, but often excluded in data analysis and report preparation. This provides socio-economic benefit to Pond Inlet residents and further expansion of the operation will provide more employment opportunities not only directly through job creation at Mary River, but also indirectly for residents in the community that work in support of associated with travel, lodging and supply logistics. Baffinland has a goal having Inuit be 50 percent of the workforce in aspects of the mine, including environmental management.[15] Right now, 367 employees of Baffinland

[14] Available at www.unece.org/.../documents/legaltexts/Espoo_Convention (accessed May 22, 2020).
[15] Available at www.baffinland.com (accessed May 18, 2020).

are Inuit and employment levels would have to increase to around 500 to reach the 50 per cent goal.

Baffinland is a good example of how the extractive industry provides upside opportunities for socio-economic development but also introduces risks to the natural environment and lifestyles of community residents, especially as it relates to potential adverse impacts to marine mammals and other types of wildlife associated with the disturbance of Arctic waters. It also demonstrates the complexity of interplay that can exist between state, provincial, and local institutions in terms of legally and non-legally binding administrative, regulatory and legal frameworks. The realism of the new Arctic is that as sea ice melts parts of these northern latitudes that were not previously accessible will be attractive geographical targets for those that seek economic gain to exploit. Much of this access will be via the navigable routes through the Canadian Arctic, and including Tallurutiup Imanga/Lancaster Sound, by bulk container ships such as those used to carry copper ore, sea lift operators that deliver supplies to coastal communities, cruise ships, freighters, and oil tankers.

1.4 Tallurutiup/ Imanga/Lancaster Sound as a Space of Engagement and a Vulnerable Risk-Scape

Tallurutiup Imanga/Lancaster Sound is the homeland of the North Baffin Inuit and is located off the North Baffin coastline in Nunavut, Canada (Dobbin et al. 1983). Approximately 400 km long and 100 km wide, Arctic cod thrive in this region, and support a prolific ecosystem by providing a primary food source for one of the richest marine mammal populations in the world.

Beluga whales, bowhead whales, narwhal, walrus, and ringed, harp, and bearded seals use the waters for feeding and reproduction. Furthermore, it is habitat to several million seabirds, including the northern fulmar, dovekie, black-legged kittiwake, thick-

billed murre, black guillemot, and snow goose, in concentrations not found anywhere else in the Arctic. It serves as the eastern gateway to the NWP and, therefore, provides a useful case study to situate environmental governance at a spatial and functional scale, in the context of the Canadian High Arctic. Its location is shown in Figures 1.3 and Figure 1.4.

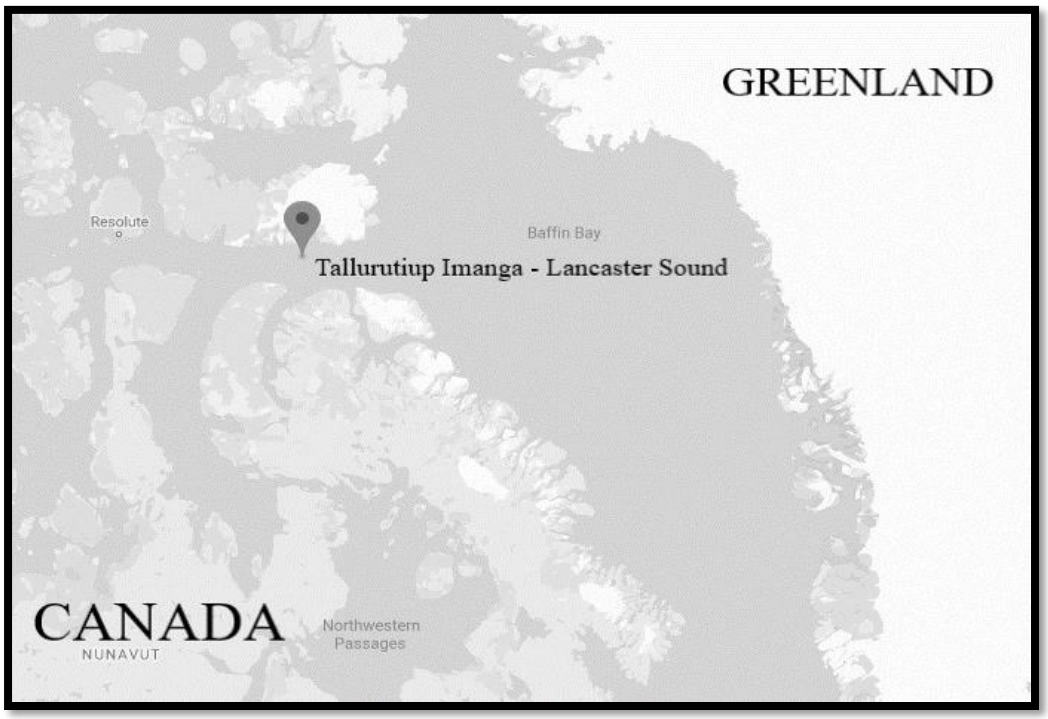


Figure 1.3 The location of Tallurutiup Imanga/Lancaster Sound, Nunavut. Reproduced from Google maps.

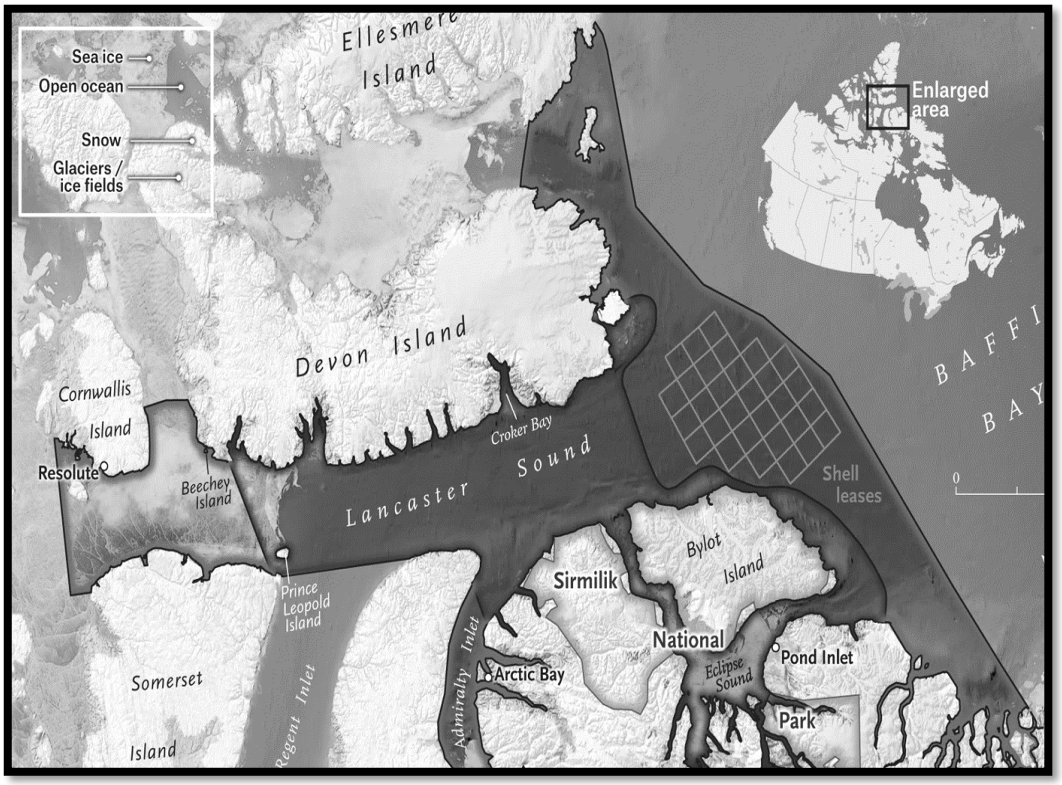


Figure 1.4 The location of Tallurutiup Imanga/Lancaster Sound, Nunavut relative to Baffin Bay, Devon Island and Baffin Island. Reproduced from candiangeographic.ca

Oil tankers, freighters, community supply ships, and cruise ships that could spill oil or other contaminants introduce risk profiles that include the potential for collision with ice and other ships, as well as grounding on coastlines, because of adverse weather and darkness, poorly developed hazard assessment, and a lack of defined shipping corridors (Afenyo et al. 2017). All vessels that enter the eastern waters of the Canadian archipelago need to pass through Tallurutiup Imanga/Lancaster Sound. It functions as a useful case study for the purposes of this thesis as it is a natural bottleneck and a navigational ‘risk-scape’ for shipping that enters and exits the NWP, due to the possibilities of collision and grounding.

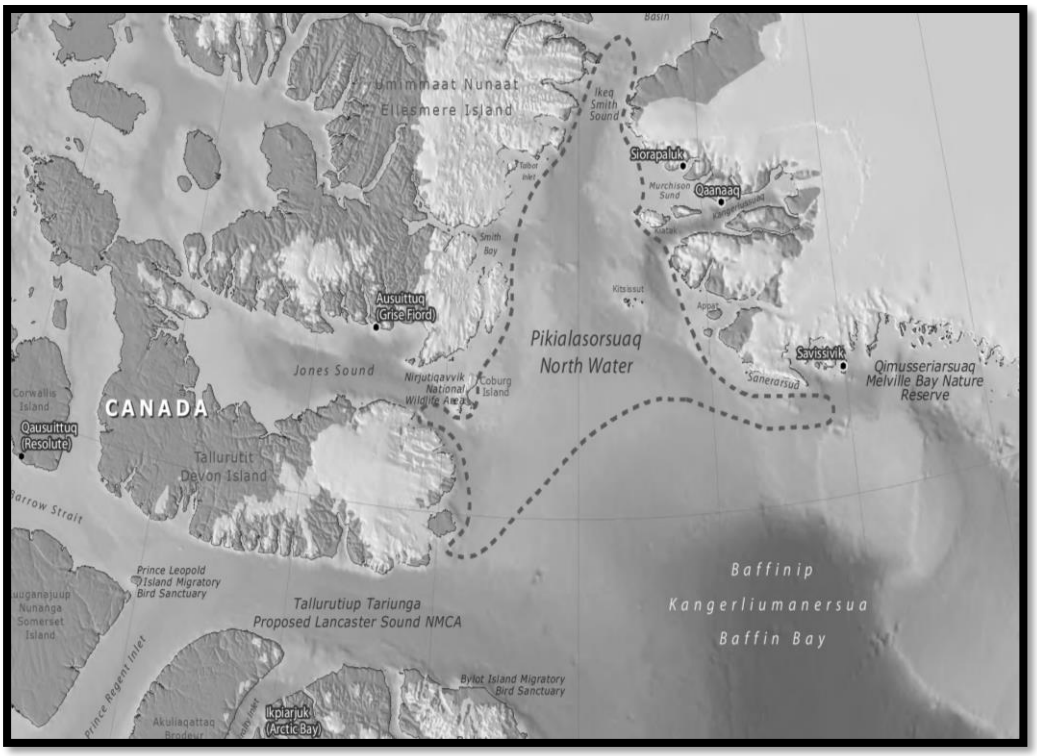


Figure 1.5 A map of upper Baffin Bay shows the North Water Polynya, or Pikialasorsuaq. Reproduced from Pikialasorsuaq Commission.

Tallurutiup Imanga/Lancaster Sound is also proximal to the North Water Polynya (Polynya), which is significant, as it is a source of heat and moisture to the atmosphere and affects weather conditions in the surrounding areas (Pew Charitable Trusts 2011). It is essential for Arctic birds and wildlife feeding, reproduction, and migration, as the upwelling currents carry nutrients to the surface and phytoplankton thrive in the Polynya. Migration of free-phase oil (floating on the water surface) and dissolved oil constituents in the waters of the Polynya resulting from release into the Tallurutiup Imanga/Lancaster Sound could have devastating impacts on the natural environment, as shown in Figure 1.5 (Ducharme 2017).

In the 1980s, the International Union for the Conservation of Nature (IUCN) identified Tallurutiup Imanga/Lancaster Sound as a location worthy of World Heritage

Status (IUCN 2017).[16] It was also identified as a Super Ecologically and Biologically Significant Area for the Arctic by IUCN and the Natural Defense Fund in 2010. Parks Canada, in conjunction with the GN and the QIA, has secured the designation of Tallurutiup Imanga/Lancaster Sound as a National Marine Conservation Area NMCA (Parks Canada 2017). Following agreement between Canada's Minister of Environmental and Climate Change and Parks Canada, Nunavut's Minister of Environment, and the QIA on its boundary in 2017, it has become the largest maritime protected area in Canada. The NMCA designation confirms a moratorium on future offshore oil and gas exploration and development, but not shipping. It protects Inuit harvesting rights, guaranteed through the Nunavut Agreement, and is aimed at the protection of species at risk. Long lasting benefits for Inuit are provided for through an Inuit Impact Benefit Agreement (IIBA), which was triggered by establishment of the agreement on the boundary of Tallurutiup Imanga/Lancaster Sound. The agreement prevents further oil and gas exploration activities, including seismic studies. Signatory parties to the agreement provided comments that are useful in situating Tallurutiup Imanga/Lancaster Sound within the context of ecological impact and the concern for its protection. These include:

> Protecting this area is critically important. Like most of the Arctic, the region is threatened by climate change. Rising temperatures and melting sea ice are shrinking habitats and putting vulnerable sea life under pressure. Inuit, who for millennia relied on these species for food, clothing, and shelter, have found their livelihoods endangered and their futures at risk. By protecting Tallurutiup Imanga/Lancaster Sound today, we are helping preserve a rich legacy for tomorrow. We are creating a buffer against the threats of climate change and protecting against the stressors of human encroachment. We are implementing a sensible and integrated plan that will sustain biodiversity and sustain traditional ways of life.
>
> -The Honourable Catherine McKenna, Minister of Environment and Climate Change, and Minister responsible for Parks Canada

[16] Available at www.iucn.org/news/protected-areas/201708 (accessed November 18, 2017).

> The designation of this protected area is an important achievement for Nunavummiut, and one we should all celebrate. Inuit have always been guided by our societal value of Avatittinnik Kamatsiarniq, to respect and care for the land, animals, and the environment. As the stewards of our resources, it is up to us to find the balance between responsibly developing our resources and protecting and sustaining the land and the life it supports. I'm honoured to be part of this important step forward together.
>
> -The Honourable Joe Savikataaq, Nunavut Minister of Environment
>
> Today is an important day for Inuit because of the profound significance of Tallurutiup Imanga/Lancaster Sound to our communities. This area is the cultural heart of the region; these waters thriving with marine life have supported the lives of Inuit since time immemorial. For almost five decades, Inuit have strived to ensure these incredible resources continue to provide for our culture, our traditional way of life and our survival. Through the establishment of the Inuit Impact and Benefit Agreement, Inuit in this region will continue to benefit from this marine area and grow and prosper into the future.
>
> -P. J. Akeeagok, President of the QIA

In September 2017, NIRB was requested by Indigenous and Northern Affairs Canada (INAC) [17] pursuant to Section 12.2.4 of the Nunavut Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada to complete a Strategic Environmental Assessment (SEA) of Tallurutiup Imanga/Lancaster Sound, Baffin Bay and Davis Strait to consider potential impacts of oil and gas related development.[18] The assessment will identify the range of possible offshore oil and gas activities, physical, biological, and socio-economic components, and questions and concerns to consider throughout the SEA. The report will be submitted to the Minister of INAC for consideration, and it will inform the five-year

[17] Available at www.canada.ca/en/indigenous-northern-affairs (accessed January 3, 2019).
[18] Available at Draft Scope for the NIRB's SEA in Baffin Bay and Davis Strait, NIRB File No.: 17SN034, P.O. Box 1360, Cambridge Bay, NU X0B 0C0 (issued September 11, 2017; accessed January 4, 2019).

review of the GOC's decision to designate Canadian Arctic waters as off-limits to future oil and gas licences.

Another determining factor in the selection of Tallurutiup Imanga/Lancaster Sound for this case study was that WWF-Canada commissioned a study to model a hypothetical bunker fuel spill under open water and ice-covered scenarios at a spill location just off the main shipping route (WWF-Canada 2016). The hypothetical spill site was in Eclipse Sound, which is part of Tallurutiup Imanga/Lancaster Sound, and located just off the northwest coastline of Bylot Island. The hamlets of Pond Inlet and Arctic Bay, Nunavut are the closest communities to the hypothetical spill location approximately 140 km to the southeast and southwest, respectively.

Using stochastic analysis, the minimum time for oil to reach shore was about five hours in open water conditions, and 15 hours in ice-covered conditions, which could make for a challenging response effort given that the closest infrastructure with response equipment is in Halifax, Nova Scotia, 3,324 kilometres away (see Figure 1.6). Travel time to Arctic Bay from Halifax is four hours by plane and at least three days by marine transit via Davis Strait, Baffin Bay, and Tallurutiup Imanga/Lancaster Sound. No marine response equipment is in the Tallurutiup Imanga/Lancaster Sound region, and the unstaffed caches denoted in Figure 1.6, include terrestrial spill response equipment only. Stochastic modelling demonstrated that a bunker fuel spill in open water conditions had a high probability of causing oiling of Tallurutiup Imanga/Lancaster Sound shoreline above an ecological threshold of 100 g/m2, with 98% of trajectories reaching shore at some locations. In ice-covered conditions, the probability of shoreline oiling was greatly reduced, with only 23% of trajectories reaching shore above the ecological threshold during the simulation (WWF-Canada 2016).

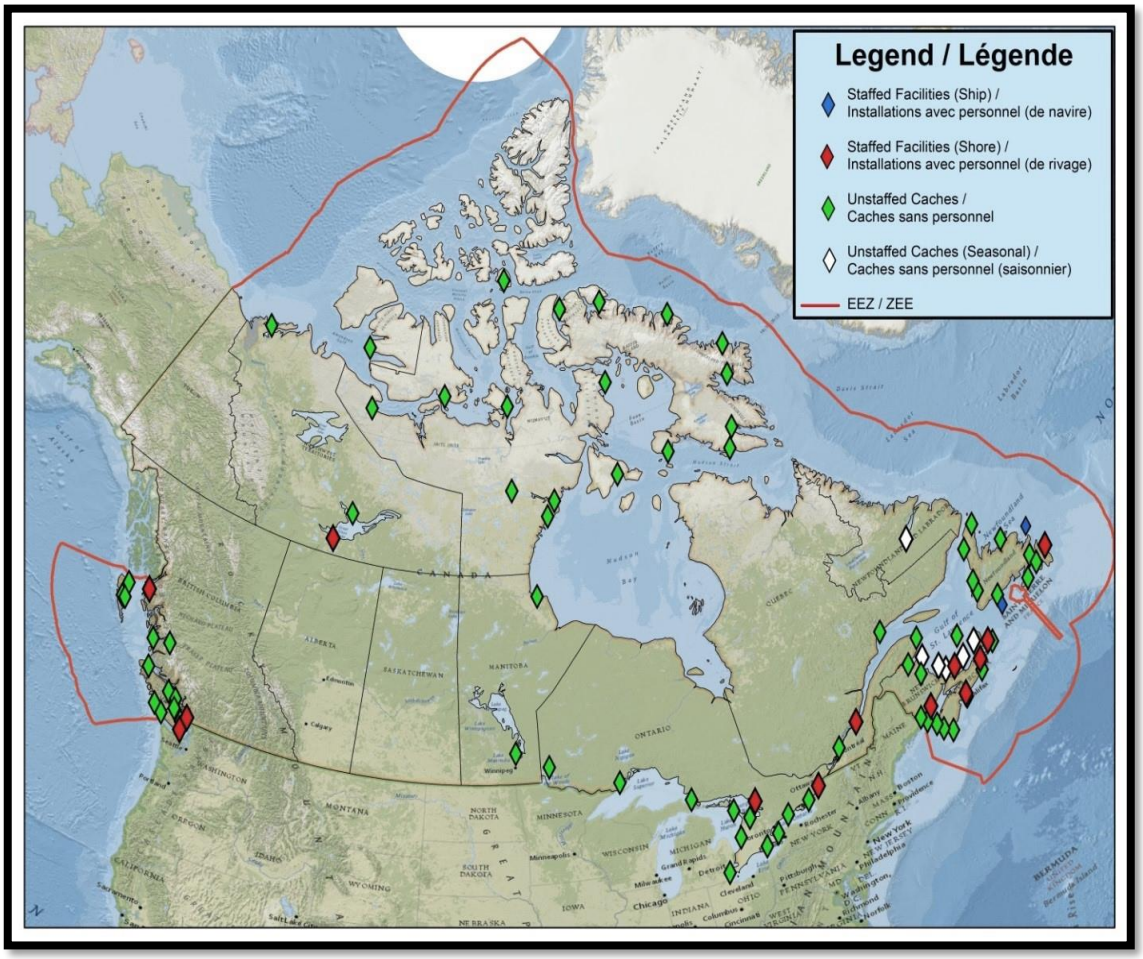


Figure 1.6 Marine response equipment located throughout Canada.

In terms of Nunavut offshore marine protection, the Nunavut Marine Council (NMC) was established by Section 15.4.1 of the *Nunavut Agreement*, which allows the NWB, NIRB, NPC, and NWMB to individually, or as a group, advise and make recommendations to the Government of Canada and the Government of Nunavut on marine areas of the Nunavut Settlement Area. Government must consider such advice and recommendations in making decisions that affect marine areas.[19] In addition, the

[19] https://nwb-oen.ca/licensing/marine_council

QIA (Nunavut) engages with the Government of Canada's Ocean Protection Plan initiatives to consider and potentially establish resources based in Nunavut for marine safety.[20] The Oceans Protection Plan is the largest investment ($1.5B) to protect Canada's coasts and waterways and collaboration with Inuit and Indigenous peoples, local stakeholders, and coastal communities is reported to be ongoing.

In contemplating development of Arctic marine waters for shipping, critical examination is required to assess how prevailing governance has been shaped and is operationalised to address the nature of environmental risks and to protect the marine environment and coastal community lifestyles. Specific to shipping activity in the Canadian Arctic, in September 2009, Admiral Nils C. Wang of the Danish Royal Navy commented:

> 'Many predictions have been made about the opening of the Northwest Passage to make the area navigable for normal cargo shipping. Some believe it will happen in just five years, others say 2030, while there are those who believe that it won't happen until even further down the line. But it is only necessary to look at what the industry and markets are doing. If it pays to do so, then industries will declare that new shipping routes are open' (Wang 2009).

Ten years later, the shipping companies have responded to the market and the navigable routes through the Arctic region are now open. The Arctic Marine Shipping Assessment (ASMA) prepared by the Arctic Council (the inter-government forum that is led by Arctic states) and released on 2009, provides valuable insight into the future of Arctic shipping activity (Arctic Council 2009). ASMA introduced a framework that would assist the residents of Arctic states to confront challenges associated with the environment protection of the marine environment. A key finding was that the release of oil in the Arctic marine environment is the most significant threat associated with

[20] Available at www.canada.ca/en/transport-canada/news/2019/08/government-of-canada-partners-with-inuit-and-indigenous-communities-in-oceans-protection.html (accessed December 5, 2019).

shipping activity (Barnet and Nicandri 2015). A lack of port facilities, especially in the Canadian Arctic, was also identified as a severe limitation in being able to respond to a release while safe navigation not assured due to sparse hydrographic date and the lack of meteorological and oceanographic networks. AMSA brings attention to how the sparse infrastructure hamper marine safety, search, rescue, and makes protection of Arctic waters from oil spillage a very real concern. In exploring how changing climatic conditions and the melting of Arctic sea-ice is shaping mankind's activities it requires an awareness of how commercial development opportunities are provoking anxiety and in the context of what is actually meant if the Arctic is now an open traffic corridor for shipping (Dodds and Nuttall 2019). It means we need to cast aside romantic notions that have existed for centuries and face the reality that the 'Arctic is no longer seen as an icy, remote space at the top of the world, but a frontier for resources, offering new markets for investment in economic initiatives and sustainable development, technological innovation, and knowledge production' (Dodds and Nuttall 2019, p.178). Presentation of this thesis to the social sciences is, therefore, extremely timely to introduce new perspectives on how today's governance arrangements can be re-conceptualised and framed in consideration of a broad range of behavioural perspectives. It is specific to how existing policy shaping and decision-making might be disrupted to protect the Canadian Arctic from potential oil spill impairment.

1.5 Coupling Climate Change and the Emergence of Environmental Risks

How the future of humankind will be shaped through the warming of planetary conditions is the subject of plentiful research (McNutt 2013; Overland 2010; Stephenson et al. 2018). Atmospheric and ecological scientists, oceanographers, politicians, non-government organisations (NGOs), and business communities are

engaged in the assessment of how social-economic, marine, and terrestrial ecosystems systems might respond. Debates on how governments need to include climate policies in development strategies for energy, transportation, demographic planning, and the sustainability of communities will become increasingly complex, and accommodative of an array of stakeholder interests (IPCC 2019). No place on the planet is perhaps more vulnerable to climate change than the Arctic, which makes knowledge generation critical to the support of policy-shaping and decision-making in that region (Ford et al. 2012; Ford and Pearce 2010).

Surface air temperatures in the Arctic region have warmed at approximately twice the global rate (IPCC 2019). As previously mentioned, one consequence of this is that the melting of sea ice is resulting in an increase in coastal storm surges and the thawing of permafrost which accelerates shoreline erosion (Vermaire et al. 2013). Wind patterns are becoming more variable, according to Saami reindeer hunters in Norway, and the Inuvialuit in the western Canadian Arctic have reported that more thunderstorms and lightning, which are historically rare, are occurring in this region (Overland 2010). Bird and insect species not previously encountered in Nunavut are present, while, according to Inuit hunters and trappers, ringed seals are in decline (IPCC 2019).

Cunsolo et al. (2012) refer to five impacts, all interrelated and associated with climate change, that impact Inuit lifestyles and their environment. These are: 1) ‘alterations to tangible, environmental place,’ 2) ‘changes to individual and collective senses of place-attachment,’ 3) ‘disruption to place-specific socio-cultural activities,’ 4) ‘transformations in the mental conceptions of place,’ and 5) alterations to place-based identities held individually and collectively’ (p.539). The description of place by Cunsolo et al. can be applied to the terminology I use in this thesis to identify the North

Baffin locations as ‘place-based,’ ‘coastal communities,’ ‘spatially-bound,’ and Tallurutiup Imanga/Lancaster Sound. Tallurutiup Imanga/Lancaster Sound was selected as a case study because it is a vulnerable place that is unprotected from the adverse impacts to community lifestyles and wellness that could result from oil spill impairment of the marine environment. The argument by Hess at al. (2008), as quoted in the work by Cunsolo et al., helps position the significance of this research in terms of how inclusion of knowledge, resources and wellbeing unique to Tallurutiup Imanga/Lancaster Sound and coastal communities is or is not situated in today’s governance. Hess et al. (2008) stated:

> emphasizing place highlights climate change’s effects where they are most acutely felt, where local strengths are best understood, where place attachment can be leveraged most effectively and where residents will reap the benefits of adaptive measures promoting sustainability and liveable communities. (p.476)

Acceleration of shipping in Tallurutiup Imanga/Lancaster Sound is introducing oil spill risk that, even if it never occurs, can lead to the five interrelated impacts to ‘place’ identified by Cunsolo et al. (2012). As such, the contemplation of place and place-based attachment is fundamental to our analysis of prevailing governance and in the conceptualisation of new arrangements. Such attention has ‘the potential not only to highlight regions of susceptibility, but also to encourage and understand factors behind motivation and action’ (Cunsolo et al. 2012, p.545; Ford et al. 2006). An interviewee in the study by Cunsolo et al. (2011) stated ‘community health is related to preparedness and how well you can fit within a new world and a new reality’ (p.546). No different then, to the protection of the marine environment through oil spill mitigation preparedness.

While adverse impacts to the Arctic environment are occurring because of human disposal of PCBs, POPs, plastics, and other waste products into oceans, the focus of this thesis is the sufficiency of prevailing governance to mitigate damage resulting from an offshore oil spill, if it ever were to occur as a result of an offshore shipping accident (Hung 2016).[21] In 2008, the Northern Sea Route (NSR) and the Northwest Passage (NWP) were both ice-free for the first time in recorded history (Fairhall 2010). The NSR follows the Arctic waters across the northern coastline of Russia from the Beaufort Sea to the Barents Sea, while the NWP follows a series of navigable routes through the Canadian archipelago and connects the Atlantic and Pacific Oceans (Figure 1.7).

[21] PCBs and POPs are examples of other forms of environmental degradation that threaten Arctic residents more so than in more southerly latitudes as these substances bioaccumulate in fatty tissues and blood of food sources used for subsistence such as marine mammals, seabirds, and fish (Stokke 2014). Inuit of the Canadian High Arctic have among the highest PCB concentrations in the world, which makes children who are dependent on breast milk vulnerable to health risks. In Svalbard, north of mainland Norway, the levels of PCBs in polar bear measured in fat and blood are reportedly some of the highest in the world; similar trends have been identified in Franz Josef Land within the Russian archipelago (Stokke 2014).



Figure 1.7 Arctic shipping routes – Northwest Passage and Northern Sea Route. (Source: Image/photo courtesy of the National Snow and Ice Data Centre, University of Colorado, Boulder).

If the Canadian Arctic undergoes rapid transformation, in terms of adverse impact(s) resulting from an offshore oil spill, the Government of Canada (GOC) will be held accountable by stakeholders to protect the marine environment and to preserve human welfare and societal well-being (Simon 2011). To evaluate this potential scenario, this thesis explores whether prevailing policies are sufficiently precautionary in nature to protect against a risk that may or may not emerge, or whether policies would be developed and implemented only after adverse impact has been realised

(Mastrandrea and Schneider 2010; IPCC 2019). Commentators across an array of stakeholder groups are calling upon the GOC to act now and to protect its northern waters before there is an incident that triggers impairment (Ford and Smit 2004; Furgal 2008; Prno et al. 2011). For this reason, I believe it is timely that a critical analysis of prevailing governance be undertaken to examine whether these waters are being protected and whether measures are in-place to respond to an offshore incident. In doing so, this thesis examines how the Canadian High Arctic is protected from the adverse impact of an oil spill and what gaps in governance exist. It contemplates alternative forms of precautionary arrangements to protect the Arctic marine environment based on the identification of gaps in policies and explores possibilities of implementing impairment measures in consideration of stakeholder interests. Canada's leading Arctic experts recognise that emergent risks need to be managed, and the subject matter of this thesis contributes to this debate and the efficacy of how policy-shapers and decision-makers are confronting the governance of the vulnerable environments (Higginbotham 2016). While the Arctic is at the core of Canada's identity (Higginbottom 2016; Huebert 2011), those who reside in the Canadian Arctic acknowledge that such identity does not translate into operationalised forms of governance that are able to protect the homeland of the peoples of the North (Inuit Tapiriit Kanatami 2018). While debates on this topic should include the engagement of indigenous peoples who depend on the marine environment for their livelihoods, these voices remain passive in today's southerly-situated governance structures (Hossain 2013a). This thesis confronts the 'passiveness of voice' by asking how Canadian Arctic communities actively participate in the shaping and implementation of measures to protect their homeland environment. Climate-change is causing the residents of these communities to question their role in the consideration of social, economic, and

political interests, as it relates to environmental impact, and the pathways that exist for their engagement in High Arctic governance (Meek 2011). Despite agreement that commercial development introduces environmental risk, the means to effectively manage such issues are poorly understood (Prno et al. 2011). For this reason, I believe there exists a 'window of opportunity' before impairment occurs, to bring focus to all actors that there is a pressing need to recognise that 'current social issues in northern communities are intertwined and might benefit from integrated, cooperative approaches' (Prno et al. 2011, p.17) to the environmental governance of oil spill preparedness and response.

It is striking that Canada does not have oil spill response and post-spill monitoring resources that are permanently located proximal to a potential marine spill in its Arctic waters (Simon 2009). As such, it is important to contemplate the potential consequences of an oil spill in the context of what needs to be governed. If gaps exist, it is imperative to consider protectionist measures, in alignment with vulnerability and the nature of emergent risks (Ford and Smit 2004). These authors consider vulnerability as a function of both exposure-sensitivity and adaptive capacity. Exposure-sensitivity reflects the likelihood of a natural hazard occurring and the situational characteristics of a community that make it sensitive to the hazard. Adaptive capacity refers to a community's ability to cope with exposures and is reflected in the community's management of current and past stresses, its ability to plan for future change, and its resilience to perturbation (Ford and Smit 2004). Vulnerability is related to the nature of a potential stimulus, physical location and characteristics, governance, economic situation, social parameters, and political systems. Casting an eye towards the cold waters of Prince William Sound and the warmer waters of the Gulf of Mexico, images of oil recovery efforts should remind us that the interruption of shipping normalcy did

occur and the unexpected happened. Exxon Valdez and Deepwater Horizon are examples of impairment that triggered government policies to be re-shaped and measures implemented, but only after the 'certainty' of adverse impact was realised. Today, I believe that the 'window of opportunity' does exist because scholars, politicians, and scientists are in a position to imagine new forms of protectionist measures that pre-empt environmental impairment. Through such imaginative thought processes, how the potential impacts of climate change on humankind's activity in the Canadian Arctic might be governed, may be conceptualised.

Ford et al. (2012) encouraged the scholarly community to explore new research domains that are beyond biophysical sciences, to assess, using *intervention studies*,[22] the impact that climate change is having on Arctic communities, specific to the wellness of residents in these vulnerable communities. Lessons from Exxon Valdez and Deepwater Horizon teach us that post-spill analysis and monitoring of communities has identified mental wellness concerns related to the diminishment of lifestyle quality, the loss of employment and the loss of income, and the impact to their environment and lifestyles. Therefore, research that examines wellness prior to a potential spill in waters proximal to Arctic communities, and how a potential spill might introduce wellness concerns, would make a major contribution to a body of knowledge on Arctic governance. As such, the topic of how actor engagement might be imagined to generate and apply knowledge for the 'governance of wellness' is confronted in this thesis. Understanding actors' roles in the context of governance gaps can then allow

[22] Ford et al. (2012) define an intervention study where an investigator intervenes and then studies the effects of the intervention. Investigators might then be able to construct evidence-based development of practices to improve wellbeing. They also note that, for participants in an intervention study, the overall benefits and risks of the intervention being studied are uncertain. Further, Ford et al. (2012) points out that there is also the potential for harm and intervention studies need to be completed using ethically sound practices. Ford identifies that there is also greater potential for commercial influence in some intervention studies and, as such, conflict between commercial interests and communities can occur.

alternative forms of governance to be conceptualised using theoretical frameworks and to assess reconstruction of epistemological scale frames. Now though, it is necessary to define the term actor and how it is applied in this thesis in the context of policymaking, decision-making, and the implementation of actionable measures.

1.6 Actor and Elite Representative – Role Definition and Applied Usage

Used in this thesis, an actor is a political or non-political institution or person that has influence, or perceived influence, to shape, design, and implement governance actions. An actor's role can be shaped and influenced through processes of institutionalization and follow formal or informal directives. An actor could be constrained and have restricted discourse through the setting of boundaries around expressed opinion. Whether an individual actor is a rule-maker or a rule-taker within an institution is likely to reflect preferences and identities aligned with institutional sentiment. Actors that are rule-makers, through their own entity mat take existing rules as a starting point to redefine their own identities. A perspective to consider on the duality of actors and institutions is that 'institutions are produced and reproduced by the strategic behaviour of actors, even while actors are constrained by institution' (Aoki 2007, p.8). Accordingly, if institutions shape actor behaviour and are intrinsically connected, as it is their actions that create them, an actors' role is then a variant and is not fixed in the sense of prescribed institutional thinking or normative behaviour. If not fixed, then an actor can play a meaningful role in the shaping of governance. A constellation of actors, within and between institutions, could then positively challenge prevailing governance and work together. In doing so, existing institutional behaviour can shift to become increasingly accommodative of actor interests and promote further changes through adaptive policy-shaping, decision-making and the operationalisation of

agreed upon measures. In this research, I identified an institution as an actor, and then determined within that institution who are the elite representatives. By elite, I refer to a person with expert knowledge or unique insight that can contribute sources of knowledge through a position of authority or influence. In the context of this thesis, actors and elites, within actors, are those that are, or can be, positioned in governance arrangements to protect the Canadian Arctic from environment impairment, resulting from an offshore oil spill. To confront this complex aspect of environmental governance, research questions were constructed to promote knowledge on the adequacy of prevailing governance to protect the Canadian High Arctic and, if gaps exist, the ability to promote alternative arrangements.

1.7 Research Questions and Thesis Structure

The research is positioned to understand how state and non-state actors have shaped prevailing governance of the Canadian High Arctic, to identify gaps in governance in policymaking, and to conceptualise an alternative framework that provides protection in the face of emergent environmental risks. To achieve this aim, three research questions need to be answered. Firstly, who are the actors in prevailing governance and what is the nature of interplay between them? Secondly, how is construction of scale shaped by power dynamics of actors? In understanding power relationships, we can then analyse whether some actors are marginalised, or if others are excluded in the governance framework. Thirdly, what form of governance structure can be conceptualised to re-construct scale frames that are better able to protect the environment and community lifestyles? This thesis is organised in order to provide the reader with a clear understanding of how the aim of the research has been accomplished

and how the findings of the research questions were addressed to contemplate a new and innovative form of governance.

Chapter 2 (Environmental Governance) builds upon the introduction in which the Arctic is introduced to the reader and situates it as a region that is home for peoples that have dwelled there for thousands of years. It is a place that is undergoing rapid transformation as a consequence of climate change and the melting of sea-ice, which is resulting in the opening of navigable routes for shipping, associated with trade, tourism, and natural resource development. As a vulnerable risk-scape, Tallurutiup Imanga/Lancaster Sound is introduced as a place-based case study to conceptualise a new form of governance to protect Canadian Arctic waters from spill impairment.

In Chapter 2, an analysis of existing scientific research and policy work to explore governance in the context of the Arctic environmental protection is provided. The historical basis for the promulgation of multinational, state, and regional governance structures is then examined in the context of today's arrangements. Prevailing scalar politics are analysed to identify the power and influence of the key actors, either prescribed legally or self-imposed, in policy shaping and decision-making. Critique of controversies, conflicts, collaboration, and cooperative attributes of governance is integral to developing an understanding of how actor interests interact and the power-relationship dynamics that exist between them.

In Chapter 3 (Prevailing Governance in the Canadian Arctic), environmental protection in the Canadian Arctic is analysed in the context of historical binding and non-binding regulations and guidelines. This chapter explores the rationale for protectionist measures. Further, it addresses how climate change and the emergence of environmental risks necessitate a critical examination of the appropriateness of today's governance arrangements.

In Chapter 4 (Research Framework and Methodology), the rationale for the qualitative research methods are presented, including how research participants were selected, how interviews were scheduled and conducted, and how interview data was captured, codified, and analysed.

Chapter 5 (Participatory Governance in the Context of Multi-Level Engagement) then positions the emergence of environmental risks as a philosophical driver of futures: to 'bring them forward' in the sense of emergent risks and precautionary logic. This chapter argues that the engagement with precautionary logic can shape our thinking on how governance might be imagined to mitigate a type of impairment risk that would have been difficult to envisage before the rapid melting of Arctic sea-ice and the opening of navigable shipping routes. Plentiful scholarly work exists within the field of environmental governance that demonstrates that protectionist measures are introduced, all too often, *after* ecosystems and coastal community lifestyles have been adversely impacted (Huntington et al. 2012). Prince William Sound and the Gulf of Mexico provide good examples of how impairment could have been mitigated through preparedness planning and the inclusion of actors as contributors of knowledge and resources.

Aware of potential risks to the Arctic marine environment that can result from an offshore oil spill, this thesis explores how a new form of environmental governance in the context of the adequacy of today's governance arrangements could be imagined. If it cannot, what alternative form of governance might be suitable in the context of emergent environmental risks and the acceleration of commercial development? This inquiry allows us to contemplate governance, in terms of the sufficiency of today's arrangements and how governance might be imagined through different structures. No such inquiry has yet been made specific to oil spill governance in the Canadian High

Arctic. This thesis, therefore, represents a meaningful contribution to the social sciences that, I believe, could be transformational in how environmental protection is imagined with regard to oil spill impairment. 'Bringing the future forward' is a temporal dimension of governance that would allow us, as social scientists, to adopt a pro-actionist stance to improve protection of the natural environment and the lifestyles it supports.

The three research questions addressed in this study are answered in Chapters 6, 7, and 8. In Chapter 6 (Prevailing Governance Framework: Actor Roles, Interplay and Power Dynamics), today's governance arrangements are examined through a description of actor roles and the identification of gaps in terms of the construction of knowledge, resources, and community well-being. This chapter answers the first two research questions and employs both primary data and supporting literature to examine today's governance arrangement and how it has been shaped by existing actors, and how relationships between them have influenced policy shaping and decision-making. Chapter 7 employs these findings and the identification of governance gaps as empirical evidence to examine how existing actors might be re-positioned, in an epistemological scale, to include the construction of knowledge and the construction of resources to allow critical thinking on how to mitigate the potential impairment of the Arctic environment through anticipatory logic.

In Chapter 8 (Scale Re-Construction in a Conceptualised Form of Governance), knowledge presented in the earlier chapters is applied to the conceptualisation of an alternative form of governance through the re-construction of epistemological scale in consideration of spatial, function and temporal dimensions. Theoretical frameworks are deployed to re-construct epistemological scale frames that allow us to imagine how power relationships between actors can shift to create flatter ontologies.

In Chapter 9 (Governance Imagery of Spatial and Functional Scaling), it is argued that the disruption of the current 'state of affairs' of today's governance arrangement can positively transform governance towards forward-looking structures that engage new actors or insert those who have been historically marginalised or ignored. It imagines an innovative form of governance through integrated, cross-scale, and collaborative mechanisms to protect the Canadian High Arctic. Chapter 8 concludes by emphasising that if an argument cannot be made today to transform how the Canadian High Arctic is governed, then when will it be made, and under what circumstances? Mitigation of harm to the Arctic ecosystem and community lifestyles is an actionable item, but it requires us to understand whether the consequences to human welfare should drive actionable governance to protect and support long-standing ways of life, or whether marine mammals and other animals have rights of their own and that the Arctic ecosystems should be preserved in its natural state, independent of human interests.

Chapter 9 (Conclusion) describes how the research aim has been addressed through the process of answering the research questions. Further, it provides a review of the nature of emerging environmental risks resulting from climate change, and how commercial shipping through the Canadian High Arctic is now possible as a result of diminishing sea ice. Chapter 9 concludes by summarizing how this thesis provides an example—for actors in Arctic governance, and to all those who engage in reflection on polar region futures—of how the findings of empirical research can be transformed to actionable, protectionist measures through a new form of conceptual governance.

CHAPTER 2

ENVIRONMENTAL GOVERNANCE AND THE ARCTIC

2.1 Introduction

This chapter begins with a review of the body of knowledge that exists within both academia and the public domain to explore the meaning of environmental governance. Building on this background, philosophical frameworks and the concept of environmental pragmatism in governance are examined in the context of the sufficiency of existing governance in the Arctic. The historical basis for the promulgation of multilateral, state, and institutional instruments to protect the Arctic provides a platform on which to build an understanding of governance that was constructed prior to the identification of today's emerging environmental risks. To do so, prevailing scalar politics are analysed to identify the power and influence of actors in policy shaping and decision-making and to ask whether roles are prescribed legally, or self-imposed, in order to identify gaps in the prevailing governance structure. Controversies, conflicts, collaboration, and cooperative attributes of prevailing governance are critiqued to understand actor interests and the power-relationship dynamics that exist between them. The ability of actors to set governance priorities and build resource capacity to implement agreed-upon measures is then assessed in consideration of scale construction. Inquiry into institutional functionality and effectiveness then opens exploratory pathways to assess actor sentiment towards, 'what is ideal' and 'what is practical' in terms of a governance structure and, within that context, to determine gaps. Identified gaps (based on the literature review) are summarised towards the end of this chapter. This chapter concludes with an assessment of how this knowledge can then be

applied in the context of the Canadian Arctic to shape the research design of the present study. This design facilitates triangulation with new primary and secondary sources to imagine alternative governance arrangements using a reconstruction of scale through the deployment of theoretical frameworks.

Following standard social scientific research design, the literature review sources included print and digital information, but not interview transcripts completed during the data collection process. Within educational psychology, arguments have been made that a researcher's transcripts and observations from completing interviews should be included in the literature review (Leech and Onwuegbuzie 2008). Promoting broader typologies in literature reviews, Onwuegbuzie et al. (2012) argue that inclusion of a researcher's interview transcripts and observations is evidence-based data that can increase 'representation and legitimation' (Onwuegbuzie et al. 2012, p.8). Representation allows researchers to generate more meaning from the data and can enhance the quality of the synthesis. Legitimation, as defined by reliability, trustworthiness, and confirmability, can be enhanced using typologies that include research interviews and observation through 'between-source' triangulation (Onwuegbuzie et al. 2012, p.8). As a point of academic interest, these authors suggest that the terms literature review and review of the literature be replaced with the term research synthesis. While this recommendation has not been adopted in this thesis, it does introduce a concept that other scholars might wish to consider in whether it enhances representation and legitimacy of data generated in new research areas, such as emerging risks associated with climate change, to a literature review.

This literature review also provides an examination of philosophical frameworks and a definition of the concept of environmental pragmatism in the context of restoration and the recovery of a 'damaged state.' Analysis of prevailing scalar politics

facilitates identification of the power and influence of actors in policy shaping and decision-making, and an assessment of whether roles are prescribed legally or self-imposed. The ability of actors to set governance priorities, build resource capacity, and implement agreed-upon measures can then be analysed in consideration of scale construction. Inquiry into institutional functionality and effectiveness does provide exploratory pathways through which to assess actor sentiment towards 'what is ideal' and 'what is practical,' in terms of a governance structure. Actor sentiment on commercial development in the Arctic is then examined to deepen understanding of known or potential conflicts of interest, as well as the nature of divergent opinion expressed by actors toward the linkages with environmental governance. The role of indigenous people in Arctic governance is then evaluated with respect to current roles in policy-shaping, decision-making, and the implementation of practices.

2.2 Environmental Governance

Governance is facilitated through processes that take place between a network of actors and institutional frameworks including government and non-government entities (Rijke et al. 2012). Defining governance is arguably accomplished by articulating its purpose and the spatial and functional scales to which it applies. Those who consider governance to mean compliance with regulatory policies and laws define it as 'the setting, application, and enforcement of the rules of the game' (Kjaer 2004, p.12). It is a prescriptive doctrine and the governance process is through 'authoritatively allocating resources and exercising control and co-ordination' (Rhodes 1996, p.653). Bulkeley (2005) would argue against this notion on the basis that governance can be interpreted in many ways, that different perspectives must be recognised, and that state actors may not be the most important entity or the sole participant.

Lemos and Agrawal (2006) identified that governance mechanisms to address environmental problems can be prescribed through multilevel and cross-scale engagement, rather than top-down hierarchal driven systems, to allow 'social and institutional engagement' (p.308). Cross-scale engagement enables decision-making using a governance framework that is not dominated at a state-institutional level and may facilitate the formulation of governance through political processes that do not overly favour biased viewpoints. Integration of power across broader scales and levels can, and often does, challenge the dominance of central government and perplexes scholars (Mayntz 2006). However, what do scale and level mean in governance and how should these concepts be applied in the context of this thesis?

Scale can be defined as the 'spatial, temporal, quantitative, or analytical dimensions used by scientists to measure and study objects and processes' (Gibson et.al 2000, p218). Level is a 'concept that denotes specific units of analysis, e.g. a system of institutions, located on a specific scale (Kötting and Lipschutz 2009, p83). Application of scale and level in this thesis adopts these definitions on the premise that scale and level are intertwined and that both are aspects the overall political process of framing governance. Engagement with societal and natural (environmental) processes can transform and shape governance arrangements but it requires that scale is not viewed in isolation and that relationships that exist between all other scales and levels are encouraged (Brenner 2001). In the case of the Canadian Arctic, it brings the politics of scale and power relationships between all scales and levels to the fore, such that the central government in Ottawa is a spatial unit with the potential to exert power to establish linkages into social processes and the protection of the natural environmental. In this thesis, we examine if such linkages exist and what type of interplay occurs between actors and across scale and level. In doing so, critical inquiry is applied to

determine if there is problem-solving bias that might exist, whereby conflict between and within levels has, or would, introduce conflicts on what form of governance is most appropriate to govern potential oil spill impairment. Further, it necessitates the analysis of primary knowledge to identify the form of power relationships that do exist across the actor network and the exposure of divergent interests that might introduce any form of bias. Whether today's governance in the Canadian Arctic is of an anticipatory and precautionary type, or if there is the stance taken that governance of oil spill mitigation would be triggered only after an incident occurs, needs to be confronted and analysed through the implementation of research methods. 'Structural sensitivities inscribed in the institutional responses on different scales' need to be understood in advance of conceptualising any new form of governance (Kötting and Lipschutz 2009, p.82). Natural scales must also be considered to understand how prevailing governance accommodates, if it does, ecological factors of environmental governance. Often, natural conditions specific to place in the 'politics of scale' are overlooked as a factor into the construction of environmental governance (Meadowcroft 2002). Engaging at a local level to incorporate societal relationships with nature can address this concern through social construction in its spatial dimension. without neglecting possible limits of its production. Specific to this thesis, Tallurutiup Imanga/Lancaster Sound is a space defined by aerial extent with a material condition that consists of water, ice, and marine ecosystems linked directly to societal influences. Natural conditions of place are material when modified by human activity and, as such, I need to demonstrate an understanding of the processes that have shaped historical governance. Is it necessarily the case that, when confronting the challenge of governing emergent environmental risks, 'collaboration is a common rallying cry when making decisions about environmental and natural resources' (p.16). Lubell et al. (2005) identified degradation

of environmental quality through pollution as a severe-type problem and, in the context of the Canadian Arctic and its material uniqueness, the severity is intensified. Within academic literature a criticism of collaborative arrangements, is that tangible outcomes, at times, can be more about symbolic showing and less about commitment to solve a problem (Bodin 2017). It is for these reasons, that the research questions were constructed to determine who the actors are, in Canadian Arctic governance, how their roles are situated in the prevailing framework, and what is the degree of interplay between them? Is collaboration hampered due to actors' interests and motives? Which actors might be best to facilitate collaboration within an alternative governance arrangement and how could singular and joint abilities come together in a cooperative manner? To conceptualise any new form of new governance to that which prevails today, it is helpful to engage with theoretical frameworks to situate the role of the Government of Canada and other actors in consideration of ontology and epistemology.

Post-foundationalism and new institutionalism are two theoretical frameworks. Attributes of each framework are examined in the following chapters and, in the context of environmental governance, either singularly or combined, to conceptualise new governance through epistemology – primary knowledge that is generated through the completion of research methods, secondary sources, and unbiased positionality, as an individual researcher without connection to state or non-state actors in Canadian Arctic governance. Scholars in *new* governance bring together imaginative concepts of institutional design and push for greater inclusion of culture and the environment through constructs that represent a paradigm shift away from rigid, hierarchical, and state-dominated systems (Lobel 2012). Theoretical constructs to conceptualise governance is based on the collection and analysis of empirical evidence, as it is most appropriate 'to provide meaning to all other dimensions of new governance by

facilitating the communication of local knowledge and the structured interactions of separate groups' (Lobel 2012, p.6). In this thesis, I apply empirical evidence to examine how the role of the Government of Canada might be shifted. I explore if it might better serve as a determinant in the development of a well-functioning system, whereby 'governance is embodied in institutional arrangements, consultative mechanisms, policy-making processes and the nature of leadership in political systems' (Mgonja et al. 2014). Of interest is examining how thought processes using less formal decision-making mechanisms, greater knowledge sharing, and more comprehensive representation of actor interests across scales and levels can be constructed through forms of multilevel governance. Cross-scale interplay can enable non-state actors and those that have been historically marginalised or excluded in governance framing to be represented and share their interests to have a greater say in that, which is being governed.

Throughout the world, it is commonly realised that indigenous peoples associate closely with their natural environments (Hossain 2013). Beliefs and cultural values promote traditional norms and the respect for living and non-living forms integral to community lifestyles. Traditional norms might be different across different indigenous groups, but it is commonly recognised that there exist historical experiences that have marginalised, or excluded, these peoples in the governance of their homeland. This remains the case in the Canadian Arctic where the protection of the land and marine environment is essential to preserve lifestyles and the traditional norms. Transformation of the Arctic through the consequences of climate change is highlighting the complexity of environmental governance and conflict between northern communities and the southerly-situated government institutions and public administrations. There is 'little knowledge of the relationship between indigenous people and their unique Arctic

environment' (Hossain 2013, p.317). Through the Arctic Council, territorial government institutions and non-state actors there are mechanisms through which discussions occur, but lacking is the ability to participate in policy shaping and decision making, and it is 'still quite passive' (p.317). In conceptualising a new form of governance to protect the Canadian Arctic, I reflect on how a greater say might be represented and how an argument to support the merit of active participation in governance might be constructed. Pertinent is to what level of engagement do communities aspire and how can knowledge and resources best be represented and positioned in new governance arrangements.

A representation of indigenous peoples in the Arctic is provided through the 'permanent participant' status in the Arctic Council. Permanent participants work alongside the Arctic states as contributors to working groups and participate in decision-making processes, such as through inclusion in the Ministerial and Senior Arctic Official (SAO)'s meetings. Despite this form of 'higher-level' inclusion, criticism is raised of the Arctic Council on the basis that decisions are made at the state level and positions government institutions as the sole actors. It seems that 'indigenous people seem to be left out of the process despite their growing interests in Arctic governance' and that 'Arctic indigenous peoples' potential to gain authority that is "close to equal" to that of Arctic states depends on the states themselves' (Hossain 2013, p.329). I explore the linkages between the state and indigenous peoples further and explicit to the Government of Canada and Nunavut communities.

In positioning Nunavut communities more actively in governance framing, Participatory Scenario Planning (PSP) and Community-Based Research (CBR) are two approaches that can be considered. PSP is applicable to place-based environmental research to examine social-ecological futures (Oteros-Rozas et al. 2015). These authors

analysed the appropriateness of PSP using twenty-three case studies around the world that included a wide-range of social-ecological settings. Criteria used to perform the analysis, included context, objectives, methods, process, scenario consideration, outputs, and monitoring. Oteroz-Rozas et al. concluded that PSP is a tool, when applied for place-based scenario planning, can enrich environmental management provided that there are shared objectives between the researcher and the local communities. PSP can foster and develop shared understandings to anticipate futures but, based on their research, will require ongoing assessment in the context of collection actions and the social-ecological framework. On the downside, Oteroz-Rozas et al. identified that PSP requires reflection about what values are being promoted or suppressed. In the context of a Canadian Arctic setting, PSP is an attractive prospect for a researcher and those responsible for governance through exploratory pathways that lead to a level of engagement with communities that is higher than today.

As Flynn et al. (2018) explain, 'the majority of scenarios work in the climate change impacts, adaption, and vulnerability (IAV) field have been top-down in nature' with governments working with scientists, practitioners, and academia (p.45). Yet, it is the opportunity to engage at the community level through PSP that offers scenarios to be imagined and new forms of governance structures to be considered. Given the emerging environmental risks associated with shipping activity, such 'bottom-up' and inclusive participation in oil spill scenario planning is attractive to consider. Place-based environmental protection through a new form of conceptual governance can be envisaged in which communities help shape and operationalise frameworks to protect their *own* environment and lifestyles. Flynn et al. inform us that in contemplating future vulnerabilities it is often 'done so as hypothetical extrapolations of current conditions and responses' (p.45). As I reflect on my own positionality believing that the current

governance to protect the Canadian Arctic from oil spill impairment is lacking, then embracing attributes of PSP, as noted by Oteroz-Rozas et al. and Flynn et al., can help set objectives to conceptualise alternative arrangements. This would adopt a forward-looking governance philosophy that is anticipatory and precautionary in nature to better inform decision-making. In the case of the Canadian Arctic, it would be a form of place-based and function specific governance that accommodates a range of social, ecological, and economic factors in the context of the nature of emerging environmental risks.

In consideration of emerging risks, power relationships between actors can be disrupted and new and redefined roles for actors used to help transform governance to better protect the environment. This aligns with Braun and Whatmore's (2010) doctrine that inclusion of multiple actors across scale and level serves as a 'hybrid-type' form of governance and brings together potentially divergent interest to collaboratively construct governance arrangements. Community and local voices can be brought into environmental governance and this can be 'seen as providing the benefit of time- and place-space information that may help solve complex environmental problems and, at the same time, allow a more equitable allocation of benefits from environmental assets' (Lemos and Agrawal 2006, p.311). While the merit of considering hybrid and cross-scale governance to mitigate environmental risks of potential oil spillage in the Canadian Arctic are evident, it also requires contemplation of implications. Potential limitations of collaborative forms of new governance were considered in the design of research methods to be able to critically analyse these possible implications. Central in conceptualising new governance in the Canadian Arctic, I needed to explore how place-based, issue-based, and solution-orientated approach to environmental governance be framed using the empirical evidence and a theoretical framework using actor ontologies

and epistemological scale. Critical to ask is if prevailing rules to governance could be disrupted and whether disruption of power relationships and ontological shifts would challenge the dominancy of a prevailing institutional-led structure. Scholarly literature informs us that a de-centralised arrangement that does accommodate place-based interests and incorporates collaborative processes that align the protection of the natural environment and socio-economic considerations has merit (Karkkainen 2006). It does not have to be a 'zero-sum, either-or choice' and I agree with Karkkainen that 'what is needed now is a careful 'hard look' at what is working, what is not, and why' (p.212). A 'hard look' to ask critically whether there is a misalignment between a government's intent to govern and the availability of resources and capacity needed to convert intention to implementable actions. In the context of the Canadian Arctic, such inquiry is needed now to analyse what is working knowing that the protection of the marine environment is a complex problem. Is a form of post-institutional governance needed that retains the Government of Canada as the dominant power with political legitimacy and, through an ability to act, work with all other actors in capacity building, knowledge generation, and socio-economic development? In bringing together state institutions, sub-state government, non-state actors including NGOs, industry groups, academia, and local communities as collaborators and implementers of agreed upon actions, top-down and hierarchical structures could be disrupted and 'the formalities of the Westphalian system of autonomous sovereign state fades', but 'without disappearing altogether, into reduced significance' those beneficial attributes of institutional engagement (p.227). This would be demonstration of a form of new institutionalism and how the Government of Canada might be challenged in terms of its interactions with broader society as defined through actors and stakeholders to better protect the Canadian Arctic. It posits that the Government of Canada would engage in

more open discourse with actors and stakeholders, and this supports social constructs, or constructivist institutionalism. More open and expressive forms of communication could then lead to political and social discourse that results in better informed decision making (Israel and Hay 2006). This, however, is an overly simplistic view, as environmental governance that readily engages with science and technology and that can overly simplify the functionalities of implementation, can overlook the 'essence of the political' and the power relationships and conflicts that might exist in 'discourses on ecological modernization, the green economy or sustainable consumption,' or, in the case of the Canadian Arctic, the mitigation of oil spill impairment (Lievens and Kenis 2018; p.81). Confronting contradictory interests and recognising that power differentials exist should be embraced so as to not impede the construction of arguments needed to invoke transformations in environmental governance and requires political cognizance. Goeminne (2012) argued that as politically research is generally not neutral, then 'matters of fact' are 'matters of concern,' which results in exclusion of actors through their constructions of fact and concerns. In Chapter 6, the roles of institutional actors are analysed in prevailing governance in the Canadian Arctic. Using this analysis, we are then able to frame a new form of governance using theoretical frameworks to establish a platform, a foundation, on which post institutional-type arrangements can then be conceptualised.

Critical of social constructionist theory, Grossman (1999, p.153) stated that using such analysis portrays the 'environment as a passive entity, moulded by political-economic forces.' Out of concern for such portrayal, political ecologists have produced scholarly work that supports bridging power relations and the study of environmental modification (Nygen and Rikoon 2008). These authors encourage broader political deliberation on how better to incorporate social actions with changing ecological

dynamics, such as how climate change is transforming the Arctic marine environment. It encourages us to reflect on the complex cultural interactions of Nunavut communities with the Arctic environment. Residents of these communities have not introduced environmental impairment risk through their own behaviours but are living with the consequences of humankind's activities outside the Arctic. Nunavut communities have little or no say on what shipping activity occurs in Tallurutiup Imanga/Lancaster Sound or the type of hazardous or non-hazardous goods transported. That power resides with the Government of Canada, the IMO, the shipping industry (including cruise operators) and global traders. Inherent difficulty prevails in 'conceptualizing the environment' and its cultural meaning in ecological and political processes (p.775). Through introducing new linkages that enable less powerful actors to interact with those that are dominant, then power and political relationships can shift toward a form of governance that interconnects social, ecological and economic dimensions.

As applied to the Canadian High Arctic, this thesis positions environmental governance in terms of its functionality and that 'allows a more fluid and 'hybridised' exploration of the development, emergence and resolution [or irresolution] of particular problems' and through 'opening up various possibilities for reconfiguring the political as the work of constitution or assemblage in which things [and animals] force thought, association and attachment' (Braun and Whatmore 2010, p.xxix). It is a 'performative and transformative process constituted by actor-networks comprised of human and nonhuman entities whose evolving relations give rise to senses of place, space, time and power relations' (Henri 2012, p.28). Henri's work is embraced in this thesis as it provides us with a theoretical perspective to entertain how the governance of oil spill preparedness and response might be considered when there is an 'emphasis away from the state as a fixed and uncontested socio-territorial institution and towards an evolving

constellation of relations between human and nonhuman entities involved in performing governance: this is a process implying dynamics of cooperation' (Henri 2012, p.25). It helps us imagine how the role of a state may shift towards acting as an enabler 'for exploring the art of governance-in-the-making, a process of ordering rather than an achieved political order' (Henri 2012, p.25). In examining the appropriateness of prevailing governance in the Canadian High Arctic, this philosophical approach allows me to question if the state is 'conducting the conduct' for the protection of northerners' lifestyles and demonstrating governance practices that align with 'regimes of truth' (Rose 1999, p.19).

Aligning with Bulkeley's (2005) perspectives, governance policy makers who seek to enable the adoption of best practices through facilitation define governance as 'all those activities of social, political, and administrative actors that be purposeful efforts to guide, steer, control, or manage (sectors or facets of) societies' (Kooiman 1993, p.2). Katz-Rosene and Paterson (2018) have suggested that, fundamentally, governance requires an awareness of 'inter-state' environmental politics based on a broad understanding of political economy and science. The assumption is that the state is the primary political power to build bridges that allow communication pathways between actors with divergent and aligned interests. Absent the will of the state to exert its power, and to bring together other state-actors and those that can contribute to policy-shaping and decision-making, the responsibility to implement governance arrangements in the Canadian High Arctic would fall to others, and this line of inquiry is further developed in the following chapters.

Young (2017), referring to the phasing out and reduction in the use of ozone depleting substances, suggested that success at the international level can also be achieved through collaborative forms of governance without government; however, it is

also necessary to address how this translates to governance in the Canadian High Arctic, and whether this doctrine is at odds with the implicit assumption that the state is the primary power in the shaping and implementation of environmental governance. Collaborative mechanisms 'represent a nascent polycentric substitute for more familiar forms of sovereign authority, operating within a limited subject-matter sphere and at a spatial scale whose boundaries are defined by the nature and scale of the problem to be addressed' (Karkkainen 2004, p.74). Through such mechanisms, emergent hybrid and solution-focused agreements can, as envisaged by Karkkainen, be constructed and implemented to promote a 'post-sovereign' account of environmental governance. In doing so, the remainder of this chapter focuses on the historical development of environmental governance to protect the Arctic. This allows us to position the Canadian High Arctic within an Arctic governance framework to examine the sufficiency of prevailing frameworks in the context of emerging environmental risks and gaps that exist in today's arrangements.

2.3 Environmental Philosophy and Contemplation of Pragmatism

In *The Tragedy of the Commons* (1968), Garrett Hardin implied that humankind's self-interests would deplete natural resources and degrade the natural environmental (Callicott and Frodeman 2009). Hardin's work followed Lynn White Jr.'s essay, which set the stage for individuals engaged in actions that could potentially impair the environment to embark on ethical soul-searching (Callicott and Frodeman 2009). Inspired by the work of Aldo Leopold (1887-1948), White believed that land preservation is an extension of ethics and that Leopold's 'land ethic' was built-upon a notion that it is the community of life that matters: 'A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it

tends otherwise' (Leopold 1949, pp.224-225). Sole focus on humans is unjustifiable discrimination; rather, humans have a responsibility to all living species and ecosystems (Routley 1973). Scholarly work on the 'status of nature,' environmental ethics, and environmentalism expanded rapidly in the 1970s and 1980s, with research and publications on human thinking about life's intrinsic function, and what should be protected in the context of respect for nature (Callicott 1989; Hargrove 1989; Rolston 1986). Since the 1980s, debate has continued across the academic community on how fundamentalist and realist sentiments toward environmental politics shape policy shaping and decision-making. For the purposes of this thesis, engaging with the meaning of fundamentalist and realist views is important to an understanding of actors' interests in today's governance arrangements. Fundamentalist viewpoints expressed in the 1980s and 1990s often associated veganism, animal rights, and the protection of the natural environment as focal points for decentralisation (Dobson 1995). Realists align more with mainline institutions including governments, industrial organisations, and existing community groups, while bio-regionalists suggest that small communities located in discrete, geographically defined locations can best sustain lifestyles. Accepting that this is not always clear-cut, identifying actor types (realists, bio-regionalists, and fundamentalists) in prevailing governance of the Arctic allows us to determine how these viewpoints have shaped today's construction of scale. Comprehension of an actor's interest then allows us to analyse politics of power and influence, and to consider the expression of moral pluralism, defined here to mean keeping commitments, acting justly, recognising human and non-human rights, and caring for the natural environment. In the case of the environmental protection, it requires us to ask how actors' actions are shaped by different degrees of 'emotional-distance' and 'place-distance?' By 'emotional-distance,' I mean separation in terms of

belief and values. By ‘place-distance,’ I mean difficulty in being able to envisage impairment risk to a remote and vulnerable landscape that few actors are able to visit due to cost and travel logistics.

However, do ‘emotional-distance’ and ‘place-distance,’ and an appreciation of the intrinsic value in nature and the lifestyle it supports, really limit the abilities of actors to shape policy and allocate resources for its protection? If so, how are the communities of the Arctic engaged in governance, and what is the interplay with other actors that are spatially distant? As ‘human beings never just exist, but rather find themselves somewhere; this is “*dasein”* philosophy that literally means “being there”’ and it applies to Arctic communities (Callicott and Frodeman 2009, p.378). As that ‘somewhere,’ the Arctic is a place to which a phenomenological approach can facilitate moral reflection on whether it is intrinsically or inherently valuable. Heidegger (1889-1976) and other scholars suggest that environmental consciousness is required to understand the human condition (Abram 1996). It is a person’s experience that allows for philosophical reflection. For example, the residents of the Canadian High Arctic attach the symbolism of place, more so than physically territory, and this includes the preservation of cultural integrity and *belonging* to the natural environment (Shadian 2010). To help frame the meaning of belonging, I take *spaces of dependence* and *spaces of engagement*, terms introduced to the field of international by Cox (1997), in an attempt, to help describe the significance of place to its residents. Spaces of dependence are ‘localized social relations’ whose localities are space-specific’ and provide resources for sustaining lifestyles (Cox 1997, p.10). Spaces of engagement are ‘constructions of network associations and their relations are perceived as processional rather than bounded’ (Cox 1997, p.10). In examining the appropriateness of prevailing governance in the context of the Canadian High Arctic, I find these terms helpful to

position the research framework into the context of place and *dasein* philosophy. It allows governance to be examined in consideration of the interplay across the actor network and how decision-making is shaped through social relations at a space-specific level. More deeply, it allows inquiry as to what community level participation in governance means today and if, the meaning of place, is embedded in policy shaping, decision-making and the implementation of protection measures. Cunsolo Willox et al. (2012) note that 'people are not only *from* a particular place, but they are also *of* the place; that is, their identities, well-being, livelihoods, histories, and emotio-spiritual connections are emergent from the lands of which they live' (p.546). These identities and connections can easily be overlooked by policy shapers and decision makers if place is not considered in the protection of the Arctic environment from potential oil spill impairment. Cunsolo Willox et al.'s research findings illustrate that disruption of Inuit lifestyles through the negative consequences of climate change, such as changing landscapes that impact hunting, trapping, fishing and travel, negatively affects 'feelings of place' (p.538). Their research focused on the complexity of health concerns to Inuit in Nunatsiavut, Labrador, Canada, as a result of climate change. In emphasising 'place-attachment as a vital indicator of health and well-being', these authors bring to our attention that in climate change adaption, there is a need to develop planning programs that are 'context-specific' (p.538). In conceptualising how to protect the marine environment and coast communities of North Baffin, I seek to situate a function-specific form of governance to mitigate oil spill impairment in consideration of place, the feeling of place and the sense of attachment to the homeland that those that would be most negatively impacted. It might then be possible to 'enhance the adaptive capacity of the community to deal with current and future climatic change risks'

through the positioning of place as an attribute in a new form of governance to mitigate the nature of emergent environment and lifestyle risks (Pearce et al. 2009 p.16).

2.4 Restoration and Recovery Equilibrium; Complexity of Dynamic Human-environmental Systems

Defining recovery of an impacted marine environment in the context of restoration of impairment is complex (Comin 2020; Parker and Wiens 2005; Clewell and Aronson 2013; Briske et al. 2017). Scientific, regulatory, and legal factors can shape debate on what 'impairment' means in consideration of an array of social, economic, and political interests. The physical impact of an offshore oil spill is often visually evident soon after a release of crude or refined product. Removal of spilled material is possible using initial response measures, and the effectiveness of these measures can depend on factors including location and response time, currents and tidal influence on open-water and sea-ice environments, and equipment and human-resource availability. Longer-term recovery (or restoration) of an impacted area, as determined by the presence of dissolved oil-derived constituents in the water column and biota, may take much longer, and introduces further dimensions of complexity.

Academic argument on restoration pivots around whether it is 'right' to recreate the environmental conditions that existed before humankind modified it (Baker 1999). In the case of Exxon Valdez, the Exxon Valdez Oil Spill Trust Council (Trust Council) was commissioned to oversee restoration of the ecosystem, and defined recovery as the period 'when the state of the system after the impact matches its state before the impact or that of a similar, un-impacted reference area' (Parker and Wiens 2005, p.2038). The Trustee Council considered the recovery of sea otters and eight other taxa as occurring when their populations in an impacted area returned to pre-spill levels. The paradox in

assessing recovery is that the population post-spill may not be the same as pre-spill, because of natural variations of a system. If, however, recovery is assessed using temporal and spatial variations, then system changes may be considered (Parker and Wiens 2005). Factors including climatic change and disturbance to seasonal weather conditions, impacts of shifting wave patterns, and coastal erosion patterns, and the movements in temperature and salinity, all potentially introduce variability in higher latitudes and complicate how ecological recovery can realistically be measured or observed (Peterson and Schwing 2003).The work of Parker and Wiens (2005) and Briske et al. (2017), which applied ecological assumptions to the assessment of recovery from an environmental accident, is helpful in assessing how policy-shapers and decision-makers approach making restorative assumptions. These assumptions applied to a post-spill incident illustrate how assessment of recovery is complicated when spatial and temporal variability is considered (Figure 2.1).

Under steady-state equilibrium (Graph A), the vertical arrow could identify an offshore oil spill for illustrative purposes. The dotted line depicts the state of the affected system; the solid curve indicates the dynamics of the system prior to impact and the solid horizontal line the steady-state mean level of the resource. Under this scenario, recovery occurs when the impacted system returns to the mean steady-state equilibrium. Graph B shows spatial equilibrium when the impacted area and a reference area have similar long-term dynamics. Recovery of the impacted system occurs when the dynamics are like those of the reference site. Graph C is dynamic equilibrium, in which the impacted and reference areas have different levels of the resource (spatial variation), but their temporal dynamics are similar and depict a long-term decline. In this scenario, recovery occurs when the dynamics of the impacted system are parallel to the reference system, despite levels of the resource in the two areas being different.

Graph D illustrates considerable natural variation about the long-term steady-state mean. If this long-term variation is not considered or is unknown, the impacted system may erroneously be deemed recovered when it is not (point a) or may be considered still to be impacted when its dynamics in fact match those of an unimpacted system (point b). Contemplating recovery, Parker and Wiens (2005) use design and analytical strategies to address spatial and temporal changes in ecological assessments that include baseline, single-year, and multi-year categories.

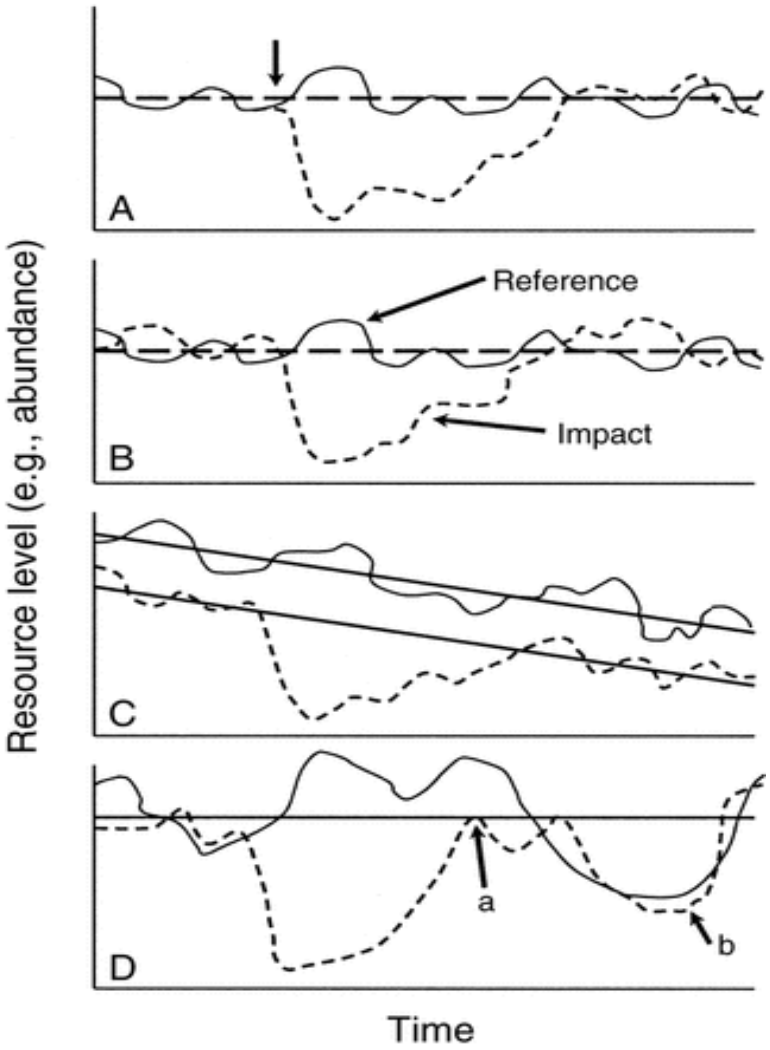


Figure 2.1. Ecological assumptions to the assessment of recovery from an environmental accident. Reprinted from Parker and Wiens (2005).

Baseline compares pre-spill and post-spill monitoring data for a spatially defined area. It infers that impact results from temporal change alone, but given that most ecological systems do vary, these authors suggest that baseline studies in themselves are insufficient to measure recovery. Single-year studies compare impacts in an area undergoing recovery with a reference area. Multi-year studies offset temporal and spatial changes, and recovery occurs based on analytical work that demonstrates 'differences in annual means become constant; that is trend lines in means become parallel' (Parker and Wiens 2005). Applied to high latitudes, steady-state equilibrium is

unlikely to be achieved, and wind, wave, and ice-movement themselves shift marine and shoreline habitats, and the lifeforms they support. Parker and Wiens (2005) do not believe that steady-state equilibrium existed in Prince William Sound, and instead contend that the variability of natural factors that determined population size most likely exceeded long-term recovery under a steady-state condition. The authors suggest that dynamic equilibrium was more appropriate than applying a single-year assumption and using a reference area was unrealistic given the physical environment and heterogeneously distributed biological resources in Prince William Sound. I expect that dynamic equilibrium would also be appropriate for many areas of the Canadian High Arctic given the rapid changes to the marine environment as a result of climate change, but this is speculation on my part not having researched quantitative data.

Absent in the literature on prevailing governance in the Canadian High Arctic is reference to what would represent acceptable recovery of an impaired environment, and when an end-point would be reached in terms of restoration. Contemplation of recovery in the context of natural variations (Figure 2.1) could help establish what would constitute a 'recovery zone,' but therein lies the complexity of determining what other location(s) in the Arctic might serve as a reference area (Parker and Wiens 2005). It would require that a set of underlying assumptions be established to position 'equilibrium' in the context of rapidly changing conditions in the Arctic. Also absent in extant literature is how a potential oil spill in the Arctic would impair community lifestyles, and the health and well-being of the residents. The psychological health effect on residents of impacted environments is often a neglected topic in post-spill debates on recovery (Choi et al. 2015).

Referencing research by Osofsky et al. (2012) on mental health following Deepwater Horizon, Choi et al. (2015) reported that oil spills can result in physical and

mental health effects to the residents of communities that have been impacted. Choi et al. (2015) focused on the prevalence of psychological symptoms in 993 residents of Taean District following the Hebei Spirit oil spill that occurred offshore South Korea in 2008. This research reported an increase in symptoms of post-traumatic stress disorder, suicidal ideation, and anxiety following the spill. Higher prevalence rates were found in communities engaged in fishing and other marine activities. These findings are consistent with research completed following *Exxon Valdez,* in which community patterns of psychiatric disorders surfaced after the spill (Palinkas et al. 1993). In developing a conceptual framework to understand the mental health impact resulting from Exxon Valdez, Palinkas (2012) recommended that research on psychological and behavioural health effects associated with an oil spill be a top priority. There exists, according to these authors, a need to consider oil spill impacts beyond the physical evidence of impairment, and to extend post-spill monitoring programs to include mental health services to those people who belong to vulnerable communities (Gratten et al. 2011).

Psychological intervention is required immediately following a spill and should be targeted at the vulnerable group. Adopting a 'community-academic relationship dedicated to improving the public health of participating oil spill communities' is necessary (Gratten et al. 2011, p.843). In reviewing GOC documents in the public domain, there is no reference to intervention with Canadian Arctic communities that would follow an oil spill, if it were to occur. The lessons of Exxon Valdez and Deepwater Horizon indicate that post-spill analysis and monitoring of communities must include the identification and amelioration of mental wellness concerns. Considering a strand of research that examines wellness prior to a potential spill in waters proximal to Arctic communities, and how a potential spill might introduce

wellness concerns, would contribute to the field of Arctic governance, which currently lacks this understanding.

2.5 Environmental Governance of the Arctic

After World War II, the United Nations (UN) was tasked by the international community with codifying laws that apply to oceans. The UN began its work in 1949 and convened the First United Nations Conference on the Law of the Sea (LOSC I) in Geneva in 1958 (Rothwell 2013). LOSC I adopted 'The Convention on the Territorial Sea and Contiguous Zone,' 'The Convention on the High Seas,' 'The Convention on Fishing and Conservation of the Living Resources of the High Seas,' and 'The Convention on the Continental Shelf.' A second conference (LOSC II) was held in 1960 to finalise international agreements and to define terms such as the breadth of a territorial sea, which at that time was important for fishing zone delineation; however, consensus was not reached. Given the need for clearer definitions of maritime zones and terminology, the UN convened a third conference (LOSC III), which began in 1973 and concluded in 1982. LOSC III adopted the Law of the Sea Convention (UNCLOS) in 1994, which provided a legal definition of maritime zones. These zones include territorial sea, contiguous zone, exclusive economic zone (EEZ), continental shelf, high sea, international seabed, and archipelago. In brief, a territorial sea is a maritime zone over which the coastal state has sovereignty up to a limit of 12 nm from its coastline. A contiguous zone extends 12 nm beyond the limits of the territorial sea and an EEZ extends 200 nm from a state's coastline. The EEZ gives a sovereign state the right over exploring, exploiting, conserving, and managing natural resources in the sea. Part IV of UNCLOS is specific to coastal states that can encapsulate groups of islands, parts of islands, and interconnecting waterways and natural features within archipelago waters.

UNCLOS also provides a legal basis on which laws for the protection and preservation of the marine environment could be developed (Rothwell and Stephens 2010). Part XII and Article 192 of the UNCLOS specify that signatories are to protect and preserve the environment. Article 192 requires that states take all measures to prevent, reduce, and control pollution from any source. It also requires that states work at the global and regional level with international organisations to generate rules, regulations, standards, and recommendations. In case of an emergency, such as an oil spill, the wording of the UNCLOS requires that a state cooperates in minimising damage in accordance with its capabilities. States are required to develop contingency plans and to ensure no transboundary impact. The wording is vague and specific requirements are not provided.

Canada's concern over Arctic pollution was validated through the adoption of Article 234 of the UNCLOS, the so-called 'Canadian exception' (Lalonde 2013). This allows coastal states to enact laws against pollution in ice-covered waters up to 200 nm beyond their coastline. Article 234 was negotiated directly between Canada, the United States, and the USSR and is incorporated as Part XII Section 8 of the UNCLOS Article 234 builds on Article 194, which identifies a need to protect rare or fragile ecosystems. The wording of Article 234 is as follows:

> Coastal states have the right to adopt and enforce non-discriminatory law and regulations for the prevention, reduction of control of marine pollution from vessels in ice-covered areas within the limits of the exclusive zone, where particular severe climatic conditions and the presence of ice covering such areas for most of the year create obstruction or exceptional hazards to navigation, and pollution of the marine environment could cause major harm or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence. (UNCLOS Part XII Article 234)

Article 234 refers to areas that are ice-covered areas for most of the year; however, it does not include a definition of what that means in terms of months, weeks, or days. There is also no definition of what constitutes an ice-covered area in terms of size.

In 1987, Mikhail Gorbachev contended that the Arctic should become a zone of peace and that cooperation between all people in the northern part of this planet is needed (Powell 2011). Finland embraced this view, and in 1989, invited eight Arctic states to Rovaniemi to discuss Arctic environmental protection. In 1991, the eight coastal states, Canada, The Russian Federation (Russia), The Kingdom of Iceland (Iceland), The Kingdom of Denmark (Denmark), The Kingdom of Finland (Finland), The Kingdom of Norway (Norway), the Kingdom of Sweden (Sweden), and the United States agreed on an Arctic Environmental Protection Strategy (AEPS). The AEPS included provisions to meet and implement an environmental strategy to support cooperation, identify best practices, and to report on progress. Five years later, the AEPS was superseded with the Arctic Council through the Ottawa Declaration of 1996, with the support of the eight Arctic states (English 2013).

From its creation, the Arctic Council has divided opinion in terms of the limit of its mandates and the concept that the Arctic is a shared resource area (Pedersen 2012). In 1996, Canada and the United States viewed the Council positively and identified it as the appropriate forum to address environmental protection; however, the United States government clarified that it did not share Canada's position that the Arctic Council could handle a broader array of issues, such as economic development and marine policy. Nor did the United States agree that the Arctic Council should conceptualise the Arctic as a shared resource region (Young 2011). In 2008, US Secretary of State Hilary Clinton announced at an Arctic Council Ministerial Meeting that the Arctic Council was the most appropriate forum for international cooperation in the Arctic to respond to

climate, economic, and societal changes. Around this time, international interest in the Arctic was increasing due to changing ice conditions and focus on commercial and economic development, security, and sovereign control of Arctic waters. Accession of Finland and Sweden to the EU in 1995 provided the impetus for these northern European countries to enter Polar geopolitics (Powell 2011; Powell and Dodds 2014). Finland was particularly active in promoting its interests in northern policy and was instrumental in introducing the Northern Dimension Initiative at the Luxembourg European Council in 1997 (Powell 2011). Since its launch in 1997, the Northern Dimension (ND) has provided a mechanism through which the EU, Iceland, Russia, and Norway can work together on the development of action plans, including those focused on environmental pollution (Powell 2011). The ND has been used by the Council of the European Union (EU) and the European Commission as purposeful reason to discuss broader engagement of the EU in Arctic geopolitics. It has also allowed Members of the European Parliament to discuss how the Northern Dimension may be used to construct Arctic Policy including the idea of an Arctic Treaty (Powell 2011). The very idea of an Arctic Treaty, and the inclusion of non-Arctic states in Arctic governance, was becoming a growing concern for the five littoral Arctic states (the Arctic five) in the early 2000s (English 2013).

In 2008, the Arctic five met in Ilulissat, Greenland, and issued the Ilulissat Declaration of 28 May 2008. The Declaration stressed the Arctic five's jurisdiction over large areas of the Arctic Ocean. Sweden, Iceland, and Finland, although members of the Arctic Council, were not invited to Ilulissat. Since the Ilulissat meeting, Canada's position toward support of an Arctic Five forum has toughened, and the Russian position has essentially remained the same. The Kingdom of Denmark has openly expressed concern about exclusion of indigenous peoples, while Norway has suggested

that the Arctic Council needs to become increasingly more powerful. Sweden, Iceland, and Finland do not support an Arctic Five forum, but seek broader engagement with representatives from a wider range of government and non-government institutions.

At the Eighth Ministerial Meeting of the Arctic Council at Kiruna in 2013, China, India, Italy, Japan, Singapore, and South Korea were admitted as Permanent Observers to the Arctic Council (Steinberg and Dodds 2015). A Permanent Observer has no voting rights in the Arctic Council but can participate in projects and working groups. Swedish Foreign Minister Carl Bildt noted that expansion strengthens the Arctic Council at the global level and that inclusion of four Asian shipping states would be important for participation in working groups and that it would support environmental stewardship and economic development. Greenpeace and the Association of Oil and Gas Producers (AOGP) were two of seven organisations that were not successful in securing observer status at Kiruna. Greenpeace was seeking a platform to raise awareness of its belief that the Arctic Council's position to address oil pollution is too weak. Steinberg and Dodds (2015) suggested that what really happened at Kiruna was the 'privileging' of Arctic states over non-state actors. The Arctic Council increasingly resembled an intergovernmental agency overseeing a 'normal' region and claimed that the governance of Arctic waters should be through the UNCLOS. This state-centric view of the Arctic led the Inuit Circumpolar Council (ICC) to release its Declaration of Sovereignty in 2009 to recognise the needs and priorities of residents and their lifestyles. The Declaration gives voice to Inuit concerns with an emphasis that the Arctic does not consist of sovereign states and their territories, but should be governed through a system of legal, or non-legal, bases in which power is exercised at various levels. It was also not a coincidence that the Government of Iceland sponsored a new forum, the Arctic Circle, one month before Kiruna. The Arctic

Circle's forum's mission is to include political and business leaders, indigenous representatives, nongovernmental organisations, policy, and 'thought leadership' in discussion forums. Scientists, students, activists and experts are also encouraged to participate to allow for institutional independence. While it is too early to know if the Arctic Circle will, or can, challenge the Artic Council, or whether it can be used as a channel through which local and regional regimes could be part of a broader governance framework, what is clear, is that Arctic coastal state views are constantly being challenged, while non-Arctic states are seeking greater levels of involvement and broader participation in governance affairs.

Addressing the future of the Arctic Council, Koivurova (2019), who was its Finish chairperson between 2017 and 2019, has stated that the appointment of Senior Arctic Officials as representatives of member states will determine the council's agenda. This is because it is the officials who establish and co-ordinate the Arctic Council's agenda. According to Koivurova (2019) the council's agenda could take a more traditional form, focusing on environmental protection and sustainable development in the region with less focus on climate change. Climate change work is likely to occur through intergovernmental forums and in select Arctic organizations, such as the Barents Euro-Arctic Council or the Nordic Council. Without drifting into U.S. politics, Koivurova's opinion is that the Arctic Council's climate change work will diminish if the current President of the Unites States is re-elected for the period between 2021 and 2025. Geopolitical tensions between the United States, China and Russia are also inciting debate on whether security issues should be included in the Arctic Council's agenda. At issue is whether the Arctic is a region of cooperation and a place of peace, or a place for competition and increased militarisation. Koivurova (2019) concluded that there are grave uncertainties associated with how the Arctic

Council will develop in the coming years. Concluding his remarks in the article 'Is this the end of the Arctic Council and Arctic governance as we know it?', published by *The Polar Connection*, Koivurova stated that 'those of us who deeply care about the Arctic Council and the future of the Arctic should be aware of what is happening and should do our utmost to speak for the values the Arctic Council represents.' Even Michael Gorbachev's pronouncement at Rovaniemi in 1987 that the Arctic should be a zone of peace and cooperation could, in itself, be at risk.[23]

As noted previously, shipping at the global level is predominantly regulated through the International Maritime Organization (IMO). The IMO was established in 1958, pursuant to the IMO Convention and is a Specialty Agency of the UN to manage the effect of shipping on the marine environment (Molenaar 2014). It has a mandate to ensure the efficiency of navigation, marine safety, and vessel source pollution control. In terms of oil spill preparedness and response, two important documents have been developed by the IMO. Both were prepared *after* the Exxon Valdez accident in 1989. The 1990 Convention on Oil Pollution Preparedness, Response, and Cooperation (OPPRC Convention), and the 2000 Protocol on Preparedness, Response, and Co-Operation to Pollution Incidents by Hazardous and Noxious Substances (OPRC-HNS Protocol) address these requirements. Canada and the United States have ratified the OPPRC Convention and are required to establish procedures to respond to a pollution incident. The IMO is now finalising a legally binding Polar Code for compliance by shipping companies, in response to mounting concern over marine shipping in the Arctic and Antarctic. This Polar Code builds upon the framework of the IMO's earlier Polar guidelines, such as the 2009 'Guidelines for Ships Operating in Polar Waters,' to

[23] Available at http://polarconnection.org/arctic-council-governance-timo-koivurova (accessed May 13, 2020).

enhance the safety of operations in Polar Regions. This includes vessel design and construction, enhanced communication, improved navigation systems, and on-board environmental protection measures. Tables 2.1, 2.2, 2.3, and 2.4 presented later in this chapter provide a detailed analysis of Arctic governance framework arrangements that I constructed to help us understand the meaning of these instruments. Table 2.1 shows key agreements with UNCLOS, the IMO and OPRC. Table 2.2 presents an analysis of the strengths and weaknesses of these agreements in the context of the Canadian Arctic. Tables 2.3 and 2.4 provide a summary and a critical analysis of the Arctic Council and its Working Groups (EPPR and PAME).

2.6 Arctic Shipping and Emergent Environmental Risks

As addressed in the previous chapter, in 2008, the NSR and the NWP were both ice-free for the first time in recorded history (Fairhall 2010). Potential usage of the Arctic shipping routes through these gateways provide a natural pathway to economic markets, which take fewer travel days than routes through southerly waters and that use the ‘traditional’ and constructed passages of the Panama Canal or the Suez Canal. Critical analysis conducted by industry stakeholders and the scholarly community suggests that considerations other than transit time and fuel costs need to be examined with respect to the viability of Arctic shipping routes. Commercial viability is often supported by numerical modelling and other methods used to estimate the economic benefits of shorter transit routes (Meng et al. 2017). Over 100 ice-class ships, including 47 oil tankers, 41 bulk containers, and 19 related to oil and gas service industries, were under construction in Asian shipyards in 2011 (Linyan et al. 2015). These authors suggest that, by 2030, up to 50% of commercial traffic could be redirected through Arctic waters from the Suez and Panama routes. Lack of marine infrastructure along the

coastlines and the economic attractiveness of non-polar routes will, however, prove to be the main barriers for the NWP becoming an international shipping lane (Kraft 2009). Lasserre and Pelletier (2011) suggest otherwise based on an empirical study conducted among 98 shipping companies, which concluded that there is demonstrable evidence of interest that supports acceleration of shipping in the NWP. This is consistent with the viewpoint expressed in the Arctic Marine Shipping Assessment 2009 Report (Arctic Council 2009) that Arctic voyages to be destination-based and full transit journeys.

Navigation feasibility studies conclude otherwise that the hazardous nature of the Arctic routes introduces uncertainties that are difficult to capture in economic modelling, making false positives a reality. Meng et al. (2016) concluded that the viability of transarctic shipping requires further research to better understand the linkages between commercial and navigation reality. Furthermore, the authors recommend that three linkages need to be studied further: ice conditions and commerciality, geographical restrictions and ship design, and navigation and insurance.[24] Since Meng et al. published their work, the Arctic Council' s working group, Protection of the Arctic Marine Environment (PAME), has completed multiple work products related to shipping, most recently (February 2019) the Arctic Ship Traffic Data (ASTD).[25] It positions the Arctic Council, through PAME, to be a leading provider of knowledge to help understand the emergence of Arctic shipping trends and to assist in marine safety and environmental protection analysis. The ASTD builds on the Havbase system, which is operated by the Norwegian Coastal Administration (NCA). Data is shared with Arctic states and other entities identified in an Arctic

[24] The work undertaken by Meng et al. was funded by the Singapore Maritime Institute (Grant Number SMI-2014-MA-02).
[25] Available at:Arctic Ship Traffic Data Project, Progress Report 2017-2019, Arctic Council PAME (May 2019) (accessed October 3, 2019).

Council ASTD Framework for Cooperation Action on Arctic Ship Traffic Data sharing (ASTD Framework). Figure 2.2 gives an illustration of shipping movement in Davis Strait, Baffin Bay, and through the routes of the NWP in September 2018. Tallurutiup Imanga/Lancaster as the eastern gateway to the NWP is shown on Figure 2.2.

2.6.1 The Northwest Passage – an internal water or an international strait?

European exploration in search of a direct sea route to the Orient from Europe began with John Cabot in 1497 (Headland 2010). Cabot was followed by many others, including Martin Frobisher in 1576 and James Cook in 1778, but all were unsuccessful in their search for a navigable passage. Sir John Franklin attempted to take advantage of these earlier expeditions and took *HMS Erebus* and *HMS Terror* in search of the passage in 1845, but both ships were lost and the crews perished. Five years later, a sledge party led by Samuel Gurney Creswell and a three-person team from *HMS Investigator,* under the command of Robert McClure, confirmed that a route did exist between the Atlantic and the Pacific. However, it was not until 1906 that Roald Amundsen, a Norwegian explorer, first completed a successful voyage through a navigable route of the Canadian Archipelago: the NWP.

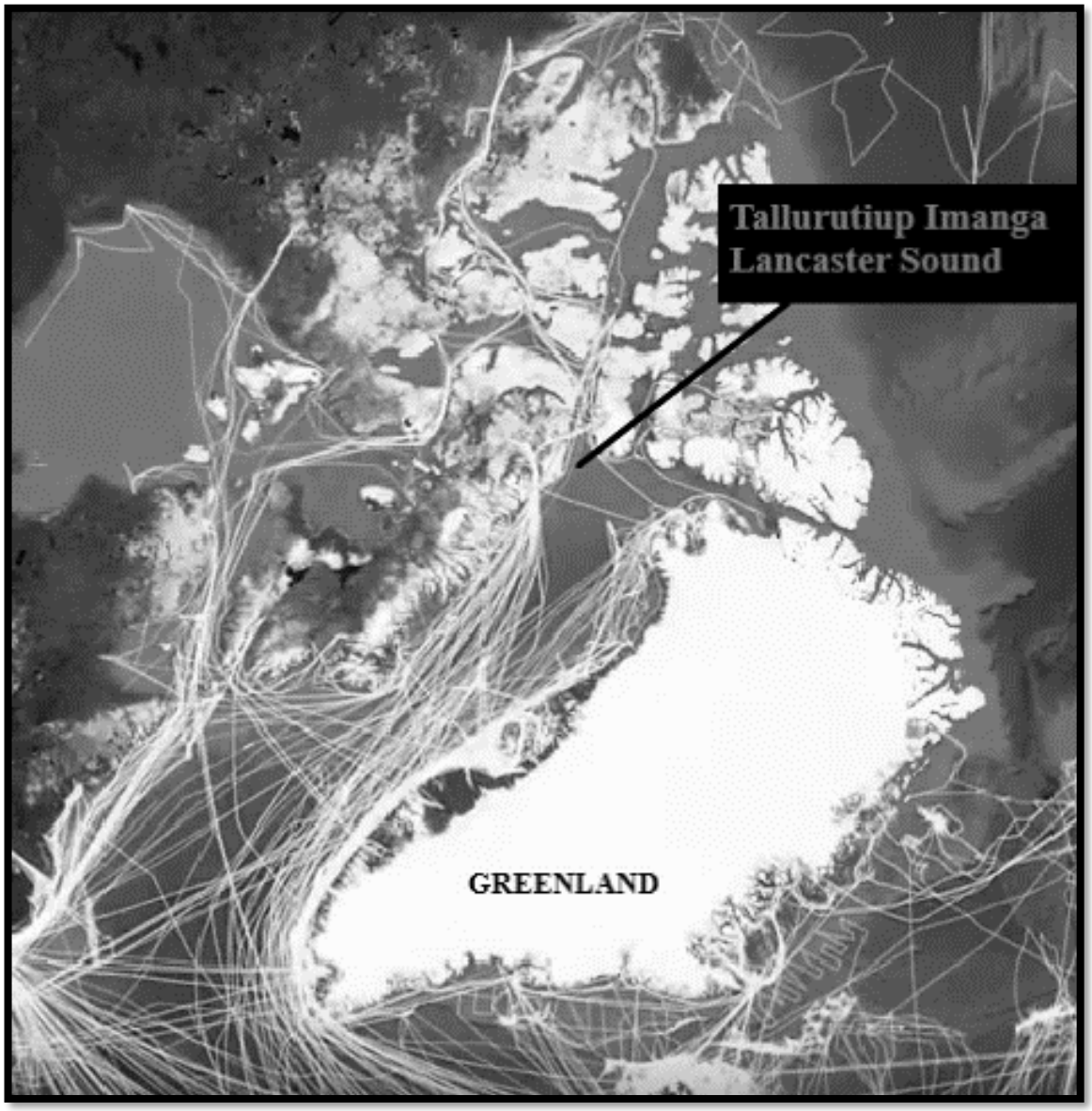


Figure 2.2 Shipping movement in Davis Strait, Baffin Bay and through the routes of the NWP in September 2018. Reprinted from PAME 2019.

In 1969, the GOC was focused on another type of voyage through the NWP: this time, made by an oil tanker retrofitted for Arctic conditions. The *S/T Manhattan* was owned and operated by Humble Oil Company (Humble), Houston, Texas (Coen 2012). It completed the voyage to help determine if the shipment of oil through Arctic waters could be an alternative to a pipeline that was under consideration from the North Slope of Alaska to Valdez, which is the most northerly ice-free port in the United States of

America (US). Prudhoe Bay oilfield was discovered in 1968 and the oil industry was considering how best to transport crude oil to refineries located on the west and east seaboards of the United States.

Canada claims sovereignty of the NWP, while the United States, the EU, and much of the international community consider the navigable routes as 'common-held' property for transportation (Parkey 2012). Canada does not consider the NWP an international strait, because that would compromise its sovereignty and sole authority for the governance of its internal waters (Parkey 2012). Policy scholars consider legal solutions unlikely to solve the on-going dispute, and that new forms of governance are required (Byers 2009; Griffiths 2008; Young 1987).

Extant literature includes a precedent for collaborative forms of arrangements to govern marine waters that are 'internal waters' and used heavily for destination and transit shipping. Flemming (2008) noted that the Saint Lawrence Seaway (Seaway) model is an institutional form of governance that could be applied to the NWP. The Seaway, a 3,700 km long commercial shipping waterway, is a combined system that includes the St. Lawrence River and the Great Lakes and contains one-fifth of the planet's fresh surface water (Parkey 2012). It is administered through the Saint Lawrence Seaway Development Corporation (SLSDC) of the US Department of Transportation and the Saint Lawrence Seaway Management Corporation: a non-profit Canadian corporation. Environmental protection programmes are managed jointly for the bi-national water system. Official oversight is provided by the International Joint Committee (IJC), which was created through the Boundary Waters Treaty (created in 1909) to handle Canadian-US concerns on shared waters (Flemming 2008). The IJC facilitates knowledge transfer and the adoption of best practices throughout the Seaway. Flemming (2008) considered the Seaway to be a successful demonstration of

collaborative governance and a model for how a cooperative treaty agreement between Canada and the US can be implemented.

In 1988, Canada and the United States 'agreed to disagree' over the legal status of the NWP, which was codified in the Arctic Cooperation Agreement (Parkey 2012). While mechanisms are in place to set aside complex legal matters, these do not provide assurance to those who regard 'industrial-scale' ship transits through Arctic Canada as an unwelcome prospect (Parkey 2012, p.172). Twenty-five years earlier, Young (1987) encouraged Canada and the United States to focus on the ecological and human system impacts of commercial activity, rather than on jurisdictional concerns and sovereignty disputes addressing the ownership of the NWP. Since Young's (1987) recommendation, numerous authors have suggested that the NWP should be administered using a functional approach that accommodates new forms of governance arrangements and institutional instruments (Charron 2005; Griffiths 2008; Kraska 2007). Steinberg (2014) argued that the NWP should be a territorial sea on the basis that 'there is an opportunity for navigating down a middle path that minimizes risk' and its designation would be consistent with UNCLOS (Steinberg 2014, p.102). It merits attention because it is likely to become a location of 'intensified conflict' and a commercial transit corridor (Steinberg 2014, p.102). Canada need not consider it a 'retreat from the more robust historic waters claim, it could equally be seen as a victory' (Steinberg 2014, p.102). In making the argument, Steinberg suggested that a territorial sea designation would affirm Canada's sovereignty of its northern waters in a more convincing manner than using straight baselines that are contested by the United States and many other states of the international community. On the other hand, Bing Jia (2012) used the NWP as a case study to promote a bilateral treaty between Canada and the United States, akin to the Panama Canal model. Arguing that a bilateral treaty would meet the requirements of

UNCLOS (under Article 311(2 and 3)) and possibly Article 35 of UNCLOS, Bing Jia put forth the concept as another alternative to resolve ongoing conflict, in advance of commercial development of these disputed northern waters. Evident in the review of scholarly work and political commentaries is that while environmental risks emerge to impact these disputed waters, there is no agreement between Canada and the intercommunity on the sovereignty of the NWP. Allied relationships need to prevail between the United States and Canada as 'the potential for an environmental disaster necessitate resolution of the Northwest Passage dispute' (Elliot-Meisel 2009, p.221).

2.7 Governing that Which Needs to be Governed – Seemingly Straightforward?

To consider how oil spill preparedness and response might be governed requires an understanding of how potential impacts are 'measured' in quantifiable and non-quantifiable terms. Risk profiles are dependent on the location, size, and the nature of materials that could be potentially spilled into the ice-laden or open waters of the Canadian High Arctic. Profiles are heavily influenced by the time of year a spill occurs; both the fate and transport of spilled materials are controlled by the weather, tidal conditions, and ice-conditions. In this thesis, a small spill is considered less than a ton of oil, a medium spill is up to 300 tons, a large spill is up to 5,000 tons, and an exceptionally large spill is up to 150,000 tons (Brisk Shipping and Security). Encouragingly, the number of large spills (over 700 tonnes) and medium spills (seven to 700 tonnes) has significantly decreased over the last few decades and particularly in the last 10 years (Figure 2.3). Economic impact to the actors responsible for the costs associated with the clean up and restoration, salvage and rescue, and the loss of a commodity and potential adverse trading consequence can be quantified. These are quantifiable direct costs and market costs. More difficult to define are non-quantifiable

losses and those associated with impacts to the natural environment, and human and non-human lifestyles. At this juncture, the concepts of 'passive-use value,' 'use-value,' and 'bequest-value' are useful to help facilitate analysis of actor interests (OECD 2006). These concepts help us to understand actors' perspectives on the functionality of place and how the physical and natural environment is considered for human and non-humankind purposes. 'Passive-use' value perspectives facilitate an analysis of the importance of the Canadian High Arctic as a place that actors care about but do not use for commercial or recreation purposes (WDOE 2006). 'Use-value' enables analysis of how actors view a place for fishing, hunting, transportation, or other forms of use that derive economic gain or subsistence for local communities. 'Bequest-value' is knowing that a place may be enjoyed by future generations. These definitions of value are used in this thesis in the analysis of actor interests and actor interplay to examine the role of *place* in the context of emerging environmental risks. As illustrated in Figure 2.3, International Tanker Owner's Pollution Fund (ITOPF) reports that over 80% of all spills are small (less than seven tonnes). Collisions at sea and allusions (collision with a stationary vessel) are the primary causes of large and medium sized oil spills followed by grounding.

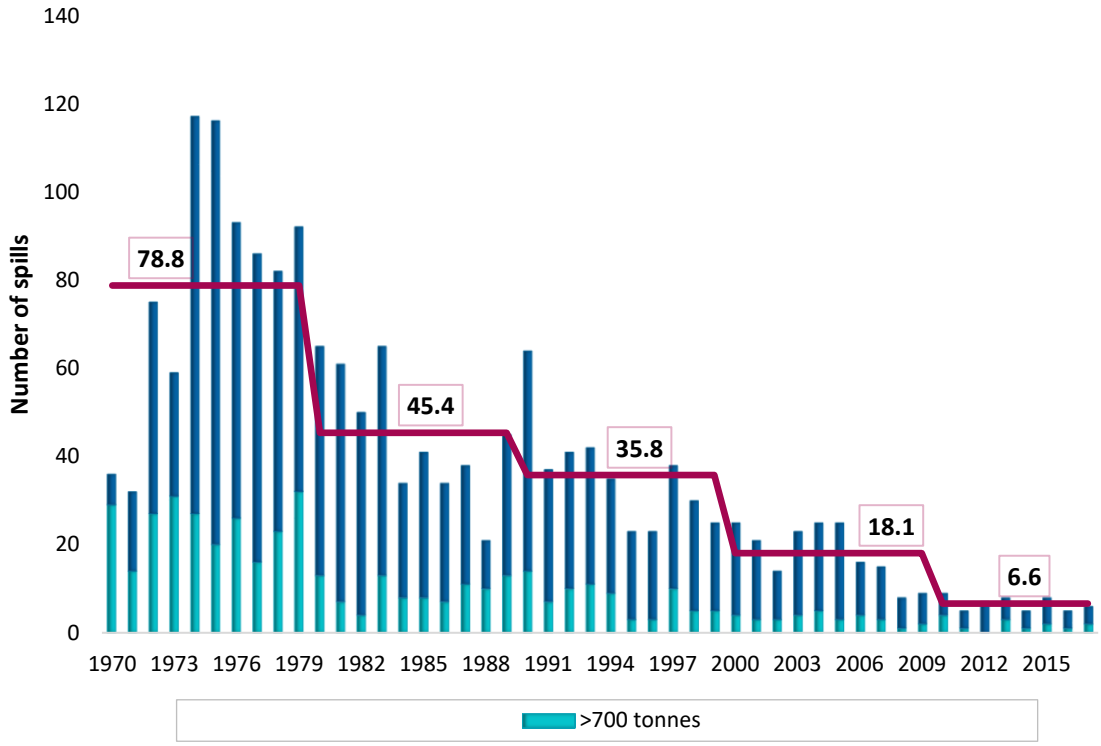


Figure 2.3 Worldwide number of spills (>7 tonnes) from 1970 to 2017. Reproduced from ITOPF.

Collision and allusion have increased over the last few decades, based on ITOPF statistics, while grounding, hull failure, and equipment failures have steadily decreased as a reason for oil spills. Relevant to shipping throughout the Canadian Archipelago, 99% of oil spills in restricted waters (not open seas) have occurred because of collision and allusion. The importance of these statistics for the purposes of the present study is that, for vessel movement through the NWP, navigation assistance, and vessel monitoring can be used to help mitigate the risk of an incident when using designated shipping corridors. The Arctic Council's working group, PAME, has identified the lack of infrastructure, communication systems, charts, and adequate search and rescue capabilities as a fundamental challenge for Arctic states and industry.[26] PAME

[26] Available at www.pame.is/index.php/projects/arctic-marine-shipping/amsa (accessed April 14, 2020).

concluded that the release of oil into Arctic waters (accidental or legal discharge) is the most serious threat from shipping.

Ford and Clark (2019 p.2) note that most communities along Canada's Arctic coastline are 'minimally prepared and resourced for the current SAR demands, which is largely dependent on volunteers.' Lack of SAR preparedness is concerningly similar to the absence of oil spill response resources in the Canadian High Arctic, and occurs for similar reasons. Ford and Clark refer to 'resources challenges as a pervasive barrier' and, in quoting remarks by Col. LeBlanc in testimony that was given to the Canadian Senate Standing Committee on search and rescue activities, highlight that the commitment of resources to SAR in the Canadian Arctic seems to be no different than to those required for oil spill preparedness and response (p.2). Col. LeBlanc stated, 'It's the lack of allocation of resources. At the end of the day, it's dollar signs as opposed to anything else. The government needs to shift its centre of gravity toward the North because the Arctic is opening up…Unfortunately, as you say, it will probably require a major disaster, a major loss of life, headlines across the world.'

Table 2.1

Summary of International Framework Agreements on Arctic Governance Key to Environmental Governance

	United Nations Convention on the Law of the Sea (UNCLOS[27]	**United Nations UNCLOS Article 234[28]**	**IMO Polar Code[29]**	**IMO Revised guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs)[30]**	**International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) [31]**
Relevance to Arctic governance	1994 UNCLOS is the dominant legal framework for governing the usage and resources of the Arctic Ocean. Foreign vessels have no right of passage within internal waters. Territorial waters within a 12-nautical-mile (22 km) limit are defined and there is a further 12 nautical miles (22 km) from the territorial sea limit in which a state can continue to enforce its own laws. Ratified by 167 parties including the EU but not the United States.	1982 Article 234 recognises the right of Arctic states to adopt and enforce non-discriminatory pollution prevention laws and regulations in ice-covered areas. Coastal states have the right to adopt and enforce non-discriminatory laws and regulations to prevent and control pollution from vessels in marine areas that are 'ice-covered' for most of the year.	2017 Adopted by the IMO in November 2014 as guideline. It includes ship design, construction, and operations. It also includes mandatory environmental protection measures for vessels operating in Arctic waters. Voyage planning is required and contingency plans for emergencies need to be prepared.	2005 IMO adopted the Revised Guidelines for the Identification and Designation of PSSA's [Revised Guidelines] (Lalonde 2013). Revised Guidelines recognise that increased global trade and shipping activity introduces greater risk for adverse effects to the marine environment. PSSA requires that measures to protect the area can be identified and implemented.	1990 Canada is a signatory of OPRC and be called upon and can call upon other signatory states for a major incident associated with commercial shipping, coastal ports and offshore units. OPRC was established under the umbrella of the IMO. Convention requires parties to establish measures to prepare for and respond to an oil pollution incident (Keil 2015). Provisions of OPRC have a binding effect but only require minimum standards of national preparedness and response.

[27] United Nations Convention on the Law of the Sea (UNCLOS)
[28] United Nations UNCLOS Article 234
[29] IMO Polar Code
[30] IMO Revised guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs)
[31] International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)

Table 2.2

Framework Strengths and Weaknesses in Consideration of High Canadian Arctic Environmental Protection

International Frameworks	Strengths	Weaknesses
United Nations Convention on the Law of the Sea (UNCLOS)	UNCLOS provides definition of terms for waters offshore Nunavut. Gives Canadian government power to protect marine ecosystem and to compensate victims of an oil spill. It allows Canada to use other national and international guidelines to protect the marine environment. UN Declaration on the Rights of Indigenous Peoples is endorsed by Canada and it is a non-binding aspirational document.in the region	UNCLOS does not contain substantive standards for enforcement of preparedness and response measures. UN Convention on Biological Diversity (UNCBD) requires Canada to preserve biological resources in its jurisdiction. Canada can apply UNCLOS maritime definitions and take into consideration other impacts that could occur on the high seas. Limited regional coordination presently exists in the application of UNCBD given the broad nature of the convention. UNCLOS contains no mechanism for adaption to emerging risks and new activities and those introduced by activities that may impact Tallurutiup Imanga/Lancaster Sound.
United Nations UNCLOS Article 234	Article 234 provides protection of ice-covered areas and gives Arctic States the ability to introduce and enforce environmental protection measures more stringent than otherwise accepted by the international community. Unilateral laws can be enforced which is unique in the context of UNCLOS.	Article 234 is ambiguous and presents interpretative problems in terms of prescriptive and enforcement jurisdiction in ice-covered areas. Article 234 does not address the possibility of straits lying within or partly with ice-covered areas. Definition of an ‘ice-covered area’ and the meaning of ‘most of the year’ are ambiguous and there is a question as to how long Article 234 will be deemed applicable to the NWP (Lalonde 2013).

(continued)

International Frameworks	Strengths	Weaknesses
IMO **Polar Code**	Revised Guidelines embrace the dangers of pollution posed by shipping and marine development. Guidelines recognise that some marine areas require special protection. Guidelines are directed more towards navigation routes, hazard awareness, and ship design and configuration rather than oil spill preparedness and response measures. PSSA protection measures need to approve by the IMO and meet legal requirements before implementation (Lalonde 2013).	Some of the Arctic Council member states have not been proactive in ensuring timely implementation of the Polar Code despite the recommendations made by its working group on the Protection of the Arctic Marine Environment (PAME), which deals with environmental and human safety issues in Arctic shipping.
IMO **Revised guidelines for the Identification and Designation of Particularly Sensitive Sea Areas (PSSAs)**	Guidelines acknowledge that 'with the increase in global trade and shipping activates, there is greater potential for adverse effects and damage to the marine environment' (Revised Guidelines 2005). Provides protection of areas significant for ecological, socio-economic, or scientific attributes vulnerable to international shipping.	Absent a regional vehicle it is unclear how Tallurutiup Imanga/Lancaster Sound could be designated a PSSA given uncertainty how a proposal from Canada would be received by the IMO given the legal dispute over the NWP (RFI 2008). IMO needs to adopt protective measures and be presented with a legal basis to approve a PSSA.
International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)	Convention covers oil pollution from ships, offshore units, seaports, and oil handling facilities.	No detail on oil spill planning or response is provided and parties only encouraged to develop standards. No dispute provided in OPRC and no central authority exists. OPRC is weak in terms of rule-making and implementation. Rule-making and implementation is weak.

(continued)

International Frameworks	Strengths	Weaknesses
Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic	Signed by Arctic Council members under the auspices of the Arctic Council. It generally applies to the waters within the Arctic 8 jurisdictions. Its aim is to strengthen cooperation on oil spill preparedness and response.	Agreement only applies to commercial shipping. Agreement is based on the capabilities of the Parties and the availability of resources. Agreement is based on a precautionary measure approach to avoid oil pollution. Overall, a weak Agreement with no central enforcement authority.

Table 2.3

The Arctic Council Working Groups and Guidelines

	Arctic Council	**Arctic Council Emergency Prevention, Preparedness and Response (EPPR) Working Group**	**Arctic Council Protection of the Arctic Marine Environment (PAME) Working Group**	**Arctic Council Arctic Offshore Oil and Gas Guidelines**	**Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic**
Enacted	Established 1996			First adopted 1997 Revised 2002 and 2009	2013
Relevance to Arctic governance.	A high-level inter-governmental forum developed through the Declaration on the Establishment of the Arctic Council (Ottawa Declaration) (Molenaar 2012). Six Working Groups meet once or twice a year and are focused on aspects of Arctic sustainability and protection.	EPPR is a forum to exchange knowledge on best practices and development of non-binding guideline. Much of the groups' work is aimed at the prevention and control pollution from vessels operating in Arctic waters.	PAME provided recommendations specific to preparedness and response. Recommendations included promoting collaboration among Arctic states as the IMO Polar Code is introduced and implemented. Recommendations also included prepare case studies that document oil spills in the Arctic and impact to the environment, ensure meaningful inclusion of indigenous peoples in marine activities, identify sensitive areas and assess Arctic infrastructure to support marine activity including salvage.	Guidelines developed under the auspices of the Arctic Council's PAME Working Group. Guidelines apply to the Arctic waters of the Arctic 8. Basic principles include adoption of a precautionary approach, sustainable development and the 'polluter pays' concept.	Governments of Canada, the Kingdom of Denmark, the Republic of Finland, Iceland, the Kingdom of Sweden, the USA (the Parties). Parties obliged to protect the Arctic environment and mindful of precautionary measures to avoid oil pollution.. Intent to strengthen cooperation, coordination, and mutual assistance between the Parties.

Table 2.4

Analysis of Arctic Council Strengths and Weaknesses

ARCTIC COUNCIL	Strengths	Weaknesses
Arctic Council	Arctic Council serves as 'meeting ground' for environmental protection and sustainability development discussions in the region (Rossi 2015). It acts as an epistemic community with 'decision-shaping' but not 'decision-making' capacity.	Arctic Council is criticised for its 'club-like' behaviour consisting of the Arctic 5. The 'unique' position of Arctic Ocean coastal states is perceived as giving exclusion to other actors (Rossi 2015).
Arctic Council Emergency Prevention, Preparedness and Response (EPPR) Working Group	EPPR directs its work on addressing threats to the Arctic environment and facilitating improved capacity to minimise these threats. Group is a forum to share experience and best practices through research and the development of technical information. Arctic Council members, permanent members, and observers contribute to the EPPR Working Group.	Working group guidelines and recommendations are non-binding.
Arctic Council Protection of the Arctic Marine Environment (PAME) Working Group	Mandate is to address policy on pollution prevention and control measures for the Arctic environment from land and sea activities. Provides a unique forum for collaboration on a wide range of issues. PAME working Group meets twice a year.	Working group guidelines and recommendations are non-binding.
Arctic Council Arctic Offshore Oil and Gas Guidelines	General principles for Arctic oil and gas development are based on behavioural rules, the precautionary measure approach and polluter pays principle.	No rule-making authority exists and there is no provision for dispute settlement. Guidelines are a weak form of governance. Aims for minimum standards to protect the Arctic marine environment.

2.8 Confronting Feasibility and Necessity: Is Collision Inevitable?

It is a helpful to consider the readiness of existing governance of the Canadian High Arctic to accommodate the nature of emergent risks, not envisaged in the past, to shape governance arrangements. Accepting that 'The Future is Now' allows us 'to get a hold of [the] future, to be ahead of it, and to subsequently manage risk through anticipation' (Neisser and Runkel 2017, p.170). As such, precautionary policies necessarily address something that has not yet happened, the examination of what is feasible and what is necessary to protect the Canadian High Arctic from an offshore oil spill remains a complex question.

Kutting (2014) argued that government actors place an undue emphasis on feasibility, as they operate within rigid and narrow administrative structures. Government officials and elected representatives often lack a clear understanding of the 'big-picture,' as their 'specialism' is accountability to constituents and socio-economic agendas that likely override environmental concerns. Tenure of elected representatives and appointed officials conforms to administrative timeframes, according to Kutting (2015), which supports the focus on feasibility of governance as opposed to a focus on what is environmentally necessary. If the future is immanent or already present, in the context of considering readiness to respond to an interruption of normalcy, then we must ask if policy-shapers, decision-makers, and those that commit resources are 'ahead of themselves' in anticipatory thinking. High Arctic environmental futures are uncertain on if oil spill impairment will occur and anticipatory governance has relevance as a 'notion of foresight' (Boyd et al. 2015, p.153). Complexity of the challenge to protect the distant and remote Arctic environments can be considered a barrier, or embraced as an opportunity by futurists, to frame governance arrangements (Boyd et al. 2015). Inclusion of actors with knowledge and foresight capacity can 'anticipate dimensions of

the present' to aid decision-making and choice-related questions' (Boyd et al. 2015, p.157). In the case of oil spill risk in the Canadian High Arctic, a normative claim can be made that while a potential spillage location is uncertain, the expected impacts can be anticipated, and mitigation measures understood. Functionality of governance can be conceptualised in terms of resources and equipment required to mitigate impact and while a challenge in the High Arctic, it is spatial uncertainty that makes anticipatory governance difficult in a future setting. In this thesis, I argue that despite inherent uncertainty on if, and where, offshore oil spillage might occur, there is evidence to show that 'action-orientated advice to policy and decision-makers to address or pre-empt future problems' is anticipatory action and uncertainty will prevail (Mittelstadt et al. 2015, p.1029).

The link between time and effectiveness with regard to this topic has not been made explicit in extant scholarly literature (Kutting 2000). In institutional terms, the concepts of time, social, and environmental rhythms are not prominent in existing research because institutional effectiveness is concerned with actor behaviour through closed-system analysis, which focuses on bureaucratic feasibilities rather than rhythmic necessities. Kutting (2000) theorises that governance structures that do not engage with the future are unable to accommodate interruption through introduction of mechanical rhythms. Humankind's involvement in socio-economic development is disruptive to the natural environment, which may lead to mechanical principles of rhythmicity that disrupt economic and social organisation (Kutting 2000). Extrapolation of Kutting's (2000) rhythm theory in the context of Arctic protection allows us to consider the interruption of normalcy of shipping that leads to impairment of the environment. This provides an example of a disruptive mechanical rhythm that would shock and require actors in prevailing governance to respond to an emergent environmental risk. Review

of institutional governance arrangements is anchored in gaining knowledge to analyse how the future is anticipated by actors, and whether there is tolerance to interruption through mechanical rhythms. It requires us to reflect on how time is not a linear movement in terms of environmental protection and how humankind activities have the potential to disrupt natural mechanical rhythms.

CHAPTER 3

PREVAILING GOVERNANCE IN THE CANADIAN HIGH ARCTIC

The voyage of S/T Manhattan through the Canadian section of the NWP in 1969 and 1970 was a defining event in the history of Canadian Arctic maritime policy (Huebert 1995). Officially, the US owners of S/T Manhattan did not request permission from the GOC to make the voyage, and it was viewed by Canadians as a direct challenge to Canadian sovereignty of its Arctic waters. As a result, the Canadian government examined its Arctic policies, which prompted the introduction of the Arctic Waters Pollution Prevention Act (AWPPA) on April 8, 1970 (Lalonde 2013).

AWPPA consists of two regulations: the Arctic Shipping Pollution Prevention Regulations (ASPPR) and the Arctic Waters Pollution Prevention Regulations (AWPPR). ASPPR is applicable to coastal waters within Canadian jurisdiction north of latitude 60 degrees. It deals with ship construction, on-board fuel and water management, ice navigation and pilotage, sewage, and oil deposit 'mishaps.' AWPPR applies to the liability associated with the deposit of waste in Arctic waters or any location on the mainland or islands of the Canadian Arctic. AWPPA initially allowed Canada to enforce safety and introduce pollution prevention controls on shipping within 100 nautical miles (nm) of its coastline. It was extended to 200nm in 2009 under the Harper government. AWPPA was promulgated by the GOC to enforce control over shipping in Canadian Arctic waters whether frozen or in a liquid state (Rothwell 1996). Its relevance to this research is that it gives the GOC the ability to govern the Canadian waters of the NWP and clarifies that the protection of the marine environment in consideration of alternative arrangements is legitimate within AWPPA and UNCLOS.

Accordingly, an examination of existing actor roles and responsibilities situated in prevailing governance is timely in the context of emerging environmental risks. This is especially the case given that it was the voyage of an oil tanker that initially spurred the GOC to invoke protectionist measures in the 1970s to mitigate against the same type of risk that exists today: oil spill impairment that could potentially result from an offshore oil spill.

Importantly, Article 234 gives Canada the ability to adopt and enforce rules and regulations to the limit of the EEZ. Article 234 does not include specific measures that can be taken to prevent, reduce, and control marine pollution. Lalonde (2013) expects that Canada will increasingly look toward Article 234 and AWPPA to protect the NWP, while the EU, the United States, and other states will continually look toward the clarity of international laws for the right of transit, and for the designation of the NWP as an international strait.

In practical terms, Lalonde (2013) questions whether Canada could respond to an environmental threat posed by maritime traffic, given that Article 234 is a product of diplomatic compromise and environmental protection cannot be enforced. Pharand (2007) opined that the only way to enforce environmental protection of the NWP is to place it under Canada's control. In agreement with Pharand, Bartenstein (2011) suggested that the enforcement of AWPPA and Article 234, coupled with new regulations, is needed to address emerging risks through multinational and unilateral mechanisms. Perhaps, as Bartenstein concluded, Canada might need to look toward the international community for compromise forms of governance, given that the same actors will continue to challenge the legal status, applicability, and enforceability of AWPPA and Article 234. For example, Canada's support for multilateral action for protection of the Beaufort Sea and Baffin Bay could command legitimacy at the global

level. Canada could also seek action on measures to protect the NWP or locations within it—such as Tallurutiup Imanga/Lancaster Sound—and encourage debate. Therefore, it is imperative to develop a proper understanding of the *willingness* of Canada and its people, and the *willingness* of the international community, to work together on adaptive forms of governance at a time when the complexity of Arctic geopolitics and the consequences of climate change are becoming increasingly intertwined.

In this chapter, the primary actors' roles in prevailing governance are introduced to situate today's arrangement and to provide a framework in which to analyse how these roles might be changed in the conceptualization of an alternative structure. In Section 3.2, government/institutionally led actors (collection-action model grouping) are introduced, and in Section 3.3 non-government entities (social-practice model grouping) are introduced. Section 4 examines transparency of actor interplay and the power relationships that exist among them using theoretical frameworks to help illustrate power dynamics and scale frames in the prevailing governance arrangement. Chapter 3 concludes with a discussion (Section 3.5) on how governance in the Canadian High Arctic might be re-imagined through a disruption of epistemological scale to include broader engagement of all actors in the protection of the marine environment.

3.1. Actors' Roles and Responsibilities in Prevailing Governance

Understanding an actor's role and responsibilities in the governance of the Canadian High Arctic requires inquiry into what drives behaviours to prevent and mitigate environment impairment of the marine environment. Further, it requires analysis of the role of actors that may cause such environmental impairment and the

mechanisms that exist to allow interplay with government institutions responsible for corrective action measures, if adverse impact to the environment occurs. I analyse actor roles and responsibilities in this literature review using collective-action and social-practice groups as models to 'bracket' actor interests (Young 2002). Young (2002) refers to those actors who 'draw on intellectual capital of economics and public choice and act as decision-makers basing their choices on utilitarian calculations' as 'collection-action models' (Young 2002, p.29). Young refers to actors that use constructs of anthropology and sociology thought process, and that consider culture and habits, as social-practice models. I adopt collective-action and social-practice models in this thesis as it allows examination on how actors operationalise the concept of 'welfare' and how the assessment of costs and benefit impacts decision-making. Further, it allows us to ask whether the prevailing governance is an identifiable structure that positions a defined assemblage of unitary actors and through which construction of scale it functions. In doing so, actor roles can be understood in the context of their interests and how their actions have historically been accommodated (or otherwise) in today's governance arrangements.

3.2 Collective-action model grouping

Collective-action models focus on utility functions, in which actors are typically signatories to formal state-level and multinational agreements, declarations, and treaties (Young 2002). These actors are often policy-shapers who approach decision-making using cost and benefit considerations, and 'maximize the net benefits to be derived from the choice' (Young 2002, p.34). In the environmental governance of the Canadian High Arctic, some of the key actors include the GOC, the United Nations, the IMO, the Arctic Council, and ITOPF. The Arctic Council, as a multi-state funded body, is

included in the collective-action model group. Reports on national security and defence policies, as prepared by the Senate Standing Committee on National Security and Defence, were reviewed in examining the role of the Canadian Parliament in the protection of the Arctic marine environment. The Senate is the Upper House in Canada's bicameral parliamentary democracy and consists of 105 Senators to propose bills and debate issues of national and regional importance.[32] The Senate's purpose is to 'counterbalance representation' and to give voice to groups that otherwise might be underrepresented including Indigenous peoples in the House of Commons. Senate Committee reports provide background on the role and responsibilities of the Canadian Rangers and the Canadian Coast Guard in the context of security and the protection of the Canadian Arctic marine environment. As a separate directive, the Government of Canada's Ministry of Transport has also required that Transport Canada provide reports on the protection of Canada's waters and those, relevant to Arctic protection, were also analysed as part of the literature review.

3.2.1 Maritime role for the Canadian Rangers

In 2010, the Senate Committee recommended to the GOC that marine capability should be an integral part of the Canadian Rangers' role in protecting Canada's north (GOC 2010). The Government supported this concept but specified there were no plans to equip the Canadian Rangers with any additional marine transport capabilities. The Government's response stated that many Canadian Ranger Patrol Groups are equipped with marine transport to conduct coastal and inland water surveillance. There was no

[32] https://sencanada.ca

mention in the Government's response regarding a role for the Canadian Rangers in terms of oil spill preparedness planning and emergency response. However, the response did mention that Canadian Rangers use their own vessels, for which reimbursement is provided.

Independent of the Senate Committee report, the Senator for Nunavut was also accorded the opportunity to make a submission to the GOC Defence Policy Review in July 2016. In support of the submission, a Defence Policy Review Roundtable was hosted by Senator Patterson and attended by residents of the Eastern Arctic. The primary focus of the roundtable was to discuss Arctic salvage and rescue and a potential expanded role for the 'Vigilans' in oil spill response. Senator Patterson noted that 'Vigilans' is the Rangers' motto and that they have a vested interest in protecting the Arctic from future harm. In the submission to the Government, Senator Patterson—as he did while part of the Senate Committee's work with Fisheries and Oceans—argued that providing the Rangers with a maritime mission would lead to better situational awareness for search and rescue and oil spill response. Expanded roles for the Canadian Rangers would also create new employment opportunities and increase the capacity of Arctic communities to serve as trained first responders.

Sharing a similar sentiment, Charlie Lyall, an Inuk businessman from Nunavut, suggested to the Government's Standing Senate Committee on National Defence in 2010 that: 'The Rangers are a flexible, inexpensive and culturally inclusive way for Canada to show the flag in the North. The Rangers also encourage local leadership and capacity-building in the community' (GOC 2010, p.34).

Assigning the Canadian Rangers a maritime role to help protect the offshore environment would constitute an 'intrinsically valuable 'force multiplier' (CIGC 2016, p.45). This would enable expansion of locally based resources to 'support actual

activities, rather than using growth as a symbol of heightened commitment' (CIGC 2016, p.45). Expanding the Rangers' maritime role would function as a demonstration of the federal government's intent to introduce 'policy-making efforts to develop a collaborative, culturally complex 'whole-of-government' paradigm (CIGI 2016, p.44).

Noting that translating 'whole-of-government' philosophy into effective planning can be difficult, Major-General Coates commented that institutional departments tend to remain isolated and focus on their own priorities because 'there is no single focus point for domestic federal arctic efforts,' which provides to us a lesson on how arrangements to govern emerging environmental risks might benefit from broader actor interplay and higher levels of collaboration (CIGC 2016, p. 44).

3.2.2 Role for the Canadian Coast Guard

The Senate Committee recommended that the CCG, as the 'expert agency,' formulate and implement a long-term strategic vision to guide its future operations in the Arctic. The Government supported this recommendation and the DFO introduced an internal process to develop a strategic 'Arctic Vision' led by the Commissioner of the CCG. Its purpose is to provide strategic direction on operations including the opening of potential linkages with other government departments and northern agencies to confront challenges associated with the ever-expanding demands on the CCG to protect the Arctic in terms of security, shipping support and environmental protection.

The CCG's vision for the Arctic, expressed in a 2015 presentation at the Centre for Foreign Policy Studies, emphasised its ability to serve as the lead federal agency to respond to marine pollution in Canadian waters.[33] In case of a needed response,

[33] Available at CCG Services in the Arctic, Centre or Foreign Policy Studies, Presentation by Daniel Breton, World Class Strategies (5 June 2015). Accessed October 24, 2016.

equipment, and personnel, would be mobilised from across Canada and other Arctic Council states for deployment in spill response. An element of the Arctic Vision also anticipates that a Northern Marine Transportation Corridors (MMTC) initiative (now referred to as the Corridors Initiative) will be required to reduce risks of incidents by enhanced marine navigation systems.

As a separate directive of the GOC, specific to oil spill preparedness and response, Transport Canada (TC), on behalf of the Government's Ministry of Transport (Transport Canada 2014), prepared two reports for the protection of Canadian waters: *A review of Canada's Ship-source Oil Spill Preparedness and Response Regime–Setting the Course for the Future* and *A review of Canada's Ship-source Spill Preparedness and Response; Setting the Course for the Future, Phase II – Requirements for the Arctic and for Hazardous substances* (Phase II Report). The Phase II Report provides recommendations for prevention of marine accidents, including a review of shipping safety control zones, Arctic shipping pollution prevention regulations, and ship design including hull strength, safe hull ice-loads for polar classes of vessels, endorsement of Ice Navigators and (in consultation with the shipping industry), meeting Polar code requirements.

In support of Phase II report preparation, TC engaged with High Arctic indigenous peoples' institutions, the GN, and the Shipping Federation of Canada to solicit input on spill response readiness. TC asked, 'What are the mechanisms in place for outreach and engagement of Northern communities?' In response, the Arctic Regional Advisory Council and the Government of Nunavut stated:

> Regrettably, the oil spill response components of the Federal Government are conspicuously absent throughout the North, except for brief periods during the summer months. ARAC is aware that the Canadian Coast Guard has been challenged to engage the public and secure volunteers willing to take free training that was offered.
> - Arctic Regional Advisory Council. May 2014.

> The DOE has neither the extensive training, nor, the type of specialized equipment required to respond to a marine-based spill. There have been occasions where our officers have gone out in their patrol boats to investigate oil slicks and reports of ship-sourced spills; in these cases, the officers served a useful purpose by providing first-hand information to the marine responders before they arrived on the scene to take charge. Based on conversations with colleagues in the Canadian Coast Guard, it appears that it has been an uphill battle for them to secure volunteers who are willing to avail themselves of the free training that the Canadian Coast Guard offers.
> - GN (DOE)

The GOC released a press announcement in November 2016, expressing a commitment to protect Canada's marine environment through a plan that meets (or exceeds) international standards and engages with remote populations.[34] The announcement stated that priority areas would be addressed in the DFO Oceans Protection Plan:

- Restoring and protecting the marine ecosystems and habitats, using new tools and research, as well as taking measures to address abandoned boats and wrecks
- Strengthening partnerships and launching co-management practices with indigenous communities; including building local emergency response capacity
- Investing in oil spill clean-up research and methods to ensure that decisions taken in emergencies are evidence based.

The Oceans Protection Plan also served as a catalyst to create the CCG Auxiliary for the Arctic. There is no reference to the provisioning of North Baffin communities with dedicated staff or spill response equipment. Indigenous partnerships are mentioned to help understand shipping impacts, provide vessel patrols, and assist with measures to monitor oil spill clean-up and in the development of training programs, but no details concerning which mechanisms the GOC will enact to achieve

[34] Available at https://pm.gc.ca/en/news/backgrounders/2016/11/07/canadas-ocean-protection-plan (accessed December 12, 2016).

this aim are included. The plan sets out a clear expectation that the new Arctic Region will allow Inuit to be involved in decision-making to protect the marine environment. The announcement indicates that the Arctic Region will be implemented in phases and that the GOC will initially employ a DFO Regional Director to be based in Ranken Inlet (Nunavut). The plan also provides for the employment of a new Assistant Commissioner of the Coast Guard, to be based in Yellowknife (Northwest Territories). Again, this is significant in the context of this research, as it affords us an opportunity to consider how alternative arrangements to protect the Canadian High Arctic could be situated within the GOC's new Arctic Region programme. While the Arctic Region programme provides for engagement of northern communities, the inclusion of Canadian Rangers, which has been specifically promoted through the Senate and the recommendation of Senator Patterson, takes on a dimension of added attractiveness.

3.2.3 Government of Nunavut and Engagement of Nunavummiut

The Senate Committee recommended that Inuit be recruited for the CCG whenever possible, given their knowledge of the marine environment offshore Nunavut. The GOC supported this recommendation and, in its response, referred to Section 23.2.1 of the Nunavut Land Claims Agreement (NCLA), which includes objectives to elevate the level of Inuit recruitment in federal employment within Nunavut to a representative level. Aside from this obligation, in its response to the Senate Committee, the GOC recognised the traditional environmental knowledge that Inuit are able to provide in support of Arctic programs. In representing interests of Nunavummiut, the GN's DOE is responsible for land-based environmental management and marine pollution impacts, exclusively to the Nunavut coastline. In support of the DOE's work to protect the land and coastline of Nunavut, it has

participated in the Spills Working Agreement and the attendant Spills Working Group since 1985.[35] The purpose of the Spills Working Group is to establish a clear division of agency responsibilities in the event of a spill of oil or other hazardous materials on the lands of Nunavut and the Northwest Territories. While not focused on offshore incidents, the Spills Working Group is an arrangement that was founded on the basis of agency cooperation and the conveyance of common environmental protection goals.[36] Lessons from the Spills Working Group are relevant to a consideration of how collaborative governance in the Canadian North can apply to offshore governance of oil spill preparedness and response. First, the success of the Spills Working Group demonstrates that cooperation between agencies based north, and south, of 60 degrees latitude is possible. It also demonstrates that an agreement and an attendant working group, which is organised and structured to accommodate inclusion and active participation of state and non-state actors, can be sustained. Noteworthy in terms of relevance to this research, the Spills Working Group clearly specifies a lead agency designation and outlines its responsibilities. Lead agency designation requires cooperation and communications between all state and non-state actors and makes available non-confidential knowledge across the actor network. These actors include the CCG (Western Region and Central and Arctic Region), TC (Prairie and Northern Region), Environment Canada (Environmental Emergencies), INAC, and NEB.

[35] The first Spills Working Agreement was agreed in 1985 and referred to as the Working Agreement on Government Response to Spills in the Northwest Territories. The current NT/NU Spills Working Agreement signatories include the GN; the Government of Northwest Territories; Aboriginal Affairs and northern Development Canada (formerly INAC); Environment Canada; CCG; Transport Canada; National Energy Board; and the Inuvialuit Lands Administration. The Department of National Defence. Northern Region Headquarters and Parks Canada, while not signatories to the agreement, are active participants and contributors to the agreement.

3.2.4 Nunavut Marine Council

The Senate Committee recommended that Part 4, Article 15.4.1 of the 1993 NCLA be used to form a Nunavut Marine Council (NMC) as a forum for priority setting and planning of marine activities, including practical means to enhance Canada's sovereignty. The GOC partially supported the Senate Committee's recommendation and noted that under the NCLA:

> The responsibility for determining the need for a Nunavut Marine Council lies with existing Boards (NIRB, NWB, NPC, and NWMB). Canada would support the consideration of any future creation of a formal Nunavut Marine Council upon receipt of a recommendation and appropriate justification by the Boards

Further, the GOC commented that Indigenous and Northern Affairs Canada (INAC) provides incremental funding to these Boards to 'assess the viability, feasibility, and desirability of them convening as a Nunavut Marine Council in a more regularised manner.' It also stated that the Executive Directors of the Boards considered the establishment of the NMC unnecessary and suggested that a project-driven approach was appropriate.

Since those comments were made in 2009, the NMC has engaged on isolated matters important to Nunavummiut and established a website in 2016 to present its work, but it portrays a 'shell' entity without administrative structure and lacks representation of any substantive programs. While historical funding has been provided by the GOC to support administrative functions of NIRB, NWB, NPC, and NWMB, funding at levels higher than in the past would require the GOC and the GN's commitment to allow the council to make a meaningful contribution to a form of regional governance. Part 1 Principles of the NLCA, Sub-section 15.1.1 (f) of Article 15 Marine Areas states that 'there is a need to develop and co-ordinate policies regarding the marine areas.' Sub-section 15.1.1 (g) further states that 'there is a need for Inuit involvement in aspects of

Arctic marine management including research.'[37] Elaborating on marine management, Sub-section caps 15.4.1 of Article 15 reads:

> The NIRB, the NWB, the NPC, and the NWMB may jointly, as a Nunavut Maritime Council, or severally advise and make recommendations to other government agencies regarding the marine areas, and Government shall consider such advice and recommendations in making decision which affect marine areas.

Pursuant to Section 15 of the NLCA, the resource management authorities of Nunavut have authority through the NMC to advise and make recommendations on marine areas. The GOC must consider such input in making decisions on marine areas. Aside from correspondence from the council to the GOC on matters regarding proposed seismic testing in the Baffin Bay/Davis Strait region, no other activity was identified during a policy review.[38] In the context of maritime transportation and natural resource development, an aim of the NMC is to ensure that the Nunavummiut voice is expressed and considered in debating both the challenges and opportunities associated with Arctic marine area development.

3.3 Social-practice Model Grouping

Behaviour that is considered normatively correct and proper is an actor trait associated with a 'social-practice model' (Young 2002). A distinguishing feature of this model is that behaviour is not driven by cost and benefit towards maximising net benefits. Actors align with the social-practice model to engage in governance on matters deemed appropriate to their role and the representation of their interests (Wendt 1999). An actor in this group 'will not organise its thinking in terms of questions about compliance and

[37] Available at Nunavut Land Claims Agreement (NLCA), www.tunngavik.com/blog/publications/nunavut-land-claims-agreement-nlca (accessed October 18, 2016).
[38] Letter to the Honourable Bernard Valcourt, Minister of Aboriginal Affairs and Northern Development, 10 Rue Wellington, Gatineau, QC K1A OH3 from Percy Kabloona (NPC), Thomas Kabloona (NWB), Ben Kovic (NWMB) and Elizabeth Copland (NIRB) (11 July 2014).

living up to commitments' (Young 2002, p.33). Academic stakeholders and NGOs (WWF-Canada, PEW Charitable Trusts [PEW] and Greenpeace) represent epistemic communities in this group relevant to the Canadian High Arctic. Table 3.1 provides more detail on actors in the social-practice model grouping, their roles and the interplay that exists among them based on the literature review. Epistemic communities that are understood at a local scale can enable knowledge-based environmental policy to confront specific issues at specific locales (Mabon et al. 2019; Mattiuzzi and Chappie 2020; Cross and Davis 2013). Mabon et al.'s work focused on how epistemic communities contribute knowledge and support scientific analysis to ensure that 'local environment and climate policy is informed by the robust evidence base required for what are very real and harmful risks' (p. 168). This work was specific to the environmental history of Fukuoka, Japan and raised the awareness that societal groups can elevate concern regarding the nature of environmental issues at a local level. Mabon et al. engage with Toke's work to illustrate that a 'strong and reflexive epistemic community is a valuable part of understanding an appropriate response' to environmental challenges. 'Cocreation, co-production and the integration of scientific with traditional and local knowledges are indeed acknowledged' to be critical in the shaping of policy and decision making (p.168). Embracing this philosophical approach towards environmental governance, it serves to remind me that in conceptualizing new forms of protectionist measures, the inclusion of epistemic communities (local populations, scientists, academics and special interest groups) need to be positioned to construct 'evidence-driven response' to confront the emergent environmental challenge of preventing adverse impacts of an oil spill in the Canadian Arctic.

Table 3.1

Social-Practice Model Grouping

Non-government Organisations	In the 1970s, there was an increase in the amount of academic work in the realm of international relations specific to cross-border engagement of non-state actors. Keohane and Nye examined the roles of non-state actors in state dominated systems (Florini 2008). Global policy making saw the increasing inclusion of environmental agendas, spurred by a rise in economic development, advances in transportation, and heightened awareness of the adverse impacts that can be associated with natural resource development and industrial processes. Since the post-Cold War era, and beginning in the 1990s, scholarly work advanced debates on the role of non-state actors in transnational relations and, amongst other considerations, questioned if NGOs mattered in international politics and governance shaping. Florini references Boli and Thomas's work, completed in 1999, which argued an NGO's authority is determined by the legitimacy of its structure within the global community, its procedures, its purpose, and the credibility of its members. NGO legitimacy in Canadian High Arctic governance is examined through the analysis of WWF-Canada and PEW Charitable Trusts.
World Wildlife Fund for Nature – Canada (WWF-Canada)	WWF-Canada's work in the Arctic includes supporting communities, renewable energy solutions, and sustainable fisheries, while protecting marine habitats. A priority of WWF-Canada's work is associated with shipping through the NWP, and to support Inuit action to protect Tallurutiup Imanga/Lancaster Sound and the Polynya. Examples of WWF-Canada's work include 'Modeling Oil Spills in the Beaufort Sea: Exploring the Risk; What would happen if oil spills in the Beaufort Sea?'[39] This report provides a detailed analysis of oil spill modelling scenarios and an overview of possible impacts to ice-covered areas and open seas areas of the Beaufort Sea. WWF-Canada also released 'Best Practices for Arctic Shipping,' which included recommendations for voyage planning, emission reduction, and avoidance of sensitive wildlife habitat; this has become a framework document for developing the Corridors Initiative. In March 2017, WWF-Canada also commissioned a report titled 'Background Information for Community Oil Spill Response Planning in Pond Inlet, Resolute, Grise Fiord, and Arctic Bay' (WWF-Canada 2017). It included the statement: 'there is need for Inuit involvement in aspects of Arctic marine management and that a top priority of the current Government is to consult and cooperate with Indigenous peoples in accordance with the UN Declaration on the Rights of Indigenous Peoples.' Recommendations provided in WWF-Canada's report on how these communities can be involved in spill preparedness were: • Assess how and what degree outside resources might assist in oil spill response. • Identify existing resources that could be developed and strengthened. • Identify priority areas for protection and support preparation of sensitive area maps. • Seek support for stronger response capacity by advocating for changes to the regulatory regime, such as for provisions that would ensure each community has equipment to respond to a spill of a certain size. • In 2017, WWF-Canada concluded that 'there is no Canadian Coast Guard process in place to ensure that sufficient equipment will ever exist in any of the villages, to clean up the amount of oil that could spill from ships currently traveling the region' (WWF-Canada 2017, p.38). WWF-Canada openly expressed that it looks forward to working with local communities, government officials, and industry to complete the management plan and to set aside ecologically sensitive areas consistent with the intent of the Oceans Act.
The PEW Charitable Trusts (PEW)	PEW is an independent, non-profit organisation established by Sun Oil Company founder Joseph N. Pew and his wife, Mary Anderson Pew. It is a global research and public policy organisation that operates as a non-partisan, non-governmental organisation dedicated to serving the public. Informed by the founders, PEW's stated mission is to:

[39] Available at http://awsassets.wwf.ca/downloads/wwf_beaufort_sea_oil (accessed May 2, 2017).

- Improve public policy by conducting rigorous analysis, linking diverse interests to pursue common cause, and insisting on tangible results;
- Inform the public by providing useful data that illuminate the issues and trends shaping our world;
- Invigorate civic life by encouraging democratic participation and strong communities.

PEW, in partnership with Ducks Unlimited Canada, oversees the work of Oceans North Canada, which promotes science and community-based conservation to support the well-being of indigenous peoples and the protection of the Canadian Arctic Ocean. As self-described in organisational materials, the purpose of Oceans North Canada is to work with Arctic residents to 'support science-based policies consistent with indigenous land claims and traditional practices for sustainable commercial fishing, environmentally responsible offshore hydrocarbon development, and oil spill standards, and appropriate Arctic shipping safety rules.'[40] PEW and Oceans North Canada have active programs that address Arctic shipping and provide scientific knowledge in support of the protection of Baffin Bay and Davis Strait, and Tallurutiup Imanga/Lancaster Sound. This work includes generating awareness to the public of the significance of the North Water Polynya, completing scientific studies on marine mammal futures in the Arctic, advocating to the GOC that seismic testing should not be permitted in Tallurutiup Imanga/Lancaster Sound, and supporting the region as a National Marine Conservation Area (NMCA).

Epistemic communities of academia, professional organisations and scientific groups in policy-shaping and decision-making

Critical of international relations scholarship, Cross (2013) suggests that much of the research on epistemic communities has restricted the empirical concept too narrowly, and that focus on single communities excludes engagement of broader groups and limits policy-shaping influence. In an increasingly globalised world, or a region vulnerable to the impacts of commercial development, like the Arctic, epistemic communities can be promoters of transformative change in governance (Cross 2013). Scientific discovery and the exchange of new knowledge are paramount in the understanding of climate change and the resultant impact of decreasing sea-ice levels on communities and the natural environment. In the face of these uncertainties, the relationship between government, non-state actors, and epistemic communities needs to be 'highly synergistic; and why the central attribute of epistemic communities is their professionalism' (Cross 2013, p.138). Haas (1992) building on his work with Mediterranean communities in 1990, operationalised the concept of epistemic groups and defined it as 'a network of professionals with recognised expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within domain or issue area' (Cross 2013, p.143). Engaging with Cross's work on the placement of epistemic provides informative lessons on functionality of governance and application of knowledge-based subject matter in policy shaping. Uncertainty of governments on how to govern at a spatial and functional level stands out 'as a significant scope condition for epistemic community influence' (Cross 2013, p.145).

A counter argument is that epistemic communities can be over-estimated in their ability to influence policy, as politics of scale can limit access (Toke 1999: Loblova 2018). Toke (1999) has further suggested that governments can better navigate the uncertainties of shipping activity in terms of risks to the environment. In relation to this recommendation, research methodologies were designed for this research to evaluate how epistemic communities engage with the GOC and to determine the degree of synergistic relationships across the broader actor network. Toke (1999) suggested that epistemic communities can only have influence on policy shaping and decision-making if aligned with a political agenda; however, it is necessary to evaluate what that means in the context of the protection of the Canadian Arctic and actor interplay. Epistemic communities with weak connections to the GOC must get involved in the policy-shaping process from *within*, despite the fact that the challenge of prevailing scale prevents or limits such influence (Mohan 1999; Goncalves 2014; Haas 2016).

[40] Available at www.pewtrusts.org (accessed January 12, 2018).

The Government of Canada's role in governance in consideration of authority expressed through political processes is outlined in the collection-action model grouping. It reflects that interaction between the national government and the transfer of powers to the Government of Nunavut on the mitigation of potential oil spill impairment are not intertwined. In terms of scale, the Government of Canada is dominant in power relationships and its policy shaping and decision-making made distant to the political processes that operate within Nunavut. The analysis shows that the Government of Canada's Ministry of Fisheries and Oceans oversees the Canadian Coast Guard. The Coast Guard is responsible for responding to an oil spill in Canadian waters and would work with a 'polluter' to mitigate impairment. Not clear in the literature review is how the Government of Nunavut and Nunavut institutions and local organisations has been afforded the opportunity to participate in governance framing. This is significant given the remoteness of a potential spill location, the difficulties in responding to a spill in the Arctic environment associated with potentially hostile weather conditions, ice-laden waters, lack of local resources, and the number of days it would require to mobilise human resources and response equipment to a spill site. This represents a unique challenge to the Ministry of Oceans and Fisheries and the burden of responsibility to respond to a spill and protect Canada's marine environment lies with the Coast Guard. As noted, the Coast Guard was authorised to establish a programme to provide seasonal resources in the Canadian Arctic based on need, but the resources allocated appear to be minimal in terms of being able to respond to a spill that could severely impact the environment. Accordingly, there is a pressing need to confront the appropriateness of today's governance arrangement given a risk profile that includes the emergence of environmental risks associated with the acceleration of shipping through Arctic waters and the lack of resources that exist to respond to an offshore incident. In

doing so, it is helpful to reflect on the analysis of prevailing governance and to engage with scholarly work that confronts alternative arrangements that could shift processes of policy shaping and decision making to allow inclusion of Nunavut institutions and other actors including NGOs, industry, academia, and multistate organisations.

Prevailing governance in the Canadian Arctic is dominated by the Government of Canada through its institutional power of influence. It is a top-down hierarchical structure that positions Oceans and Fisheries as the responsible Ministry into which the Canadian Coast Guard reports. Weak linkages exist between the Ministry and the Canadian Coast Guard and non-state organisations, local communities, NGOs, academia, and industry. Based on my analysis the linkages are through ad-hoc arrangements on a requested basis or invitation. Most notably, the Government of Canada is an active participant in the Arctic Council and is influential in the identification and completion of its programs through its contributions to the working groups. The other linkage that is significant to this research is that Transport Canada interacts with the Arctic Council, IMO, ITOPF, NGOs, and academia work to protect the marine's environment through dedicated shipping corridors through the Canadian Arctic. Sparse knowledge exists on any type of collaboration between the Government of Canada and the Government of Nunavut and Nunavut institutions, or forms of engagement with Nunavut coastal communities. The analysis does show that attempts by the Transport Canada and the Canadian Coast Guard to include Nunavut coastal communities in oil spill response planning have not been successful. According to government documents, this is because community residents sought compensation for their inclusion. This leads me to believe that today's top-down and hierarchical governance arrangement exclude Nunavut communities because the Government is not willing to compensate residents for time and expenses. If so, what does this say about

the level of investment in environmental protection and how the complexity of political process influences decision-making. Conversely, given the dependence that Nunavut residents have on the natural environment it should be asked if engagement in governance, albeit without compensation, is protective of their own lifestyles and worthy of engagement. I conclude, based on my analysis of the data, that the lack of knowledge on community engagement with the Government emphasises the need for further analysis on how state and non-state actors approach environmental protection in the Canadian Arctic, knowing that potential oil spill impairment is a shared concern, and the severity of the financial impact could be devastating to community lifestyle, as a result of the loss of natural resources.

Of significance for this thesis is that the analysis of prevailing governance indicates that the complexity of dynamic relationships between Nunavut communities, the material conditions of the natural environment, the Government of Canada, and other actors is not reflected in today's governance. With this knowledge, the re-scaling of the political processes needs to conceptualise, wherein current actor roles are disrupted, the complex dynamics that exist between society and material conditions of place are better understood, and this knowledge used to construct an alternative governance arrangement. Based on the findings of the literature review analysis, the level of collaboration that exists between actors in the collective and social action models is not apparent. Neither is there indication of actor intent, in terms of what benefits might be gained through working in a collaborative manner.

Prevailing governance is consistent with an 'old' style institutional-led arrangement dominated by the Government of Canada through a top-down, rigid hierarchical structure in which engagement with other actors is weakly intertwined and primarily through informal arrangements. It is a governance approach that scholars of

environmental governance seeking more collaborative and cooperative arrangements with broad actor interplay reject, on the basis that it does not position societal and environment interests in the political process of decision-making. Bringing together actors can be problematic in pursing collaborative mechanisms, and it can be a case of making collaboration work, but the question remains as to whether protecting the Canadian Arctic is a prerequisite of environmental governance (Baird et al. 2016). Oil spill mitigation in the Canadian Arctic is very complex and the challenge to protect the marine environment has not been met. Herein, I argue that while the Government of Canada is the most powerful actor in terms of its ability to commit resources, there are other pivotally important actors that can contribute knowledge, capacity, and leadership. Oil spill response and mitigation in the Canadian Arctic is too large an environmental issue and it is beyond the ability of the Government of Canada. An alternative arrangement that situates the Government of Nunavut, Baffin communities, WWF-Canada, PEW, ITOPF, academia, and IMO to work with the Government of Canada in 'collaborative governance arrangements that pool, recombine, and coordinate the deployment of the varied resources and competencies of multiple actors,' can be conceptualised using a theoretical framework of a post-institutional type (Karkkinenan 2004, p.74). It would be an arrangement that is limited to the functional sphere of mitigating potential oil spill impairment and at a spatial scale with boundaries defined (at least initially) by the Tallurutiup Imanga/Lancaster Sound national area and that includes socio-economic and natural environment scales, which as referenced earlier in this thesis, are all too often not addressed in environmental governance. It is envisaged that a new form of governance would be constructed based on 'task-specific' and not 'general purpose governance' (p.74). In selecting the theoretical framework, the key attributes that I wish to situate within a new form of conceptual governance include: a)

decision-making is based on a problem-solving approach through constellations of state and non-state actors, b) continuous refinement through ongoing incorporation of new knowledge, c) durable commitment of actors to continually address the complex and challenging task of environmental protection, and d) that new governance is not 'overly' hierarchical.

I adopt Bevir's (2012) definition of collaborative form of governance as 'any attempt to create and conduct policy that involves sustained participation by public and voluntary sector actors' (p.109). Taking a step further, Bevir also referred to collaborative governance as 'attempts to bring all relevant stakeholders together face-to-face discussions during which polices are develop.' In this research, I chose to employ the latter of Bevir's definitions, as it speaks toward more active engagement in participatory processes. Ideally, collaborative governance is a process of interactions that brings together actors that can contribute a range of knowledge, experiences and perspectives. It is not 'whole of government,' Bevir noted, because it brings multiple actors into policy shaping processes and not just institutions or departments within government. An attractive attribute of collaborative forms of governance is that they can provide communication pathways that otherwise would not exist for actors who would otherwise be excluded or have been neglected. Bevir (p.114) referred to governance as theory as it 'decentres the state' and the state cannot be separated from the people. Akin to conceptualizing new forms of governance, it gives me theoretical perspective to consider how governance processes might be shifted to disrupt the prevailing role of government dominated governance. 'Governance theory (and related ideas) has led people to see the world differently,' according to Bevir (2012, p.114), which leads me to question and explore what disruption could be possible to prevailing governance that would allow for better protection of the Canadian Arctic. Bevir's

doctrine is that central governments are becoming less powerful and accommodating of new governance approaches. However, would this be the case if the Government of Canada were presented with an alternative form of governance specific to place (Tallurutiup Imanga/Lancaster Sound) and function (oil spill risk mitigation)? As a researcher, there exists a window of opportunity in the face of emerging environmental risks for the Government of Canada to consider what a form of 'new' governance can look like to protect the Canadian Arctic. As Bevir (2012) suggested, 'the best way to evaluate concepts is to ask whether or not they are adequate for whatever task we want to use them for' (p.20).

New governance in the context of the Canadian Arctic would require that the Government of Canada becomes increasingly dependent on non-state actors: those organizations, NGOs and communities that collectively can be referred to as civil society (Bevir 2012). The presence of multiple actors who drive coordination to seek a common outcome and 'work together to produce it' (p.28) is a key concept in new governance. Understanding the 'coordination' that exists today between existing actors, and how it might be exist in a new form of governance is an empirical question that needs to be answered through this research. But, as noted by Henrik Enroth, 'in order for cooperation to be in some sense successful, and in order for shared objectives to emerge out of the process of network interaction, it would seem that something more is required' (Bevir 2012, p.28). I find this concept to be particularly relevant in relation to confronting the challenge of conceptualizing a new form of governance. Enroth also stated: 'Just what this "more" is has long been a sticking point' in new institutionalization and in conceptualizing new governance, I engage with the concept of 'what more is' and use research generated empirical evidence to understand if it really is so 'sticky' in place-based and function specific arrangements in the Canadian

Arctic. Transition from prevailing to new forms of environmental governance in the Arctic needs to focus on ‘steering society towards more sustainable futures’ (Evans 2012, p.164). Governance needs to focus on the rationale for participation, and this is especially the case with oil spill mitigation in the Arctic as ‘there are compelling ethical, practical and substantive reasons to involve communities and the broader public in environmental governance. Ethical speaking, citizens should have the ability to contribute to decisions that will affect them’ (p.188).

The primary challenge in conceptualising new governance in the Canadian Arctic is that the geographic isolation of the spatial scale and the linkage between the natural environment and community lifestyles, do not ‘map well’ onto the Government of Canada’s Oceans Protection Plan or the Canadian Coast Guards’ Arctic program. Tallurutiup Imanga/Lancaster Sound is too distant from government resources and the mobilisation of personnel and equipment extremely difficult, no infrastructure exists to support training and response activities and the communities only peripherally involved in decision making and, yet, aware of potential impacts to their lifestyles as evident in the literature review.

3.4 Transparency of Network Interplay and Practicality of Arctic Governance

Nilsson and Koivurova (2016) challenged those who argue against considering new forms of governance to protect the Arctic on the basis that the region is amid transformational change. Rules of the game need to change to allow a shift in power and a rebalance of political influence, so that space for marginalised actors is accommodated. Conservatism towards the promotion of new structures may lead to tension amongst other actors that seek a radical shift in governance to address transformation changes occurring in the Arctic. As noted by Loukacheva (2014), Inuit

engagement in maritime affairs is essential and cross-regional partnerships need to exist between federal, territorial, and local entities.

3.4.1. Power-over, Power-of and Power-in relationships in Prevailing Governance

Applying knowledge of ‘power-over,’ ‘power-of,’ and power-in,’ scale frames in a constructive and rational manner can be useful in examining the willingness of actors to collaborate and participate in the shaping of policy. Van Lieshout et al. (2014a; 2014b) constructed a power relationship framework using Dutch intensive agriculture to understand the role of actors in the implementation of deliberative actor roles and processes in order to shape a forward-looking governance system. Figure 3.1 illustrates Van Lieshout’s conceptual governance processes, which apply ‘power over,’ ‘power in,’ and ‘power of’ dynamics to develop scale frames through framing and reframing strategies.

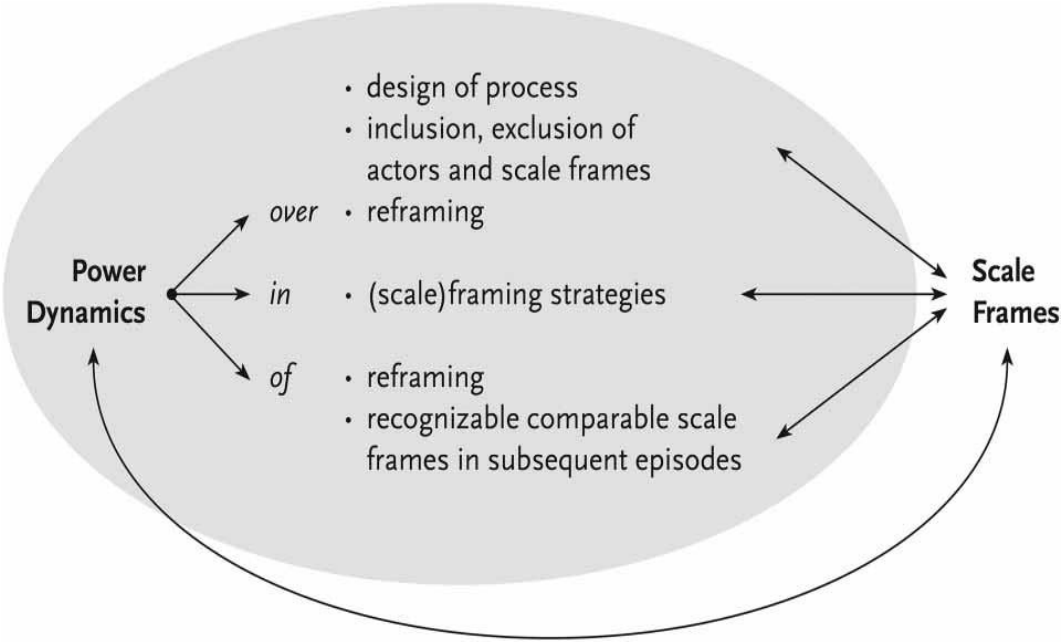


Figure 3.1 Power dynamics and scale frames in governance processes. Reprinted from Van Lieshout et al. (2014).

Van Lieshout (2014) assigned each actor a power descriptor using strong, moderate, and weak terminology. I used these descriptors to construct and analyse actor power relationships in the prevailing governance of the Canadian High Arctic, as shown in Table 3.2. This table shows the power relationships between actors in the social practice and collective action model groups. Power-over is the dominant dynamic in a scale frame, and the GOC exhibits behaviour consistent with the power of influence over design of process and the selection of actors for inclusion and exclusion. Power-over dominates power-in and power-of dynamics that set scale-framing strategies, and the GOC is the dominant actor with the potential power to reframe and to confront the emergence of environmental risks.

In human geography, there is a tendency 'to privilege scale over other spatiality, such as networks, space, place, region, and mobility, or to subsume this spatiality under a fetishised master concept of scale' (Leitner and Miller 2007, p.116). When nuanced understanding is required to understand the nature of emergent risk phenomena, the top-

down structure and weak network relationships that currently exist outside of the GOC-led hierarchical scale may not be optimal. As the most powerful actor, the GOC has dominant power-over, power-in, and power-of all dynamics of other actors and operates at 'high-level' scale. As a metaphor, verticality aptly describes this construction of existing scale through downward hierarchy. Hierarchy of scale can result in slower moving decision-making processes and constrain operation of smaller scale and faster responses to required actions (Sheppard and McMasters 2004). Hierarchy is used in this thesis to mean 'that one scale is bigger or more extensive than another, so that scales are hierarchically ordered from the global to the local in ever-decreasing circles' (Bulkeley 2005, p.886). Within this type of scale, little expression of cross-scale collaborative attributes exist, and, therefore, the scale does not always enable the identification of emergent patterns of governance that allow for the engagement of state and non-state actors to consider spatial and functional need (Karkkainen 2004). Van Lieshout et al. (2014b) have referred to 'frames in subsequent episodes' to capture linkages with actors as deliberate governance strategies: to anticipate 'shocks' and the disruption of organic rhymes through interruption of normalcy. Subsequent episodes applied in the context of this thesis means that environment impairment from a large-scale oil spill could occur, and governance strategies should be in place to respond. Brenner (1998), who is often critiqued for his advocacy of top-down driven structures, claimed that hierarchisation is required of actors with differentiated roles to realise the theoretical potential of the concept of scale. Brenner accepts that other forms of structuralising of scale—including place making and localisation may be required for interdependence of actors—but that the verticality of scalar relations should dominate. An example of the use of such structuralism in an environmental context is how scalar politics of environmental compensation for Cardiff Bay were rescaled. Relations of

ecological and political scales framed the ‘decision space’ (Cowell 2003, p.343). Cardiff Bay became a ‘space of engagement,’ whereby flexibility to address conflicting interests and restorative compensation were reconciled in a process that ‘jumped’ scales. In other words, local governance was transformed through the positioning of actors at a ‘higher’ scale, to accommodate decision-making specific to a function. Reflecting on ‘scale-jumping’—and how spaces of engagement can be applied to better frame governance at spatial and functional levels—is helpful in determining which forms of conceptualised alternative governance arrangements might be appropriate in the Canadian High Arctic. In this regard, engagement with Manson’s work on an epistemological scale can help provide insight on how upscaling and downscaling can be situated within a governance framework that accommodates the emergence of hierarchical processes (Manson 2008). In using Manson’s epistemological scale, I take a socio-constructionist view to imply that ‘the scale of a system or network can never be a model of reality, but instead is always a social construction’ (Padt and Art 2014). It adopts a philosophical position that environmental governance cannot pivot on a singular definition of scale, but rather requires a number of scales and levels that transcend multiple disciplines of social, economic and ecological frames. Manson’s scale continuum allows new constructs of knowledge, resources and wellbeing to be positioned to accommodate the evolution of ecological and socio-economic systems. In their work on scale, Buizer et al. (2011) opined that the inclusion of actors other than government and scientists, helps facilitate increased knowledge for environmental governance when scale sensitives matter. I apply Manson’s epistemological scale to conceptualize new governance and acknowledge that scales are non-static in the protection of the Arctic and might need to be ‘flexed’ in response to ecological, social and economic interactions. Manson’s scale is viewed as an ‘interpretative scale’,

meaning that it is tailored toward 'the emotions and sensibilities of the populace through the rhetorical shield of rationality and objectivity' (Rangan and Kull 2009, p.40). In presenting this new form of governance, I adopt an epistemological position that the Government of Canada needs to preserve its dominant role as the most powerful and influential actor, while actors are situated through the social-construction of knowledge, resource and wellbeing.

Table 3.2

Power-Over, Power-in, and Power-of Actor Relationships Between Actors in Social Practice and Collective Action Model Groups

ACTOR	PREVAILING POWER DYNAMICS IN THE GOVERNANCE OF TALLURUTIUP IMANGA/LANCASTER SOUND
Government of Canada (GOC)	POWER –OVER (STRONG) *GOVERNMENT provides the mechanisms through which decision-making and resource commitment is provided. Socially acknowledged as an organising actor* POWER- IN (STRONG) *GOVERNMENT has power to include or exclude actors including conversations, meetings, forums, and solicitation of knowledge. It is deliberate effort to engage actors based on characteristics, competence and discursive capabilities of actors* POWER-OF (STRONG) *GOVERNMENT has ability to influence deliberative processes. Scale frames established and can be reframed through power dynamics*
Government of Nunavut (GN)	POWER-OVER (WEAK) *GN does not have power over rule-making or the ability to commit federal resources to govern and protect the marine environment offshore Nunavut* POWER-IN (MODERATE) *GN is represented through Parliament and can contribute knowledge for policy-shaping and review proposed guidelines, regulations, and policies* POWER-OF (MODERATE) *Nunavut is strategically significant in terms of Canada's geopolitical interests in sovereignty rights over the NWP. Through the NLCA it has influence to exert political 'pressure' on the Government regarding social-economic development and through Inuit Organizations that Nunamiut are members*

(continued)

ACTOR	PREVAILING POWER DYNAMICS IN THE GOVERNANCE OF TALLURUTIUP IMANGA/LANCASTER SOUND
Nunavut Marine Council (NMC)	POWER-OVER (WEAK) - *Not engaged* POWER-IN (WEAK) - *Not engaged* POWER-OF (WEAK) - *Not engaged*
NGOs	POWER-OVER (WEAK) - *Not engaged* POWER-IN (MODERATE) *Ability to contribute knowledge and elevate awareness of risk. Active engagement with GOVERNMENT, GN, North Baffin communities and industry* POWER-OF (WEAK) - *Not engaged*
North Baffin communities	POWER-OVER (WEAK) -*Not engaged* POWER-IN (WEAK) *Limited ability to contribute knowledge or support policy decision-making. QIA and NTI provided mechanisms to express concern and to provide knowledge* POWER-OF (WEAK) *Nunavut communities are strategically significant in terms of Canada's geopolitical interests in sovereignty rights over the NWP. Through the NLCA it has influence to exert political 'pressure' on the Government on social-economic development and through Inuit Organizations that Nunavut communities are represented*
Academia	POWER-OVER (WEAK) E*ngagement through advisory activities but without power to approve governance structures* POWER-IN (MODERATE) *Engagement through contribution of knowledge and participation in government forums and advisory groups* POWER-OF (WEAK) - *Not engaged*
The Arctic Council	POWER-OVER (WEAK) *Not engaged in decision-making of Canadian High Arctic governance* POWER-IN (MODERATE) *Ability to provide scientific knowledge related to environmental protection of the Arctic environment. Active in promoting risk awareness and potential damage assessment* POWER-OF (WEAK) - *Not engaged*
Industry	POWER-OVER (WEAK) - *Not engaged* POWER-IN (MODERATE) *Important contribution from shipping industry and natural resource extraction firms on industry measures to prevent environmental damage (such as IMO Polar Code).* POWER-OF (WEAK) - *Not engaged*

At the realism pole, the ontological premise is that reality is understood by objective observers. The constructionist ontological claim is that knowledge about reality can be socially manipulated. Manson's (2008) scale positions hierarchies

between realist and constructionist poles to capture relationship interaction across levels in an epistemological scale. In examining governance in the Canadian Arctic, the positionality of actors within Manson's scale allows us to analyse interplay between actors in the context of higher and lower level power relationships. Throughout this thesis, I engage with this theoretical framework to position prevailing governance in the context of how new forms of governance might be imagined through the inclusion of new scale constructs and how emergent hierarchies may frame conceptual governance to protect the Canadian High Arctic environment.

Constructionist theory facilitates the conceptualisation of frames that include knowledge-capture and a 'deeper' acceptance of nature and its protection. Moving toward the relativism-end of Manson's (2008) epistemological scale, it is possible to envision network expansion and the emergence of actors to be actively engaged in policy shaping, decision-making, and implementation (self-govern). In doing so, for the purposes of this research, Tallurutiup Imanga/Lancaster Sound is used to analyse the prevailing environmental governance in the Canadian Arctic, and functions as a case study for how an alternative form of governance might be imagined.

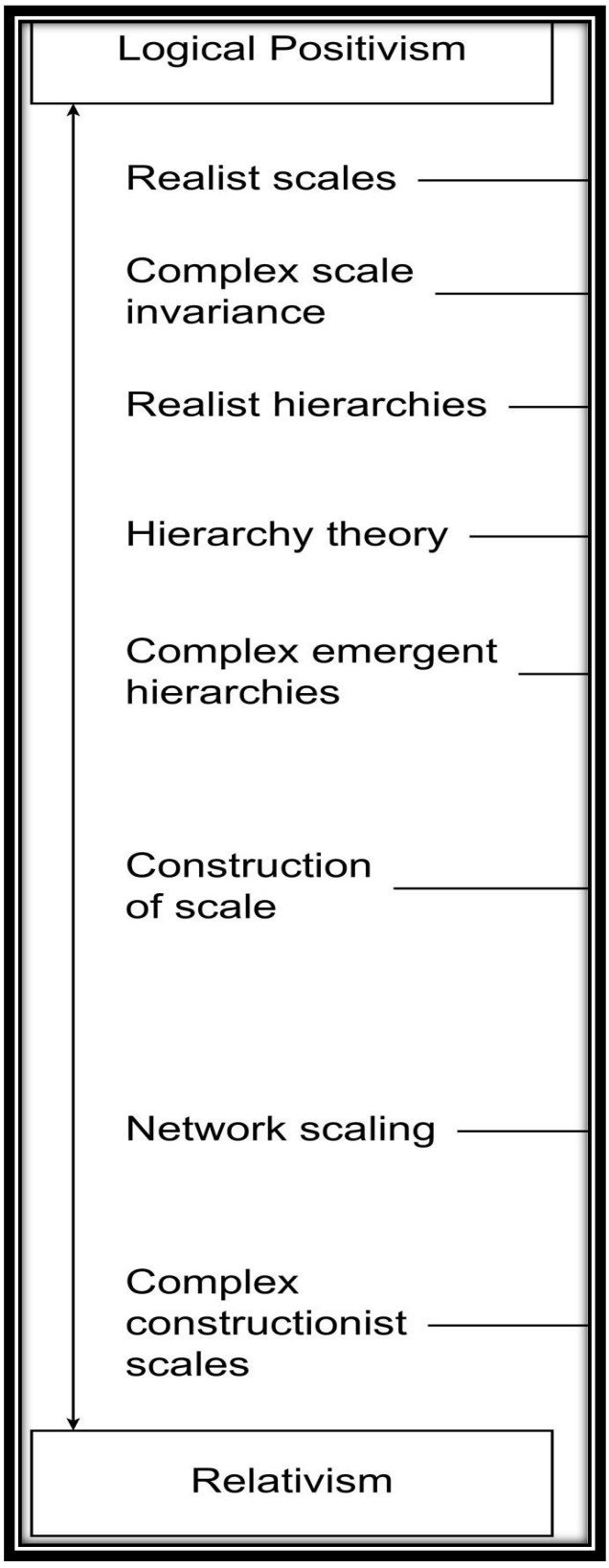


Figure 3.2 Manson's (2008) epistemological scale continuum.

3.5 Discussion

The backdrop to situate a new form of conceptual governance in the Canadian High Arctic is that the community of international actors is unable to create a multilateral institution to help govern the Arctic (Huebert 2009). Arctic states should negotiate an Arctic treaty, according to Huebert, with provisions to protect the environment, provide region-wide search and rescue capabilities, and serve as a forum to resolve disputes that arise as states seek to gain control in the North. Arctic states, however, lack this will to advance negotiations as they 'are already hardening their positions, and as time elapses, it will become increasingly more difficult to achieve any agreement' (Huebert 2009, p.30). Young (2010) agreed, and through a critical examination of Arctic governance, concluded that a treaty framework to govern the Arctic Ocean would have limited benefit, as it would be difficult to gain the support of Arctic states and could be actively opposed. An alternative approach is needed, suggested Young (2010), which can accommodate governance complexity of a number of elements—such as functional, spatial, and temporal domains—and the 'auspices under which they operate' (Young 2010, p.333). Young also added that 'the major forces affecting the health of the Arctic ecosystem and the integrity of the Arctic cultures are driven by human actions taking place on a global scale and governed by global regimes' (Young 2010, p.333).

Other proposed reforms for Arctic governance include the suggestion of a 'regional framework' for the marine Arctic (Koivurova and Molenaar 2010). WWF-Canada was instrumental in pushing for a form of regional agreement on the management and conservation of the Arctic marine environment prior to the Arctic Council meeting at Ilulissat in 2008. Following Ilulissat, where the five dominant Arctic states signed the Ilulissat Declaration that makes clear a new comprehensive

international legal regime to govern the Arctic Ocean is not required. Koivurova and Molenaar (2010) prepared a report at the request of WWF-Canada that presented the proposed regional framework. They recommended that the Arctic Council become a 'plenary body' supported by advisory bodies, but the proposal was never adopted (Koivurova and Molenaar 2010). Young (2011) advised against its establishment, advocating that Arctic states should instead pursue 'issue-specific' and 'sector-specific' adaption. More recently, Molenaar (2014) has proposed that an Arctic Council System be adopted to allow Arctic Council outputs (such as the Arctic SAR Agreement) to become legally binding, given that the Arctic Council has no mandate to do so. Molenaar (2014) recommended the inclusion of successful elements from other forms of governance, and new elements 'tailor-made' to meet a functional need in response to rapid changes that are occurring. Molenaar (2014) also emphasised the inclusion of Arctic indigenous peoples and non-Arctic actors, and the importance of balancing these actors' rights and obligations alongside those of the Arctic states.

Arctic Council accomplishments over the last 25 years include the facilitation of learning and scientific assessments at a regional level that 'might inform governance in other regions of the world' (Koivurova et al. 2015, p.285). The Arctic Council has also been able to assemble an epistemic community of scientists, NGOs, and policy-makers; Koivurova et al. (2015) also addressed the Arctic Council as a 'model' that could be deployed in regions absent of collective learning needed to support the formation of governance structures. However, the Arctic Council does not have mechanisms to convert knowledge gained through a learning process into implementable actions, and, as such, I suggest that the potential benefits of the Arctic Council's work as acclaimed by its supporters, cannot be fully realised at an implementation-level. Koivurova et al.

(2015) also suggested that new mechanisms must be constructed that allow engagement across all actors in governance of local and regional issues:

> We want to emphasise in this article that regional organizations positioned in between the local, national, and international decision-making processes – a complex and dynamic normative landscape – have to engage in on going learning and display elements of adaptive governance. That means a form of governance that will continually search for its niche and be able to navigate various other levels of governance, and soft and hard law instruments and arrangements. (Koivurova et al. 2015, p.310)

Environmental governance in the Canadian High Arctic occurs through an epistemological construction of scale that positions the GOC as the dominant actor. It is a top-down hierarchical scale frame, within which linkages to non-state actors including local communities, NGOs, and industry are weak. Participation of actors who have been excluded in the existing construction of scale can be 'thickened' and theoretical frameworks to enhance the capabilities of the GOC to prepare and respond to an offshore oil spill incident can be analysed in the context of resource availability and capacity building. Conceptualisation of a new form of governance would provide the social sciences with an innovative 'model' that those actors, who are challenged to frame arrangements to accommodate emergent environmental risks, can consider, both in and outside of the Arctic. Through the positive-disruption of epistemological construction of scales for the framing of new governance arrangements, this thesis provides the field with a novel concept concerning how a vulnerable environment can be protected through a spatial and function-bound arrangement, while broader geopolitical debates continue at a circumpolar level. A situational analysis of gaps in prevailing governance arrangements serves to demonstrate the need to rethink how the Canadian Arctic is protected from emergent environmental risks (Table 3.3). This requires us to reposition existing actors, introduce new actors, and reconfigure power relationships to conceptualise a new form of governance. As visionaries, we can

imagine the placement of a new form of governance to protect sensitive environments by disrupting prevailing arrangements through the reconstruction of epistemological scales. This thesis is timely as it provides to the field an increased understanding of how a conceptualised from of environmental governance to protect a small area within the Canadian Arctic might be imagined. The next chapter describes the criteria that were used to construct research methods and how primary knowledge was generated, codified, and applied to allow the conceptualisation of a new form of governance to protect Tallurutiup Imanga/Lancaster Sound.

Table 3.3

Situation Analysis and Gaps in Prevailing Governance Arrangement

Situation Analysis of Prevailing Governance	**Governance Gaps**
Tallurutiup Imanga/Lancaster Sound is a vulnerable risk-scale and the absence of preparedness and response capabilities means an oil spill has potential to impair the natural environment and community lifestyle.	Literature is plentiful regarding the nature of risk but thin in terms operationalisation of governance and capacity-building mechanisms.
The GOC is the focal institution and dominant in power-over actor relationships regarding policy shaping, decision-making and implementation of agreed-upon actions to protect Tallurutiup Imanga/Lancaster Sound.	The 'top-down' hierarchical arrangement is a constraint in the protection of Tallurutiup Imanga/Lancaster Sound as the government occupies a norm-building niche that under-utilises other actors to provide added strength to bolster capacity-building and problem-solving. Re-position NGOs, academia and scientific organisations well versed in emergent environmental risks in a new form of governance to help shape policy and decision-making *and* the operationalisation of measures to protect Tallurutiup Imanga/Lancaster Sound.
The body of literature provides plentiful academic work and documents in the public domain that set alarm bells ringing that a large-scale oil spill in Arctic waters would be devastating and that any response in the Arctic environment would be more challenging that Exxon Valdez or Deepwater Horizon where physical conditions less challenging in terms of access, the mobilisation of equipment and personnel, and restoration of an impaired cold-region marine environment.	No assurance exists within prevailing governance that the GOC would be able to respond to a large oil spill in Tallurutiup Imanga/Lancaster Sound to protect wildlife and the coastal communities. Funding available to the newly formed CCG Auxiliary demonstrates intent, but no equipment or personnel are in the Arctic. Capacity-building and resource availability is a severe constraint on Canadian Arctic environmental protection. Mechanisms to identify, commit, and position roles for existing and new actors to allow capacity-building and resource availability in anticipation that interruption of shipping normalcy in the Canadian High Arctic and provide needed support for the GOC which currently would be severely constrained to contain, control and remove spilled oil in the marine environment and mitigate impairment.
Literature review provides plentiful knowledge through scholarly work and the public domain that advocate protection of the Canadian Arctic through limitations placed on commercial development and resource development over concern of environmental impairment. Yet, in Arctic states (Alaska, US and Norway) that allow resource development and commercial development (including shipping) environmental governance is well developed, and state and industry actors aligned regarding accountabilities, roles and responsibilities.	Sentiment towards commercial well development of the Canadian Arctic expressed by representatives of the GN, northern Canadian communities, NGOs, industry, and the GOC needs to be solicited through engagement with these actors to understand convergence and divergence of interests and how such knowledge can be applied in conceptualisation of a new form of governance arrangement.

CHAPTER 4

RESEARCH FRAMEWORK AND METHODOLOGY

4.1 Positionality

Expression of voice throughout this thesis has always been to present subject matter that represents how research participants expressed it to me. It is not realistic to 'achieve pure objectivism' and this is a 'naïve quest, and we can never truly divorce ourselves of subjectivity' (Bourke 2014, p.3). Hall (1990) implied that that there can be no enunciation without positionality and that to say something, you have to position yourself somewhere. This, says Bourke, is positionality. Accordingly, as a researcher, I have made every effort to remain objective and remain mindful that subjectivities can exist. In my case, I do believe that my own epistemology provides me insight to recognise that today's governance to protect the Canadian Arctic must be examined in the context of whether it is in an appropriate form to protect a very vulnerable environment. In recognising that subjectivities might exist, I initiated the research without having any pre-determined viewpoints on how an alternative governance arrangement to protect the Canadian Arctic might be better constructed using theoretical frameworks or how new constructs contemplated to disrupt prevailing ontologies. New empirical evidence is needed to supplement secondary data so that I can conceptualise and present to the field of Arctic governance a new paradigm for the protection of this vulnerable environment. I shared spaces of engagement with research participants and in the context of the research process, I engaged with reflexivity and self-scrutiny in the context of positionality to allow me to complete this piece of academic work on the protection of the Canadian Arctic (Bourke 2014).

I am a British citizen, born, raised, and educated in England, and hold permanent resident status in the United States. I am not a citizen or resident of Canada, and have no affiliation with any government institution, special interest group, or industrial organisation. My research is self-funded and there exists no attachment with any actor as it relates to agenda-setting or expressed interests. As a White, middle-aged, Caucasian male, the concept of self has been, and will remain, central in how research methods were implemented and how this thesis has been completed. For over twenty-five years, I have worked as an environmental consultant in the cold regions (Alaska and northern Canada) on oil spill prevention and impairment mitigation. As a non-Canadian citizen or resident, I was able to approach the research without any form of political bias or without any emotional burden attached to socio-economic positions internal to Canada. In completing the research and preparing this manuscript, I have found that my professional experience provides insight and complements the academic rigor required to present findings of my research to the field of Arctic governance.

I adopt an interpretivist approach to this research that is qualitatively based, using semi-structured interviews and participant observation. According to interpretivist theory, individuals are intricate and complex and different people experience and understand the same 'objective reality' in very different ways and have their own, often very different, reasons for acting in the world; thus, scientific methods are not appropriate (Hughes and Sharrock 1997; Crotty 1998). Interpretivists argue that in order to understand human action we need to achieve 'Verstehen' or empathetic understanding: applied in this work to mean how research methods are implemented so that actors' perspectives are understood and their knowledge is captured. An interpretive approach allows me to 'get close' to the sources of knowledge generation through interaction with research participants. Moreover, it allows me to focus on the

meaning of knowledge using research methods to generate data that can reflect different viewpoints and experiences on the governance of oil spill mitigation in the Canadian Arctic. As a broad generalization, the interpretivist approach is based on the beliefs and perceptions of reality based on meanings and understandings on social interactions, and subjectivist epistemology. This means that as a researcher I am not able to fully separate from my own knowledge of the subject matter. It means that there is a clear link between how my own epistemological beliefs are framed in the context of the research questions I ask. It also requires that I make every effort to ensure that individual perceptions and social placement does not impact upon the research and the preparation of the manuscript. Phenomenologically, it gives me the opportunity to reflect on my own personal experience and those of research participants to help contextualise how environmental governance in the Canadian Arctic might be conceptualised, but without introducing bias in knowledge production.

4.2 Selection of Research Methods

Research methodologies were designed to facilitate a broader comprehension of actor interests, including the engagement of Nunavut communities in decision-making and policy shaping. In addition to literature and policy review, research methods included the completion of semi-structured interviews with individual participants and small groups (less than six people) using discursive, observation, and interview analysis.

As mentioned earlier, the primary research method was the completion of semi-structured interviews and the analysis of primary knowledge to triangulate with secondary data. Interviews were completed with actor representatives either individually or at a group level. Observational analysis was also used to assess how

participants responded to questions in the overall context of the interview setting, and this is detailed more fully later in this chapter. Completion of traditional research methods using semi-structured interviews were used rather than implementing participatory research, participatory scenario planning, or community-based research methods. I envisage that positioning NGOs, industry, academia, the GN, the GOC, and especially Nunavut communities using participatory research methods would be very appropriate in advancing conceptual governance to an operationalised form. Engagement with actors' representatives through constructs of knowledge sharing, resource capacity building, and well-being is required to positively disrupt existing ontologies and reshape power relationships through shifting roles and responsibilities. The philosophical stance I adopt in conceptualising governance is that the generation and sharing of knowledge is a powerful agent in transformation processes – it comes from its roots, grounded in place and 'its clarity comes from the understanding which emerges from the interaction' (Shahrokh and Wheeler 2014, p.14). 'Authentic' participatory research whereby the research belongs to the participants and they are active in the analysis and closely involved in construct governance is then an attribute that can be embedded as an actionable item enabled in a new governance framework.

In using semi-structured interviews and observational analysis, I purposely position new knowledge creation to answer the research questions presented in Chapter 1. Mindful that the 'answer validates the question and the question validates the wider paradigm in which it is asked' there is risk that the research 'further entrenches the power relationships in which it is enmeshed' (Shahrokh and Wheeler 2014, p.15). Scholars that promote participatory research methods posit that knowledge generated is more readily transformative because actors shift power relationships and can facilitate change more quickly than through more traditional research practices. In the following

chapters, I apply knowledge generated through research interviews using the concept of multilevel governance as a theoretical framework and, as mentioned, envisage that participatory research methods can be subsequently deployed across multiple scales and levels.

Multilevel governance (MLG) was initially introduced as a theoretical concept to help understand political processes institutions, such as the European Union (Marks 1993). It aims to enable analysis and construct governance frameworks that de-centralize decision-making and include sub-national and local governments, and non-government organisations such as industry associations, NGOs, academia, and specialized stakeholder groups. In this thesis, MLG allows us to examine how existing actors might be positioned, and new actors inserted, in an alternative arrangement to the prevailing 'top-down' structure that exists today and dominated by the GOC. To do so, research methodologies were designed to obtain knowledge to allow analysis of the modes of interactions that currently exist within, and between, state and non-state actors. Through the analysis of research transcripts and triangulation using primary and secondary sources of knowledge, overlapping actor roles and responsibilities, and spaces of engagement in policy shaping and decision-making might emerge and new constructs of governance identified. Ostrom (2010, p.552) promoted 'multiple governing authorities at different scales rather than a monocentric unit' as polycentric governance. Polycentric governance is a form of MLG in which clear structures of top-down and hierarchical structures are 'blurred, or even disappear completely, due to interactions among different governing bodies and actors' (Saito-Jenson 2015: p.3). It gives us a framework to consider how the GOC in protecting the Canadian Arctic from oil spill impairment, can delegate to existing and new actors their roles and responsibilities to govern at spatially bound and functional levels. How the GOC can

work within a framework to help enable and mobilise resources (such as the GON, Canadian Rangers, Nunavut communities, ITOPF, and the Arctic Council) was a key consideration in the design of research methods and the selection of interview participants. Research questions were structured to explore if within the actor constellation there exists a broad consensus that supports collaborative and cooperative – a notion that MLG is built upon (Stubbs 2005). Stubbs considers MLG a form of neoliberalism whereby pluralism and distribution of power across all actors prevails. Yet, the literature review reveals that the GOC is the dominant power in existing governance of the Canadian Arctic and so, in using multilevel processes to conceptualise new arrangements, power asymmetry would need to shift towards flatter ontologies. MLG can then bolster problem-solving capacity to enable upward, downward, and horizontal interplay between state and non-state actors to build problem-solving capacity and shape policymaking (Maggetti and Trein 2019).

4.3 Research Participant Selection

Research participant selection carefully considered how primary knowledge generated would allow for the examination of prevailing governance arrangements in terms of its appropriateness to protect the Canadian Arctic and the identification of gaps, if found to exist. Selection of elite representatives within GOC and GON institutions, non-state organisations, NGOs, industry, and academia was deliberate to analyse the nature of interactions and interplay specific to the mitigation of oil spill impairment in the Canadian Arctic. Inclusion of epistemic communities allowed inquiry of those actors that claim legitimate expertise and marginalised, or excluded, in prevailing governance as based on the literature review, to assess how they might be positioned in governance to enable policy shaping, decision-making, and

implementation of measures. In designing research methodologies, I needed to gain knowledge to understand if function explains existence of an actor (and their role) and, if based on relevancy to better protect the Arctic environment, function can be shifted, and prevailing power relationships disrupted.

Asymmetrical power relationships exist in prevailing governance, based on the literature review. Therefore, mechanisms to shift power dynamics and position actors in a more collaborative manner is warranted. Governance to mitigate oil spill impairment is, today, a government problem, meaning the GOC has no resources permanently located in the Canadian Arctic to serve as initial responders to an adverse offshore incident. The GOC is not able to solve this problem based on the literature analysis and this, according to Braun et al. (2017), can be a distinguishing feature of institutional dominated structures when actors that can contribute to systematic policy-shaping and policy making are excluded. Research methodologies were designed to qualify the mechanisms of how the current state-dominated governance works and connects with problem-solving capabilities and capacity. While not all cross mechanisms to promote actor interplay may be plausible in the context of the Canadian Arctic, the implementation of research methods needed to deliver knowledge that can be used to examine how interplay between actors does, or could, work to enable best governance behaviours. The literature review clearly points to downward mechanisms that exist within the GOC – the Ministry of Fisheries and Oceans directs the activities of the Canadian Coast Guard, the lead agency responsible for responding to an offshore oil spill in Canadian waters. Horizontal and upward mechanisms that provide ‘formal’ engagement in policy-shaping and policy-making opportunities are not established. Informal and adhoc communications occur based on review of the literature between some actors such as the Arctic Council, NGOs, industry organisations, and academia. I

am not suggesting that ‘top-down’ directional form of governance cannot prevail, but rather, it becomes more accommodative of broader actor interests that could be expressed using collaborative mechanisms through a shift in power relationships across the actor constellation, or actor network. This thought process allows us ‘an explorative sketch of how MLG can offer a coherent framework to understand interrelated processes of denationalization, fragmentation, and disaggregation, but also of recentring, reintegration, and recoordination’ (Magetti and Trein 2019, p.362). It was necessary to identify mechanisms that can help to straddle collaborative and cooperative barriers to minimise discursive closure and support open dialogue. Further, it was also necessary to consider the most effective ways in which to develop broader comprehension of epistemological backgrounds and indigenous peoples’ engagement in decision-making and policy shaping in Nunavut. For this reason, I engaged with guidelines for completing research in Northern Canada communities at a level beyond the adherence to requirements and guidelines of the NRI and the University of Oxford’s Central University Research Ethics Committee (CUREC). This included the use of ‘Negotiating Research Relationships with Inuit Communities’ to understand expectations of a research project including initiating community contact, selecting appropriate means of communication, and identifying the appropriate level of community involvement (Nickels et al. 2007). This engagement accorded me the opportunity to acquire knowledge on Nunavummiut perspectives on the history of Nunavut, the political integration of Eastern Arctic indigenous peoples, ideological diversity, the transformation of political cultures, the meaning of ice to the peoples of Arctic communities, and the language of the Inuit (Dorais 2010; Gearhead 2013; Hendersen 2007).

4.4 Fieldwork Planning and Coordination

For those of us that have visited parts of the Canadian Arctic, we carry memories of what a special place it is. Most visitors chose to go in the summer months, so that they might experience warmer temperatures and view majestic landscapes during long sunlit days. I, however, completed the research during early winter and mid-winter conditions because I wanted to experience community lifestyles in a setting without tourists and other visitors - in an attempt to try and imagine how it might feel to 'walk in the shoes' of interview participants, albeit for just a few weeks. It was an opportunity to witness their daily schedules and to undertake research knowing that interview participants had interrupted their community responsibilities to partake in meetings. Completing interviews in early and mid- winter also meant that residents were less likely to be in search of country-food. By this, I mean traditional Inuit food that includes marine life, land animals, birds, and plants. It also provided the opportunity to witness 'freeze-up' and the movement of first and multi-year ice in the waters offshore Nunavut and to consider the practicalities of oil spill response in such a treacherous environment.

With cold region familiarity, I was able to undertake my research drawing upon past experiences on how to approach the management of travel logistics and fieldwork design in distant and remote locations. This experience afforded to me the benefit of being able to anticipate some of the challenges that would be encountered accessing and arranging meetings with people who I have never met and in places unfamiliar. To complete this research, however, I needed to visit communities at higher latitudes than I had previously worked in Alaska and northern Alberta. This was a stark reminder that personal safety and logistical planning would be paramount to successfully complete

the fieldwork in locations less than a three-hour flight in a small propeller plane from the North Pole.

My visits to the Canadian Arctic included completing interviews in Nunavut communities located on Baffin Island. I visited Iqaluit between September 2016 and November 2016 and Clyde River, Pond Inlet and Arctic Bay between October and November 2016. During the visit to Clyde River, Pond Inlet and Arctic Bay (the latter two located in North Baffin), I experienced bitter winter cold and the frigid winds that can blow across open and ice-laden waters surrounded by ice-sheets, snowfields, glaciated mountain ranges, and the rugged coastline of Baffin.

Iqaluit is the capital and largest community in Nunavut with a population of approximately 7,000.[41] Flights to Iqaluit from Ottawa and other Canadian cities are often two or three times daily and the new Iqaluit airport (opened in 2017) arrival facilities include automated baggage claims, a couple of small shops, a taxi service, and, always it seemed, local residents selling Inuit art. Travel to Clyde River, Pond Inlet, and Arctic Bay is via a stopover in Iqaluit, and much less predictable.

Flights to Clyde River, Pond Inlet, and Arctic Bay are less regular; flights are daily or every other day, or can be cancelled for many days if bad weather conditions prevail at these locations. I can attest to weather disruption as I was 'weathered-in' in Pond Inlet for four days during which time no flights from Iqaluit arrived to bring food and supplies for the hamlet. Noticeable after three days was the lack of food products (dairy products and vegetables in particular) on the shelves of *Northern Store* in Pond Inlet. At the time of my visits, passenger bags from *First Air* flights to these tiny hamlet airports were off-loaded from the plane and either placed inside the terminal floor or on frozen, snow covered ground immediately outside the 'terminal' door. I observed that

[41] Available at www.worldpopulationreview.com (accessed June 3, 2016).

residents that greeted the arriving passengers did so using either four-wheel drive trucks, ski-doo, dog sleds, or a very limited local taxi service. At each airport there was a telephone number for a ‘taxi’ written on a piece of paper pinned to a bulletin board - never was I successful calling for a taxi, so I contacted the hotels where I was staying, and they picked me up in a pick-up truck or small van. In Clyde River, Pond Inlet, and Arctic Bay I stayed at the Naujaaraaluit Hotel, the Sauniq Hotel, and the Tangmaarvik Hotel, respectively. My flight arrival times in each community ranged between 6:30 pm and 9:30 pm and I was always greeted with darkness, bitter cold, and the extremely clear celestial wonders of the northern sky. I spoke with an Inuit woman at the Ottawa airport, while waiting to fly to Iqaluit on my initial visit, and she told me, ‘smile with your eyes never your mouth’ when you meet with my people, and you’ll be accepted. Advice I am grateful to have received, as it served me well in all my meetings, especially upon first contact with community residents.

In Clyde River, Pond Inlet, and Arctic Bay I walked to the meeting locations alone with the sound of crackling snow and ice underfoot, my face shielded to prevent frostbite, and breathing through the nose, rather than the mouth, to avoid the very uncomfortable burning sensation in the lungs on inhaling frigid air. All the time, while walking through the hamlets (night or day), I kept a lookout for polar bears against which I had no form of protection. A scheduled interview in Arctic Bay was pushed back a day as research participants from the Hunters and Trappers Association were needed to remove two polar bears that entered the tiny community searching for food. It became strikingly real that a polar bear attack was a real threat. When living in Alaska, brown bears (grizzlies) and black bears were regularly encountered (often on my property), but a polar bear confrontation seemed so much more serious, and one to

avoid. I observed Polar bear skins (with head intact) stretched out on wooden-frames in Clyde River and Arctic Bay and this experience heightened my vigilance even further.

Exposed to temperatures below -40C degrees and experiencing long dark winter days is a unique opportunity that few people get to experience. Having completed this research in such conditions, it gives me reason to suggest that all Arctic researchers engaged in the social sciences, should attempt to complete their work not as 'fair weather' visitors, but in winter months when conditions are more challenging, such as darkness, cold, snow, and ice to appreciate and place into context the materiality of the setting and the lifestyle of residents. It also provides opportunities to witness natural spectacles that otherwise may not exist. Afforded to residents and visitors to these high latitudes is the opportunity to observe celestial objects and the northern lights through crisp Arctic air when skies are clear. When observed during the period of astronomical twilight, which is the earliest stage of dawn and the last stage of dusk, the visual experience is particularly impressive as light and atmospheric pollution is much less than in more southerly latitudes. Martin Frobisher, John Cabot, Robert Perry, John Franklin and many other explorers would have witnessed the same astronomical sights. Ursa Major, Cassiopeia, Ursa Minor, and Auriga of the Northern celestial hemispheres (Northern Sky) were all used to set navigational course as passages through the Arctic waters that lie beneath these astronomical beacons. In Fridtjof Nansen's words, taken from *Farthest North,* published in 1897:

> The ice and the long moonlit polar nights, with all their yearning, seemed like a far-off dream from another world-a dream that had come and passed away. But what would life be worth without its dreams? (Nansen 1897)

On arrival in North Baffin communities, accommodation and food are very expensive (accommodation and food costs in Nunavut can be triple the cost in Ottawa). Each year, in ever-increasing numbers, visitors scramble to book seats on limited

commercial or charter flights, book their tickets and accommodations well in advance, and search advice from the local hamlet offices as to how to contact local guides and language translators to enable their personal or professional activities to be completed.

It was very evident during my time in North Baffin, in October 2016 and November 2016, that the Canadian Arctic is undergoing transformation and that the loss of sea-ice is impacting community lifestyles. From coastal shorelines, I observed expansive open water areas in which broken blocks of first year (new) ice were drifting with the marine currents or left stranded on the shore at low tide, isolated remnants of early first-year ice accumulation - forlorn like the melting iceberg in Seaman's portrayal. These coastal waters would have been ice covered with multi-year (old ice) thirty years ago, prior to the impact that climate change is having on the acceleration of melting sea ice. In October and November 2016, I observed Inuit hunters and fishermen able to access the marine environment from beaches or using community boat ramps that, in the past, would have been covered with land-fast ice (sea ice that is connected to the land). Open water areas are becoming more expansive and ice travel more dangerous over first year ice. Historical routes across the ice that have been used by hunters to reach the floe-edge are being lost, and the habitats of marine mammals, migratory and resident wildlife are threatened. Observing such transformation, provided a first-hand understanding of how the melting of sea-ice is dramatically changing the Arctic environment and that traditional community lifestyles are under threat.

4.5 Examining Insider-Outsider Dialectic within the Research Framework

Caine et al. (2007) provided a framework through which to examine researcher relationships using the concept of convergence between outsiders (including researchers and advisors with experimental backgrounds) and community insiders that are engaged

in research within northern communities. Caine et al. (2007) suggested that carefully selected research methodologies could promote a vision and enable socio-economic development if handled correctly with regard to community engagement. Caine et al. (2007) also referenced scholarly work completed by Lockhart (1982): an early case study in the process of understanding insider-outsider dialectics in socio-economic development of native communities in British Columbia.[42] It is relevant for the protection of Canadian Arctic as it allows us to consider 'how participatory methodology goes beyond specific research or community development objectives and addresses the conflict posed by the relation of knowledge to power by exploring new and revised 'spaces for participation' (Gaventa 2004, p.35). This mindset was useful in framing semi-structured interviews that allow questions to be asked and responses to be provided to examine how my research work can contribute to the protection of the natural environment and the lifestyles it supports. Lockhart (1982) and Caine et al. (2007) suggest that 'the role of the outside researcher should be rooted in participatory processes' (Caine et al. 2007, p.450). As such, I carefully considered how I entered, engaged, and represented the subject matter of environmental protection within indigenous communities, government establishments, and the domains of all actors who participated in this research in the context of the outsider and insider relationship.

Community-research relationships often exist 'that do not normally engage local communities in study design or data collection or have the people in mind as an audience for their results' (Gearhead and Shirley 2007, p.63). Inuit of Nunavut see researchers enter their communities, most often in the summer months, complete their

[42] Dialectic is defined in the New World Encyclopedia as 'an exchange of propositions (theses) and counter-propositions (antitheses) resulting in a synthesis of the opposing assertions, or at least a qualitative transformation in the direction of the dialogue or progress' (New World Encyclopedia). Available at www.newworldencylopedia (accessed June 9, 2018).

work and ‘then disappear just as quickly without anyone’s knowing exactly what they were up to’ (Gearhead and Shirley 2007, p.63).

While land claims agreements have provided an institutional fabric into which research programs must be designed and woven, ‘neither policy changes nor methodology changes have resulted in real empowerment of communities in Nunavut, although such empowerment is often stated to be the goal of change in the first place’ (Gearhead and Shirley 2007, p.72). In part, this is because establishing governance for Nunavummiut with inclusion of traditional values requires a different approach than to those structures that operate within other Canadian forms of government (White 2009). Reflecting on Prime Minister Jean Chrétien’s address on 1 April 1999, at the opening of the Nunavut Legislative Assembly, the gravity of the task was recognised and ‘whether it is educating your fast-growing population, alleviating poverty and social breakdown or building the capacity within your own government to address these challenges, you have your work cut out for you’ (White 2009, p.58). White notes that what the prime minister did not mention was the complexity of understanding culture in the context of governance. Seventeen years later, on August 5, 2016, Indigenous and Northern Affairs (INAC) Minister Carolyn Bennett announced the appointment of Mary Simon as the Minister's Special Representative responsible for leading an engagement and providing advice on a new approach to shared leadership in Canada's Arctic and to advise the GOC on the most pressing issues facing the Arctic.[43]

In offering advice, Simon opined that Arctic strategies throughout her lifetime rarely addressed basic gaps between what exists in the Arctic and what other Canadians

[43] Mary J. May Simon, OC OQ (Inuktitut: Ningiukadluk, born 1947 in Kangirsualujjuaq, Nunavik, Northern Québec) is a former Canadian diplomat and current fellow with the Arctic Institute of North America. Simon was Canada's first Ambassador for Circumpolar Affairs, and was a lead negotiator for the creation of the Arctic Council. She also later served as ambassador to Denmark. Available at https://en.wikipedia.org/wiki/Mary_Simon (accessed April 6, 2018).

take for granted. In a report prepared by Simon, she writes that 'the road to healthy, empowered citizens in the Arctic begins and ends with education…education policy in the Arctic must be culturally relevant, adaptive, and flexible' and that 'Indigenous-led actions, with the support of government and other partners, will play an important role in successful efforts to enhance health, economies, languages and cultures in Arctic communities.'[44] To confront lack of progress in empowering Nunavut communities, Simon believes that Arctic leaders must be involved in crafting major decisions and that 'the next step in the evolution of scientific practice in the Arctic is linking community-driven Arctic research priorities with national policy development to ensure scientific investments benefit communities and answer key questions facing the Arctic. I firmly believe that the foundation of effective decision-making is good information. In the Arctic, that means being committed to placing equal value on Indigenous knowledge and western science' (Simon 2011, p.880).

Albeit just for a few months, I shared a space of engagement with Inuit hunters and trappers, hamlet council members, and Nunavut government representatives. I entered this space reflecting not necessarily on whether, as a researcher, I was an outsider *per se*, but instead on whether those with whom I would meet considered that their community is 'closed-out' of decision making and policy shaping with institutions distant from their homeland. Interestingly, while completing these interviews I felt that I was not an outsider in discussing potential sources of environmental risks and potential resultant impacts, as the subject matter was a 'common' platform for discussion. I also felt that as an outsider, in a spatial and cultural sense, those that I interviewed understood that I was in a position to articulate community concern

[44] Available at Canada's Arctic Policy Framework: Discussion guide, www.rcaanc-cirnac.gc.ca/eng (accessed May 17, 2019).

through this research as an enabler of their 'voice' to actors outside of Nunavut. While in this space, I deployed research methodologies that were respectful to the community members who participated in the research to gain knowledge and to help understand if these communities are closed out of decision making by 'southerly-situated public administrations with apparently little knowledge of the relationship between indigenous peoples and their unique Arctic environment' (Hossain 2013b, p.317). This included scheduling interviews at times convenient for research participants (often in the evening after hunting trips), hand-writing answers to questions rather than recording interviews if requested, participating in pre-meeting prayer sessions, and joining participants in eating country-food (if invited). Interviews were scheduled several months in-advance of travelling to Nunavut, confirmed two weeks prior to arrival in Nunavut, and confirmed again the day prior to an interview in each hamlet. Meetings were pre-approved through the NRI, and in each hamlet, I coordinated the location and time with the Mayor's office or the Boards of hunters and trappers' organisations and associations.

It is also important to mention that, while in Pond Inlet, I was asked by Jonathan Pitseolak, a seventeen-year-old Inuit, to meet and discuss the protection of the Canadian Arctic. In our meeting at Inns North Hotel, Pond Inlet on October 27, 2016, Pitseolak mentioned that Inuit need to protect their land and become more involved in decision-making. This expression of interest provided valuable insight for this research, in terms of how community members, in this case an Inuit youth, wish to be part of the governance process and to have a voice in how *their* land is protected.

To help understand the nature of the insider-outside dialectic and the inclusiveness of all actors in decision-making, I structured research methodologies to generate knowledge and improve an understanding of participation processes in

prevailing governance arrangements. Dialectic interaction of insider and outsider knowledge 'forces both groups to recognise their ownership of pieces of the problem so that the probability of moving towards a solution is greatly enhanced' (Caine et al. 2007, p.453). While Lockhart believes that participation of outsiders is an enabling feature in the context of 'anti-colonial and critical action research perspective,' his suggestion that it is also 'therapeutic' could be challenged. Based on the completion of the research interviews and transcript analysis, participants in the present study seemed to view their engagement with an outsider not necessarily as therapeutic, but rather as an appreciated opportunity to express concern for the protection of *their* environment and their lifestyles. This demonstrates 'duel flows of knowledge and agency both inward and outward' (Caine et al. 2007, p.454). In exploring knowledge flow further, it is useful to consider Caine's work regarding community development and positive outcomes of researcher engagement. Caine refers to the community of Deline, Northwest Territories, as an example of socio-economic development that has been promoted through multi-participant engagement.

The Deline Naowere Dahk's (Deline Knowledge Centre) provides a venue for actors in regional environmental management to exchange both western-generated and traditional knowledge. It functions as an example of how the establishment of a formal partnership with insiders and outsiders facilitates participatory decision-making. The centre is working on the development of regional development plans and co-operative management of Sahoyue-Ehdacho, a cultural landscape and a National Historic Site. It has 'shifted the focus of participation from institutionalised closed spaces to a community-claimed space. This claimed space is more autonomous from power holders and is more organic, based on emergent common concerns' (Caine et al. 2007, p.461). While Tallurutiup Imanga/Lancaster Sound is not a spatially closed space in the sense

of a bounded water-body, it is a claimed space in an epistemological sense, and one that can be wounded. Arguably, it can be considered a 'closed space' if such terminology is used to suggest that historically there has been little, if any, openness towards engagement of local communities in the governance of the natural environment. As such, this case study provides a backdrop against which to undertake discussion regarding how research methodology takes into consideration outside-insider dialectic relationships and participatory processes and to build upon the scholarly work of Caine, Hossain, Gaventa, and Gearhead and Shirley.

4.6 Consideration of Informal Mechanisms to Promote Regional Governance

The research design process for the present study also included methodologies to identify mechanisms to promote environmental protection, which might be possible using less formal governance structural arrangements. I adopted the research design to facilitate the collection of data concerning critical discourse on actor roles and how power relationships have shaped and implemented governance. I used discursive and observational analysis to address how the participants communicated and to be able to analyse power relationships between actors.

Foucault (1970) emphasised that critical discourse analysis needs to focus on understanding the history and roots of discourse. Discourse could span wide historical timeframes, notes Foucault, which is significant in the context of completing interviews with Nunavut community representatives because century-old beliefs might collide with those of the new 'southerners' who reside in locations distant from their homeland and are responsible for protecting *their* land. In developing research methods, I was keen to ensure that they would facilitate analysis of whether collision does exist and, if it does, whether alternative forms of innovative leadership can be imagined to protect the

Canadian Arctic. These styles would need to take collaborative and cooperative forms, which do not exist in today's prevailing modes of governance. In doing so, the research design included interview questions that would allow an assessment on whether 'Kőrösi-type' doctrine (a term used only in this thesis) might be appropriate in conceptualising governance shaped by and focused on scales at defined spatial and functional levels. I engage with this term to consider how collaborative channels of communication might be envisaged and that are more accommodative of flexible discourse pathways within, and between, actors in a new form of conceptual governance. Ambassador Csaba Kőrösi, Director for Environmental Sustainability, Republic of Hungary, as co-chair of a United Nations General Assembly Expert Group Meeting on 'Science and Sustainable Development Goals,' invited a small group of attendees to discuss issues outside of formal meetings to learn and gain further understanding of subject matter necessary for policy-shaping. Kőrösi's 'open' leadership style and engagement of those who can articulate and facilitate policy-shaping as entrepreneurial leadership was needed when formal systems did not allow collaborative and cooperative discussion pathways due to the rigidity of governance structures. In the context of governance in the Canadian High Arctic, it guides me to reflect on how actors' roles might be shaped and positioned within structures to pursue desired outcomes of environmental protection measures. These measures must accommodate communication pathways that allow higher levels of flexibility in the policy-shaping and decision-making process.

4.7 Elite Interview Selection and Completion

For the present study, the primary elements of research design were focused on the scheduling and completion of elite interviews and group discussions with

representatives of institutional and non-institutional actors located both proximal to and distant from Tallurutiup Imanga/Lancaster Sound. The elite interview, as a research methodology, can be used to generate ‘unique data to investigate the complexities of policy and politics’ (Beamer 2002). Again, by an elite, I refer to representatives of state and non-state actors in lead roles that can contribute knowledge that allows the research aims to be completed and provides the data necessary to answer the research questions. Mindful that the validity of knowledge generated through an elite interview is subject to research design and the selection of participants, I undertook the process of question preparation with consideration for how best to yield valid and rich knowledge in terms of data gathering. I made extensive effort to ensure that I conducted interviews without shifting the ‘inquiry away from the primary research focus to a respondent’s stream-of-consciousness thoughts and biased perceptions’ (Beamer 2002, p.86). I also recognised that ‘snowballing’ possibilities might exist in the present study, whereby elite interview participants could identify other elites to be included in the research. Care in applying ‘snowballing’ techniques was needed to avoid ‘introducing bias into the sample, with the explicit trade-off being generalizability for depth of information’ (Beamer 2002, p.91).

Interview participants were selected based on their perceived ability to contribute knowledge that otherwise would not be available in the public domain. Participants included representatives of government institutions and non-government actors who have the exposure and ability required to articulate viewpoints on Canadian Arctic governance, the protection of the NWP, specifically its eastern gateway, and oil spill preparedness and response in cold region environments at the circumpolar level. A number of actor representatives who were contacted did not reply to a request for an interview. Larry Tagletti, Superintendent of Environmental Response, CCG, declined

an interview request on the basis that, as a Crown representative, he was not able to participate in the research (although he did mention that the work was of interest to the CCG).[45] Tagletti's perspective on the role of the CCG and its ability to respond to an offshore spill in Tallurutiup Imanga/Lancaster Sound would have been beneficial with regard to the complexities of High Arctic governance and complex actor interplay. The office of Hunter Tootoo replied to a request for an interview but stated that it was not possible to meet for logistical reasons.[46] Hunter Tootoo served as a Member of Parliament for Nunavut (2015-2019) in the Government of Canada. An interview with The Honourable Dominic LeBlanc, who was the Minister of Fisheries and Oceans (2015-2016), was also not possible. Both occupied positions in the Government of Canada while I was completing research fieldwork, and their roles were significant in terms of the protection of Canadian Arctic marine environment. Hunter Tootoo's office replied to an interview request stating that he would not be in his Riding while I was in Nunavut and that he would not be available to meet in Ottawa. This was unfortunate as Mosha Cote, Research Liason, Nunavut Research Institute, identified Hunter Tootoo as an informed source of knowledge on the inter-relationships between the Government of Nunavut, Nunavut communities and the federal government. His perspectives on marine protection in the face of shipping through Arctic waters and oil spill risk to Nunavut coastal communities would have enhanced the research findings. The International Maritime Organization (IMO) and the Shipping Federation of Canada did not reply to an interview request. Greenpeace was identified as an NGO that, based on

[45] Email from Larry Tagletti, Superintendent of Environmental Response, Canadian Coast Guard on March 10 2017.

[46] Hunter A. Tootoo is a Canadian politician serving as the Member of Parliament for Nunavut since 2015. Elected as a Liberal to the House of Commons, he was appointed Minister of Fisheries, Oceans and the Canadian Coast Guard by Justin Trudeau on November 4, 2015. Tootoo resigned from that position on May 31, 2016 to take a leave from Parliament for personal reasons. He returned by the end of July 2016 and remains sitting as an independent Available at https://en.wikipedia.org/wiki/Hunter_Tootoo (accessed June 25, 2018).

the literature review, is engaged in Canadian Arctic environmental protection, but did not agree to be included in this research.[47] Greenpeace declined to participate in this research on the basis that it was 'too busy' and that its position(s) on the Arctic may be found on its website. In completing interviews in Nunavut, the analysis of knowledge gained indicates that Greenpeace's work in the Canadian Arctic is more contentious than that of WWF-Canada. Whereas representatives of WWF-Canada openly shared views that the organisation has become more accommodating of commercial development in the Canadian Arctic provided that best environment practices are adopted, Greenpeace's position, as expressed by WWF-Canada representatives, is less accommodating and is against resource development and types of hunting (seal, in particular) which is an essential aspect of Nunavut community lifestyles.

WWF-Canada's representative, Rachel Theoret-Gosselin, accepted the request and the initial interview was completed at its office in Iqaluit. A subsequent in-person was held with the Lead of WWF-Canada's Arctic Program, Paul Crowley in Iqaluit. A telephonic interview was also completed with the head of WWF-Canada's Arctic shipping program, Andrew Dumbrille, who is based in Ottawa. WWF-Canada was a very responsive participate in this research, in terms of sharing the nature of its work on Arctic environmental protection, including their knowledge of Baffinland and its interactions with Nunavut institutions on Mary River, GOC's Ocean Plan and shipping corridor initiative, and caribou migration management conflict between the GN and the GOC, and the results of oil spill modelling that simulated an oil spill in T/LS.

[47] Email received from Support Services, Greenpeace Canada that stated 'Thank you for contacting us. Unfortunately, our limited resources of time prevent us from being able to answer these questions. Although, I encourage you to go on our website, you will find lots of information that will be helpful for your research. www.greenpeace.org/canada' (16 September 2016).

PEW, as represented by Dr. Henry Huntington, was also an active research participate. During the interview held in Eagle River, Alaska, PEW's perspectives on Arctic protection in response to the interview questions provided knowledge for triangulation with sources of primary knowledge and secondary data. PEWs active involvement in the shipping corridor initiative, its work in highlighting Tallurutiup Imanga/Lancaster Sound as a critical marine environment and the knowledge that Huntington provided on shipping in the Bering Strait enhanced my understanding of the complexities in Arctic governance and also the opportunities that might avail for communities as a result of commercial development. Huntington's work in Arctic communities was recognised by Amy Merton (Arctic Council, Interview 20) who stated; 'the way they [Inuit] operate is different than the way I operate, so I think people like Henry Huntington know very well the communities and what's really important to them.' In the interview with Huntington, it was evident that his understanding of Arctic community lifestyles and sensitivities to how western-style governance can clash with traditional indigenous values contributed knowledge valuable to the conceptualization of a new form of governance. It was evident to me how the inclusion of such knowledge needs to be situated in governance to represent the interests of those communities most vulnerable to oil spill impairment. To illustrate this point, Huntington commented;

> If you get real true community input and buy-in, I figure you can get stronger, community understanding, and you probably need to get stronger response strategies and new ideas on what actually can be done. So, you're just never get a community plan if you don't pull enough local knowledge. So, I think it's a benefit to really, truly, incorporate community knowledge and capabilities into your response strategies and planning. (Interview 19)

Interviews were also arranged with QIA, a not for profit organization, based in Iqaluit. A meeting was held but no structured interview completed as it became

apparent that knowledge was not directly relevant to the pre-prepared questions. The meeting was held with Joel Fortier, Manager of Lands Administration at QIA's head office in Iqaluit who provided knowledge on QIA's work and its representation of Inuit interests to protect the lands and to preserve the cultures in the Qikiqtani Region or Baffin Region of Nunavut. Since that meeting, QIA prepared *ARCTIC BAY NAUTTIQSUQTIIT – THE EYES AND EARS OF TALLURUTIUP IMANGA*, 2018-2019 Annual Report. In the report, it mentions that QIA has launched the Nauttiqsuqtiit Tallurutiup Imanga pilot program in Arctic Bay.[48] It formalises Inuit involvement in the management of Tallurutiup Imanga/Lancaster Sound and acts as stewards of the marine ecosystem through marine planning. The report notes that although Arctic Bay residents are not formally involved in marine safety and search and rescue, due to the shortage of services in the Canadian High Arctic and without a Canadian Coast Guard presence, their voluntarily support assists in these marine activities.

Interviews with representatives of the Inuit Circumpolar Council (Nancy Karetak-Lindell, President), Nunavut Tunngavik Inc and Ittaq Heritage & Research Centre, Clyde River (Shari Gearheard) were requested, but I did not receive replies to my request. I did receive a reply from John Higginbotham, the Center for International Governance Innovation, that said he was too busy with ongoing work to be able to commit to an interview. This was unfortunate, as Higginbotham is active in Canadian Arctic governance and involved in a range of issues associated with Canada's Arctic Agenda including security, climate change and commercial development. In September 2019, Higginbotham and Spence, on behalf of CIGI prepared a Special Report, *Canada's Arctic Agenda: Into the Vortex,* that brought together many experts to opine

[48] Available at www.qia.ca/wp-content/uploads/2019/06/QIA-ENG-Nauttiqsuqtiit-2019-05- (accessed April 17, 2020).

on economic, security, environmental and identity challenges for the Canadian Arctic (Higginbotham and Spence 2019). A key finding of the report is that *Northerners* must play a more dominant role in how policies that affect them are created and implemented.

An interview with the Premier of Nunavut, Peter Taptuna (2013-2017) was also requested but no reply was received from his office in Iqaluit. An interview was sought with the Premier to gain further insight into remarks that he made at the Nunavut Leadership Forum (November 15, 2015), where he placed particular importance of economic, social and cultural development and responsible investments in resources exploration, infrastructure and tourism. His views on how to work with multiple stakeholders would have been valuable to this research as he emphasised a need to engage with Inuit organizations, municipalities and the federal government to achieve economic growth. His vision that leadership must go beyond being a voice of the people to deliver outcomes on behalf of all Nunavummiut resonates with the epistemological position I adopt in this thesis, and I consider not being able to meet with Premier Taptuna a lost opportunity in terms of knowledge that could have been generated for this research.

4.8 Interview Schedule and Location

Target interview participants were contacted using email with an attached letter (in English and Inuktitut) that explained the purpose of the research. Twenty-one face-to-face meetings were conducted. Three were completed in Norway (Tromso [2] and Horton [1]); one in the UK (London [1]); four in the United States (Eagle River [1], Seattle [2], and Santa Barbara [1]); and eleven in Canada (Calgary [1], Ottawa [2], Iqaluit [4], Arctic Bay [1], Pond Inlet [1], and Clyde River [2]). Three TC

representatives participated in the meeting at TC's offices in Ottawa and three GN (DOE) representatives participated in the meeting at its offices in Iqaluit, Nunavut. Group meetings were completed in Nunavut communities, with bodies including the Clyde River Hamlet Council, the Pond Inlet Hunters and Trappers Organization (HTO), and the Arctic Bay Hunters and Trappers Association (HTA). Professor Oran Young, Professor Rob Huebert, and Professor Tore Henrickson were interviewed at their locations in Santa Barbara, California, United States; Calgary, Alberta, Canada; and Tromso, Norway, respectively. Three telephone interviews were completed: with Robert Eno, former Director of GN (DOE), the Canadian Energy Board, Emergency Management Specialist and Andrew Drumbille, World Wildlife Fund - Canada. Email correspondence was exchanged with Natalia Loukacheva, Jessica Shadian, and Michael Byers on subject matter related to the commercial development of the NWP and the protection of Inuit lifestyles, and engagement in governance processes.

4.9 Interview Structure, Positionality and Sensitivities

I applied cross-sectional research methodology to arrange and complete elite interviews. Such methodology is a 'tool to tap into political constructs that may otherwise be difficult to examine' (Beamer 2002, p.87). Tapping into such constructs requires that positionality and sensitivities associated with the completion of interviews with a diverse array of actors be structured carefully with regard to outsider and insider dialectic and positionality within a governance framework. Preparatory research on the role and responsibilities of each interview participant and in the context of the actor they represent was completed prior to any meeting.

I used an exploratory and explanatory research format in order to complete semi-structured interviews. Contextualization of the questions focused on the prevailing

arrangements to protect Tallurutiup Imanga/Lancaster Sound from an oil spill. The questions were submitted to each interview participant in advance of the face-to-face or telephone interview, with both English and Inuktitut versions provided. I used qualitative data collection methods (in the forms of words and observations) to extract themes and construct a coherent analysis of an actors' knowledge through transcript analysis. Outward expression of emotion, and the manner in which that information was disclosed, was observed while conducting the interview and discussions. A summary of interview participants and their location; title or position; location; form of consent; reference number and the date that the interview was completed in shown in Table 4.1.

Table 4.1

Interview Participants and Coding

Entity and Name	Title / Position	Location	Consent	Source	Reference/Date
			GOC		
GOC TC:	Advisor	Ottawa, Ontario, Canada	Signed Consent	Written Text	Interview 1 February 15, 2017
Canadian Energy Board:	Environmental Specialist	Ottawa, Ontario, Canada	Signed Consent	Recorded	Interview 2 March 8, 2017
Confidential Participant		Ottawa, Ontario, Canada	Signed Consent	Recorded	Interview 3 February 14, 2017
			GN		
DOE: David Akeeagok	Deputy Minister	Iqaluit, Nunavut, CA	Email Acceptance	Written Text	Interview 4 November 3, 2016
DOE: Alex Brisco	Environmental Protection Officer	Iqaluit, Nunavut, CA	Email Acceptance	Written Text	Interview 5 November 3, 2016
DOE: Kristi Lowe	Environmental Compliance Manager	Iqaluit, Nunavut, CA	Verbal Consent	Written Text	Interview 6 November 3, 2016
DOE: Bruce Jerry Hainnu	Conservation Officer, Wildlife Services	Clyde River, Nunavut, CA	Signed Consent	Written Text	Interview 7 October 24, 2016
DOE: Robert Eno	Former Director, DOE	Iqaluit, Nunavut, CA	Email Acceptance	Recorded	Interview 8 April 17, 2017
NRI: Mosha Cote	Manager, Research Liaison	Iqaluit, Nunavut, CA	Email Acceptance	Written Text	Interview 9 August 30, 2016

(continued)

Entity and Name	Title / Position	Location	Consent	Source	Reference/Date
		INDUSTRY			
The International Tankers Owners Pollution Federation Limited: Dr. Mark Whittington	Technical Team Manager	London, UK	Signed Consent	Recorded	Interview 10 February 28, 2017
Former Major Oil Company; Dr. Michael Bronson	(Former BP Exploration Alaska)	Anchorage, Alaska, USA	Signed Consent	Recorded	Interview 11 December 9, 2016
		NUNAVUT COMMUNITIES			
Arctic Bay HTA: Leni	Chair	Arctic Bay, Nunavut, CA	Signed Consent	Written Text	Interview 12 November 8, 2016
Pond Inlet HTO: Jaykolasie Killiktee	Chair	Pond Inlet, Nunavut, CA	Signed Consent	Written Text	Interview 13 October 27, 2016
Clyde River Hamlet Council	Assistant Chair	Clyde River, Nunavut, CA	Signed Consent	Written Text	Interview 14 October 24, 2016
Iqaluit: Madeleine Redfern	Mayor	Iqaluit, Nunavut, CA	Email Acceptance	Written Text	Interview 15 November 2, 2016
		ENVIRONMENTAL NGOs			
World Wildlife Fund-Canada: Andrew Dumbrille	Senior Specialist, Arctic Shipping	Ottawa, Ontario, CA	Email Acceptance	Recorded	Interview 16 November 11, 2016
World Wildlife Fund-Canada: Rachel Theoret-Gosselin	Eastern Arctic Specialist	Iqaluit, Nunavut, CA	Email Acceptance	Recorded	Interview 17 November 1, 2016
World Wildlife Fund-Canada: Paul Crowley	Lead, Canadian Arctic Program	Iqaluit, Nunavut, CA	Email Acceptance	Written Text	Interview 18 March 11, 2016
PEW Charitable Trusts: Dr. Henry Huntington	Vice President, Arctic	Eagle River, Alaska, USA	Signed Consent	Recorded	Interview 19 December 9, 2016
		ARCTIC COUNCIL			
Emergency Prevention, Preparedness and Response Working Group (EPPR); Amy Merton	Chair, EPPR and Chief, Spatial Data, NOAA's Office of Response and Restoration	Seattle, WA, USA	Signed Consent	Recorded	Interview 20 April 18, 2017

(continued)

Entity and Name	Title / Position	Location	Consent	Source	Reference/Date
			ACADEMIA		
Rob Huebert, Associate Professor, Department of Political Science	University of Calgary	Calgary, BC, CA	Signed Consent	Recorded	Interview 21 February 17, 2017
Natalia Loukacheva, Canada Research Chair in 'Aboriginal Governance and Law'	University of Northern British Columbia	Prince George, BC, CA	Email Acceptance	Email	Interview 22 March 1, 2017
Oran Young, Distinguished Professor Emeritus – Institutional and International Governance	University of California at Santa Barbara	Santa Barbara, California, USA	Signed Consent	Recorded	Interview 22 May 4, 2017
Professor Tore Henricksen	University of Tromso	Tromso, Norway	Email Acceptance	Written Text	Interview 23 February 2, 2017
			FORMER STATE OF ALASKA ENVIRONMENTAL REGULATOR		
Lydia Miner	Former Oil Spill Manager, State of Alaska, Department of Environmental Conservation	Seattle, WA, US	Signed Consent	Recorded	Interview 24 December 1, 2016
			NORWEGIAN INSTITUTIONS		
NCA	Ole Kristian Bjerkemo	Horten, Norway	Signed consent	Recorded	Interview 25 January 31, 2017
Norwegian Polar Institute (NPI)	Nina Mari Jorgensen	Tromso, Norway	Signed consent	Recorded	Interview 26 February 1, 2017

When conducting interviews and observing group discussions, I analysed the degree of amplification that shaped opinion on the protection of Tallurutiup Imanga/Lancaster Sound in the context of past oil spills in a marine environment. I made every effort to solicit information without invoking emotion and did not identify any concern in this regard while completing the interviews. Environmental and societal risks associated with an offshore oil spill can be amplified by individuals or organizations, which can contribute to shaping opinion or spurring emotion (Leschine 2002). Leschine (2002) argued that Torrey Canyon, Exxon Valdez, and Deepwater Horizon would be remembered for the impact these accidents had on wildlife and shorelines. Leschine (2002) also argued that there has not been sufficient learning from these accidents to translate into public understanding and effectively addressing the risk of marine accidents. To address this issue, interview questions were designed to ascertain whether past accidents have resulted in lessons learned and translated into protectionist measures in the High Canadian Arctic.

Interview coding was not used in the sense of determining the frequency with which certain keywords were spoken or statistical methods applied to support quantitative analysis. However, I did use qualitative analysis to evaluate the transcripts with attention to possible data contamination. Such contamination could include the overstatement of a participants' role and responsibilities, expression of ulterior motives, or openly biased sentiment. Censored responses and the suppression of opinion, especially in group discussions, could suggest the effect of roles and reporting influence on individuals' responses, and indicate that a given forum does not facilitate the challenge of claims (Beamer 2002). Analysis of transcripts included the cross-checking of expression and comments across participants to collaborate accounts. I employed triangulation to affirm these accounts using policy and literature review. The

knowledge gained by using this methodology included insight and understanding from those who govern and those who seek to be included in future governance, through collaborative and cooperative frameworks. The use of the research methods selected in the present study facilitated an understanding of prevailing governance; combined with secondary sources, this also enabled the creation of knowledge to conceptualise alternative governance arrangements. ‘A niche position within a complex landscape of existing international, national, and local environmental decision-making frameworks’ can be realized by ‘identifying and redefining’ approach to governance processes (Koivurova et al. 2015, p.286). The following chapters explore how new arrangements can be constructed and operationalised to introduce alternative forms of protectionist measures and, thereby, redefine forms of Arctic governance.

4.10 Interview Methods

An interview with individuals, or a group of individuals, was the primary means to collect knowledge. Observational analysis was also used to supplement the data generated in the interview process. An email was sent with an interview request to each of the actor representative that I wanted to participate in the research. Each email included a short profile of myself, a summary of my research proposal, an expression of interest as to why I would like them to contribute knowledge in support of my work, and a requested date, time, and location to meet. I identified actor representatives based on secondary sources of knowledge, specific to that individual, available in the literature review and through the internet. Upon receiving an affirmative response, a date, time, and location was confirmed and always at a location convenient for the research participant. With the confirmation email, I included a consent form and a list of interview questions. The interview questions were provided in English to all

participants and translated into Inuktikut for participants in Nunavut. Examples of the research summary, interview questions and the Consent Form in English and Inuktikut are provided in Appendices 1, 2, 3 and 4. I completed transcript preparation, using audio recordings and written notes, within two weeks of completing each interview. I employed written notes if a participant requested not to have the interview audio recorded (TC, for example), or if I considered that such a request might create a less open dialogue in each cultural setting. Hard copies of all transcripts are preserved in a password protected Word file and electronic audio files preserved in accordance with the methodologies outlined through CUREC. Table 4.1 shows the entity and name of each participant, their title or position, and the location at which the interview was completed. It also shows the form of consent received to conduct the interview (signed form or email acknowledgment) and the transcript source (audio recording or written text). I assigned each interview a numeric designation (Interview 17 for example) to cross-reference data sources using footnotes throughout this thesis. These interview designations are also shown in Table 3.1.

Interview requests to meet with representatives of the Hamlet of Clyde River, the Hunters and Trappers Organisation of Pond Inlet, and the Hunters and Trappers Organization of Arctic Bay were sent to the contact person shown on their respective websites. On each occasion, I expected to attend individual meetings with these interview participants at their respective offices in each of the communities. In Clyde River, a special Board of Directors meeting had been arranged and I conducted the interview in the boardroom with six Board members in attendance. The meeting was chaired by Leni who was serving as Assistant Chair and translator for those speaking in Inuktitut. In Pond Inlet, five members of the Hunters and Trappers Association

participated in the interview and in Arctic Bay, four members of the Hunters and Trappers Association participated in the meeting.

In each of the group meetings the interview Consent Forms were signed, either by each participant (Clyde River) or the chairperson, on behalf of the group (Pond Inlet and Arctic Bay). Interview questions and a summary of my research had been submitted to the Nunavut Research Institute and to each meeting organizer in Inuktitut and English at least four weeks before the meeting. Concern that an oil spill would harm the marine mammals and make the harvesting of country food difficult was expressed in all three group meetings. As expressed by Jaykolasie Killiktee, Arctic Bay HTO:

> The Coast Guard should be asked by the federal government and to make it a priority. Coast Guard needs to resolve this issue. Halifax is probably the closest facility if ever support is needed to respond to an accident. There is more traffic going through the Northwest Passage and if there is an accident the Coast Guard is not always able to respond. As a community we must have search and rescue in Pond Inlet and not having these services is a big problem for Pond Inlet. There are no plans in place to deal with oil spills or search and rescue. We are concerned about oil under the ice that cannot be seen. Inuit knowledge should be used and Inuit help in case of a spill as it would be a very large job in the sea ice. We are concerned about oil tankers and cruise ships, and we are concerned about the people on the cruise ships if there was an accident. There is nothing in place and HTO should be involved. We need to prepare now. If the ocean is contaminated there is no plan today. We need a plan and prepare now. Local people have some boats to respond but there is no other option. Supplies and equipment is needed in Pond Inlet. The Board has much concern. (Interview 13)

Each chairperson all expressed gratitude and stated that my work is important to them and that they want to learn about the findings. Also apparent was that the participants seemed pleased that I would also be meeting with Government of Canada representatives, whom these communities hold responsible for protecting the environment. Privileged to have the opportunity to absorb knowledge shared by meeting participants that can be used to better protect the environment, and afforded the

chance to hear Elders remarks on their beliefs and values, and the significance of non-human lifeforms and non-living materials to community residents, was a rich personal experience, in emotional terms, that I bring to this research. An Inuit prayer in Inuktitut was said before the Arctic Bay meeting and while I did understand its meaning, I had a sense it was asking for the protection of their environment and people, but that is my conjecture. After the meeting in Pond Inlet, at which a prayer was also said, I was invited to go into the butchery located inside the members' hut. I accepted the Chairpersons invitation to taste Muktuk (whale skin and blubber) and did so sparingly while Inuit around me indulged heavily in eating frozen and raw narwhal.

In including Nunavut communities in knowledge generation, it demonstrates that research methods are constructed with clear emphasis on Nunavut community involvement. This inclusion is particularly significant as, according to David-Chavez and Gavin (2018), the vast majority of climate studies 'use Indigenous knowledge systems with minimal participation or decision-making authority from communities who hold them (p.4). Encouraging, is that these authors report that inclusion of communities in northern Canada and Alaska is the highest level compared to indigenous participation in other parts of the world, based on evidence-based research. Agrawal (1995) challenged researchers to contemplate how knowledge that is generated through inclusion of indigenous peoples will be applied. This challenge is accepted in this thesis through the inclusion of indigenous knowledge to help construct a conceptualised form of governance with a strong operational focus and a higher level of engagement of all actors. So often, Arctic research can result in 'research fatigue and consultation fatigue, due to tokenising or non-reciprocal interactions with community members' (David-Chavez and Gavin 2018, p.14; Ford et al. 2016). A requirement of my Nunavut Research Institute licence is that a summary of this thesis will be

submitted for distribution to Nunavut institutions and Nunavut communities, as well as the Government of Canada. In doing so, it will, I hope, begin a collaborative and cooperative dialogue, through engagement with actors positioned in the conceptual arrangement, through participatory scenario planning and community-based engagement. It speaks directly to the participation in governance framing of those 'whose knowledge and subsistence systems are tightly woven with ancestral lands often suffer disproportionate impacts from accelerating climate-related biological disruptions and land-loss, as well as from political, social, and ideological marginalisation and persecution' (David-Chavez and Gavin 2018).

In promoting PSP, Flynn et al. (2018) consider it to be a tool 'important for decision making to manage expected future risks and take advantage of new opportunities' (p.50). Yet, despite being promoted in the literature, 'its [participatory scenario planning] utilization remains nascent in the Arctic' (p.50). As noted in the previous paragraph, the opportunity for actors to enable and implement PSP in a new form of governance would be a unique feature in the protection of the Canadian Arctic marine environment from oil spill impairment. It is envisaged that scenario planning could be an integral part of operationalised governance to situate community-level and all other actors in decision making processes. Bringing together actors through participatory mechanisms can confront the challenge of having to offset the ability of any one actor (or group of actors) who are dominant in agenda setting and decision making through power imbalances (Ernst and Riemsdijk 2013). By not having broad actor engagement in governance shaping processes, these power imbalances, or power differentials as Flynn et al. (2018) have termed them, are compounded and can lead to the exclusion or diminished role of other actors, especially those who are geographically, politically and culturally distant from decision making centres.

A proposed form of governance that would still be institutionally led could situate a diverse array of actors to work together and contribute traditional knowledge, science and technology expertise, capacity-building capabilities and oil spill response experience in the cold regions. In conceptualising a new form of proposed governance, a robust scholarly argument must be constructed that posits the inclusion of community knowledge and access to locally based resources as a requirement to protect the marine environment from oil spill impairment offshore North Baffin. I am mindful, however, that in the application of PSP, possible tensions have been identified in the Arctic related to community-level inclusion and that it can be 'problematic as studies often claim to engage TK [traditional knowledge], but participation is not necessarily synonymous with knowledge sharing' (Flynn et al. 2018, p.51). As emphasised by these authors, in contemplating how PSP can be embraced by actors situated in a new form of governance, the structure and approach needs to consider carefully how Western and Inuit philosophies might collide such that scenario planning is not 'incongruent with the sharing of traditional knowledge' (p.51).

Another reason for potential tension in implementing PSP is that Western understanding of time is linear and that Arctic futures can be contextualized in discussions on climate change impacts, meaning that longer-term environmental trends can be considered in decision making and scenario planning. As noted by Flynn et al. (2018), Arctic indigenous communities typically view time as a cyclical process within a year and 'limited consideration given to long-term futures' (p.51). Bates (2007), in contrasting Western and Inuit philosophies on how knowledge and an understanding of current conditions is applied, points out significant differences in how the future is perceived. Inuit philosophy is driven primarily on the basis that the future will be uncertain and that too much planning can limit response actions that might be required.

Further, some indigenous cultures believe that 'thoughts and words are believed to be able to influence the future, and therefore, people are reluctant to "tempt fate" by talking about negative future possibilities' (Flynn et al., p.51; Ford et al. 2008). In referring to Bates's (2007) work on Inuit and scientific philosophies about planning, Flynn et al. (2018) mention that 'it can be seen as arrogant to assume you can predict the behaviour of animals and the environment' (p.51). In completing my research interviews with representatives of Pond Inlet, Arctic Bay and Clyde River communities, responses to questions that I asked on potential oil spill impact to the marine environment contradicted this aspect of Bates's work. Evident through the responses of those interviewed was that the threat of potential adverse impacts to marine mammals as a result of an oil spill is a very real concern today and, even more so, in the future. Sea-ice melting is expected to continue, and the risk of an oil spill is likely to increase as more shipping activity occurs in Tallurutiup Imanga/Lancaster Sound and the adjacent waters. Transcripts show that those interviewed are concerned about longer-term (multi-year) changes to the natural environment and wish to be included in the planning of measures to protect their lifestyles. For instance:

> The Board is very concerned. There was a meeting (no date provided) that included Confidential Participant and the Canadian Coast Guard to discuss shipping in Lancaster Sound. There was discussion on how unprepared the communities are for a spill. There is no training for a spill. QIA is working on the Lancaster Sound Marine Conservation Area and that might help with oil spill response. Right now, any response would be with the Canadian Rangers, but they do not have the equipment. This year there was the Crystal Serenity and approximately 50 other ships that went to Pond Inlet. The risks of a spill are increasing. - Board Member Leni, Arctic Bay Hunters and Trappers' Association Interview 12).

> There is more traffic going through the Northwest Passage and if there is an accident the Coast Guard is not always able to respond. As a community we must have search and rescue in Pond Inlet and not having these services is a big problem for Pond Inlet. There are no plans in place to deal with oil spills or search and rescue. We are concerned about oil under the ice that cannot be seen. Inuit knowledge should be used and Inuit help in case of a

> spill as it would be a very large job in the sea ice. We are concerned about oil tankers and cruise ships, and we are concerned about the people on the cruise ships if there was an accident. We know more ships are coming to the Northwest Passage with more tourists. There is nothing in place and HTO should be involved. We need to prepare now. If the ocean is contaminated there is no plan today. We need a plan and prepare now. Local people have some boats to respond but there is no other option. Supplies and equipment is needed in Pond Inlet. A tug boat is needed especially. The Board has much concern. - Board Members Jaykolasie Killiktee, Pond Inlet, Hunters and Trappers' Organisation. (Interview 13)

Evident through the completion of my research is that North Baffin communities want to be included in the protection of their homeland. In structuring a form of governance that allows for PSP, these communities can work alongside all other actors to prepare and respond to an offshore spill, if ever required.

CHAPTER 5

PARTICIPATORY GOVERNANCE IN THE CONTEXT OF MULTI-LEVEL ENGAGEMENT

Emerging environmental risks make it necessary to 'bring the future forward' and engage with the commercial development of the Canadian Arctic to establish profiles that allow policy shaping and decision-making to be implemented. Based on the findings of the literature review and the development of appropriate research methods for the present study, it is evident that there exists a moment of influence to make inquiries concerning whether today's governance arrangements are appropriate to protect the Canadian Arctic in the face of emergent risks. If not, what alternative form of governance might be suitable in the context of emergent environmental risks and the acceleration of commercial development? This type of inquiry allows us to contemplate governance in terms of the sufficiency of today's arrangements and how governance might be imagined through different structures. Based on this aim, the present study's contribution to the field is to enhance knowledge concerning how governance to protect the Canadian Arctic might be differently envisioned in the face of emerging risks. The purpose of the following chapters is to answer the three research questions proposed in Chapter 1. This chapter provides background for the reader in terms of why a window exists today to explore alternative governance arrangements.

5.1 Plausibility of Participatory Governance to Yield Desired Environmental Outcomes

Specific functional arrangements to govern a specific environment issue at a defined spatial scale have been proposed (Newig and Fritsch 2009). For example, the

EU Water framework Directive (2000/60/EC) requires that river basins are discrete units to be governed to protect and preserve water bodies. In doing so, vertical, horizontal, and cross-scale communications are encouraged for task-specific governance of the hydrological systems at a spatially bound level. Critical of this type of 'polycentric' governance, Pressman and Wildavsky (1984) challenge the effectiveness of policy delivery using this type of governance, as there are too many decision points and clearance levels to implement measures.

In commenting on European governance systems, Jordon (2002) defended the inclusion of multiple actors, as it helps to confront gaps in policy implementation and denotes a passage towards 'good European governance' (Newig and Fritsch 2009, p.198). In the case of the Water Framework Directive, a guiding principle is that public participation is a tool to achieve the environmental objectives but not a singular tool. As a tool of governance, broad inclusion of multiple actors can help gain 'acceptance of decisions and thus improves compliance and implementation on the ground' (Newig and Fritsch 2009, p.198). In this thesis, empirical research is applied to substantiate the appropriateness of participatory governance in the context of oil spill preparedness and response in the Canadian Arctic. Explicitly, the line of inquiry pivots around understanding if there are fundamental differences or if broad actor inclusion, or exclusion, contradicts the plausibility of participatory governance.

Scholarly work has not focused on the operationalisation of governance through participatory mechanisms to mitigate oil spill impairment in the Canadian High Arctic at such a defined functional and spatial level presented in this thesis. As such, absent in the literature is analysis of state and non-state actor interests related to expectations for the governance of the function, and how spatial distance to a potentially impaired location shapes perception of protection needs. Participatory theorists consider that

there can be ‘higher levels of acceptance and implementation’ of governance arrangements, when involvement across a broad actor network exists and decision-making is of a collaborative form (Newig and Fritsch 2009, p.200). In our case, consideration of spatial scale is particularly relevant as actors who are proximal to a location that is used for commercial development often express greater levels support than while those actors more distant (Koontz 1999). Given that the focus of this thesis is to examine how governance in the Canadian High Arctic can be constructed to protect the marine environment, the plausibility of disrupting prevailing governance needs to be carefully examined knowing that documented forms of multi-level and functional-focused structures are scarce in the literature (Newig and Fritsch 2009).

5.2 Transforming Canadian High Arctic Governance - If Not Now, When?

Prince William Sound and the Gulf of Mexico remind us that it took these incidents occurring to instigate the creation of new rules and regulations to better protect ecosystems and the coastal community lifestyles that were adversely impacted by oil spill environmental impairment. A similar incident in the Canadian High Arctic could cause similar harm if preparedness and response capabilities are not in place at the time of a spill. Mitigation of harm to the Arctic ecosystem and community lifestyles is an actionable item, but it requires an understanding of consequences to human welfare and an assessment of whether this should be the driver of actionable governance—the protection of the marine environment to support long-standing ways of life—or whether such action should be based on an inverse motivation: that marine mammals and other animals have rights of their own and that Arctic ecosystems should be preserved in their natural state, independent of human interests. Alternatively, does

the empirical evidence show us that there are rationalities for considering both perceptions as actionable drivers to mitigate harm?

A biocentric approach expressed by WWF-Canada in the interviews was:

> It is just too difficult, too expensive and the risks are not really understood. The Arctic is unique for the world. There needs to be stewardship of the planet. If lost, the Arctic environment cannot be reclaimed. Ice-breaking is like a forest clear-cut – it disturbs the habitat and the wildlife suffers. (Interview 17)

WWF-Canada's demonstration of outreach to Nunavut communities and its active involvement in shipping corridors is, however, evidence of participatory engagement with anthropocentric thought processes (Interview 18). Knowledge generated through interviews completed with representatives (largely Inuit) in Pond Inlet, Arctic Bay, Clyde River, and Iqaluit also demonstrates that both approaches to harm exist. Mosha Cote, Manager of Research Liaison, NRI, told me that ice-breakers entering Iqaluit provide 'open-water' channels that make whale hunting easier in terms of access, which demonstrates the complexity of anthropocentric and biocentric interrelationship philosophies (Interview 9). This is further complicated by the fact that Inuit beliefs are based on a form of animism: the belief that all non-human and human objects have a spirit. Less complex to understand are the anthropocentric behaviours of ITOPF, TC, and Arctic states that promote shipping and other actors that are active in promoting, or supporting, commercial development of the Canadian Arctic, with clear human dimensions of economic development.

Critical of the GOC, Confidential Participant, Robert Eno, former Director of Environment, GOC, and Rob Huebert, University of Canada, believe that socio-economic development of coastal communities is essential and that the Arctic should be more 'open' to commercial development (Interviews 3, 8, and 21). These actors promote commercial development and the empirical evidence shows that each of them,

and indeed representatives of all acting bodies interviewed, wish the GOC would provide better protection for the environment. WWF-Canada's position—that commercial development should occur in the Canadian Arctic provided best environmental practices are adopted—is a sentiment shared among all research participants (Interview 17). However, it is necessary to address how those best practices can be employed and which governance structure(s) should support their implementation.

Jaykolasie Killiktee, with the HTO Board in Pond Inlet, stated, 'Yes, the Hunters and Trappers Board of Pond Inlet is concerned. We want the mammals to be protected and that is our first priority. If we do not have mammals, we are dependent on seal meat. If there is a spill, our marine mammals, fish, and birds will be impacted, and this will impact the community' (Interview 13). Killiktee also noted, 'We discuss this in the community, but nothing has happened.' The Arctic Bay HTA Board Chair stated that 'The beluga, narwhal, and seals are really important to us and provide us with stable food. The risks of a spill are increasing. We would like to see the Government of Nunavut work more closely with the Coast Guard' (Interview 12). In Clyde River, Bruce Jerry Hainnu, with the Government of Nunavut, Department of Wildlife offered the sobering assessment that:

> Seals, birds, and whales would be impacted and there is no facility to clean them up. Polar bears would be the worse off, because of the food chain and this would extend to hunters' health and their families. If there was a large spill, I have no idea about how we would respond. (Interview 17)

Interestingly, there was no mention in any of the interviews completed outside of Nunavut of the consequence of a spill to the food chain and the wellness of communities, excluding by representatives of NGOs and the Arctic Council. WWF-Canada's assessment in November 2016 that 'it is just too difficult, too expensive, and the risks are not really understood' is alarming, and suggests that there is a need to

critically examine prevailing governance in the context of how the difficulties and the funding of preparedness and response measures, and the transfer of knowledge across the actor network can be enabled (Interview 17).

Relatedly, the findings of this thesis constitute an opportunity to introduce to the social sciences a coherent discourse on how a deliberate act to address harm can be framed. Introducing a new form of environmental governance would be a social innovation that provides 'strategic agency' to all actors and particularly to those excluded from or who have been historically marginalised in today's arrangement (Westley and Antadze 2010). This could promote interactions across epistemic communities in order to re-conceptualise oil spill preparedness and response to mitigate potential harm. It would help reduce stress on those responsible for policy-making by bringing the people of Nunavut, NGOs, and the Arctic Council and all other actors (both within and outside of the Arctic region) into governance-shaping processes. Information for preparedness planning needs at a spatial level requires local knowledge and this exists in the communities. Desktop planning provides information but leaves many gaps in knowledge given that there are many angles to address. Based on the analysis of interview transcripts, TC's belief appears to be that, while measures are in place, these are not sufficient to respond to a significant, offshore oil spill in the Canadian Arctic. Further, local communities have been only peripherally engaged in preparedness and response planning. Efforts to engage with local residents have not been successful, in part because they have expected to receive compensation for supporting CCG and TC, which has not been the case. Conversely, WWF-Canada countered TC's assumption that this is happening, and questioned, 'What happens if the person with the key to the supply hut is out of town, fishing or hunting?' (Interview 17). No equipment for an offshore response (beyond the tidal zone) was present in any hut

in Pond Inlet, Arctic Bay, or Clyde River in winter 2016, making their comment irrelevant.

Regarding WWF-Canada's comment on TC, the results of transcript analysis indicate that government representative know that things are not OK in terms of offshore preparedness and response capabilities:

> It will take an accident for a higher level of funding; this was the case with Exxon Valdez and the Gulf. The issue is the allocation of funding and how risk is viewed by the Government of Canada. We absolutely want to do what we can, but our resources are limited. (Interview 1)

Empirical evidence in this research indicates that a 'watching brief' taken by actors with an ability to act in the face of emerging risks is not acceptable and there is a need to act now, rather than later, to introduce oil spill preparedness and response measures (Interviews 3, 5, 8, 12, 13, 14, 15, 17, 18, 19, and 21). New governance of oil spill preparedness and response would be transformational and an expression of purposeful intent to introduce new practices to mitigate environmental risks in the Arctic (Anderson 2009). A difficulty in transformational governance is that it requires policy-shapers and decision-makers:

> [T]o make trade-offs between efforts to meet current challenges and efforts to devise anticipatory responses to challenges likely to occur in the future. Because projections regarding future developments involve (relatively) high levels of uncertainty and policymakers have a natural tendency to discount the future, anticipatory responses to future developments may receive short shrift in policy processes. This is one reason why we are often taken by surprise by non-linear and abrupt occurrences and find ourselves poorly prepared to deal with them when they do occur. (Young 2012, pp.78-79)

It cannot be known whether an interruption of shipping normalcy will occur in Canadian Arctic waters that results in an oil spill. However, the empirical research evidence indicates that actors are not prepared to deal with a response to such an event. Therefore, it is imperative to use triangulation with primary and secondary knowledge to enable communities to help shape governance discourse and apply the 'geography of

science' to broader knowledge making (Hulme 2008; Powell 2007). Knowledge and ideas associated with the geographies of space and functionality are viewed differently by actors, which should be accepted by policy-makers (Mahony and Hulme 2016). As geographers in proposing alternative governance arrangements, we can capture 'innovative cross-disciplinary conversations about the nature of geographical knowledge' to govern future uncertainties using anticipatory logic (Mahony and Hulme 2016, pp.4-5). As applied to the Canadian High Arctic, such discourse would cut across prevailing arrangements and introduce a more complex and multi-level form of governance. It would also reconfigure scale in environmental governance through rethinking the role of existing actors and would allow new actors to be positioned through 'new geographies of governance' (Reed and Bruyneel 2010). In doing so, however, it requires us to recognise that empirical evidence on the 'success' of participatory governance through multi-level actor inclusion is limited in the scholarly literature, particularly in the context of the Canadian High Arctic (Newig and Fritsch 2009).

Pellizzoni (2003) has claimed that participatory governance is a success and expects it to 'contribute to improving the 'quality' of decisions by incorporating locally held knowledge and by opening up the political arena for environmental interests' (Newig and Fritsch 2009, p.198). If, as these authors suggest, the inclusion of stakeholders improves the likelihood that decisions will be better accepted, then multi-level governance of the Arctic that includes local communities in its implementation would have merit. Conversely, other stakeholders have claimed that that the environmental governance of societal problems and ecological impairment are best governed through higher levels of governance (Meadowcroft 2002). Scholars who hold this belief have argued that there is a risk that local actors might make local decisions at

the expense of third parties to govern local interest structures. As yet, no form of multi-level governance has been proposed to protect the Canadian High Arctic from oil-spill impairment, based on a review of the scholarly literature. Singularly-led, 'top-down' institutional arrangements prevail, and there is no empirical evidence to provide guidance on whether actionable measures to mitigate harm through multi-level structures would result in improved policy outputs and environmental outcomes. As such, the significance of this thesis is that it gives scholarly attention to how a form of conceptualised environmental governance, with multi-level and participatory attributes, can be imagined based on its empirical findings.

The topic of transformation of Canadian Arctic governance takes on a temporal dimension, in that continuity of inherited actor roles, particularly in the GOC, evolve in a way that is not expected to be abrupt. An emergent structure that is built-upon the inheritance of prevailing actor roles would be dependent on the agency of social and political forces to advance a transformation (MacKinnon 2010). As I imagine alternative forms of governance through a re-construction of epistemological scale, 'scale bending' rather than 'scale jumping' is envisaged to consider the flexing of the prevailing governance structure to a form that I believe would be more appropriate to protect the Canadian Arctic.

Understanding Tallurutiup Imanga/Lancaster Sound as a geographically bound risk-scape allows us to apply existing and new knowledge to why this *place* is suited to accommodate futuristic thinking of the potential environmental risks associated with commercial development. Hunters and trappers of North Baffin communities have demonstrated foresight in that they know that their ability to hunt, trap, and fish in ways that have supported their lifestyle for centuries is at risk if marine and coastal environments are impaired (Interviews 12, 13, 14, and 15). Environmental impairment

of Tallurutiup Imanga/Lancaster Sound can potentially result from Canadian or foreign flag operators of vessels that transit Tallurutiup Imanga/Lancaster Sound and adjacent waters. Canada flag vessels are more likely to be associated with destination shipping within the Canadian High Arctic (such as sealift and tourism) while foreign flag vessels are more likely to transit through Tallurutiup Imanga/Lancaster Sound as they enter or exit the navigable routes of the NWP. By conceptualising governance transformation as a journey, actionable measures to protect Tallurutiup Imanga/Lancaster Sound can be used by policy-makers to 'focus on relatively small yet cumulative incremental steps that contribute to creating new-path dependencies towards more desirable futures' and the transformation of governance structures, beginning at a spatial scale that is small, in terms of a bounded geographic area (Patterson et al. 2017, p.4). Weick (1984) suggested that momentum for larger-scale transformation of governance systems could occur by an approach that focuses firstly on small-wins and that may be considered of moderate importance. Implementation of a form of governance that can provide better protection of Tallurutiup Imanga/Lancaster Sound than is present in today's arrangement could then be viewed by policy-shapers as a demonstration of a 'small-win' to support the consideration of narratives that could be developed at broader geographic and functional levels.

In the present case study, the protection of Tallurutiup Imanga/Lancaster Sound from oil spill impairment is the functional element of a new form of multi-level governance. If an oil spill ever impaired the marine environment, I speculate that post-incident reflection by negatively impacted stakeholders would be necessary in order to understand how this could happen given that the risks of such an incident should have been known and preventative steps to mitigate damage implemented. Under pressure from their constituents, lawmakers in Ottawa, as well as NGOs and an array of

stakeholders, might seek to revisit existing pollution and liability regulations, while other actors might choose to consider such an event an isolated occurrence and view prevailing arrangements as adequate given today's limited usage of Tallurutiup Imanga/Lancaster Sound for commercial shipping purposes. Privileged to spend time with hunters and trappers in surroundings unfamiliar of the Canadian High Arctic, I was able to develop a first-hand understanding of potential impacts of an offshore incident to existing lifestyles. Many actors and stakeholders distant to North Baffin are not accorded this type of opportunity, given the logistical complexity associated with visiting these communities. These interactions provided rich generation of primary knowledge and informed me of the lacuna in terms of concerns of community members regarding environmental damage in extant scholarly and general literature. For example, while speaking with Jayko Tunraq, Chair, Arctic Bay HTA (Interview 12), we both glanced towards the icy-waters of Arctic Bay, and he said:

> The narwhal, beluga, and seals are really important to us and provide stable food. We are concerned because we have no say. Clean-up, training and equipment costs should be federally funded, it is expensive, but needs to be funded. Rangers should be trained. Rangers should be the first to be mobilized.

In Pond Inlet, while tasting the Muktuk and observing 'country-food' preparation in the HTO hut, Jaykolasie Killiktee, acting Chair (Interview 13) expressed that:

> Today is the first time someone has come to our community to discuss this topic. We discuss this in the community, but nothing has happened outside of Pond Inlet. I would appreciate an update on your meetings with other organizations. We typically get no feedback on meetings and interest is lost. When will you come back to Pond Inlet? We want the mammals to be protected and that is our priority. There are no plans in place to deal with an oil spill. Local people have boats to respond but there is no other option. The Board of Pond Inlet Hunters and Trappers has much concern. There is nothing in place and HTO should be involved. We need to prepare now. Local people have some boats to respond but there is no other option. Inuit knowledge should be used, and Inuit help in case of a spill as it would be a very large job in the sea ice.

Collating the perceptions and interests of community members in North Baffin generated knowledge on concerns relevant to potential human and non-human harm, and potential problem-solving avenues, facilitated through policy-shaping, decision-making, and resource availability. Research findings on how coastal community representatives regard commercial development of Tallurutiup Imanga/Lancaster Sound is valuable knowledge that can be used to compare and contrast local viewpoints with those of spatially distant actors. Koontz (1999) observed that residents who live proximal to a natural resource typically favour its economic development. In contrast, residents living further away from an ongoing or proposed development tend to favour environmental conservation.

Dowsley (2008) completed a study on polar bear management regimes across five countries from the 1960s through the early 2000s and concluded that it was difficult for institutions to develop management systems capable of adapting to environmental and social changes. The melting of sea-ice and the opening of shipping routes through the NWP is a similar issue, in terms of the introduction of environmental risks, for which governance arrangements may no longer be appropriate. A temporal dimension of scale that lengthens timeframes gives us the ability to ask 'just how difficult' is protecting Tallurutiup Imanga/Lancaster Sound, knowing that today's challenges of governance might be rooted in the past. What might appear, through temporal vision and longer 'forward-looking' timeframes, is that protectionist measures need to be imagined that have the capacity to adapt to environmental and social changes more quickly. Commercial development, associated with shipping and natural resource development, brings into focus the reality of emerging environmental risks and the timeliness of framing governance today for tomorrow's protection of Tallurutiup Imanga/Lancaster Sound and the surrounding area.

In a related and timely development, in September 2017, the NIRB requested submittals from qualified parties to complete a SEA in Baffin Bay and Davis Strait.[49] Its purpose was to 'develop an improved understanding of potential types of oil and gas related development activities that could one day be proposed within the Canadian waters of Baffin Bay and Davis Strait outside of the Nunavut Settlement Area (NSA), along with their associated risks, benefits, and management strategies.' The SEA area includes Tallurutiup Imanga/Lancaster Sound. The assessment is ongoing and prompted by INAC in February 2017; its purpose is to complete an assessment pursuant to Section 12.2.4 of the Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada (Nunavut Agreement). The NIRB is required to coordinate the assessment, to complete a literature review, and incorporate IQ. The request to qualified parties emphasized that an essential component of the SEA is to reflect Inuit concerns and traditional use of the associated marine areas. Two stated objectives of the SEA are 1) to assess potential impacts and benefits of oil and gas development and 2) to identify knowledge and data gaps associated with proposed development. The Strategic Environment Assessment Area is shown in Figure 5.1.

[49] Draft Scope for the NIRB's SEA in Baffin Bay and Davis Strait, Nunavut Impact Review Board, NIRB File No:17SN034 Available at www.nirb.ca (accessed December 6, 2018).

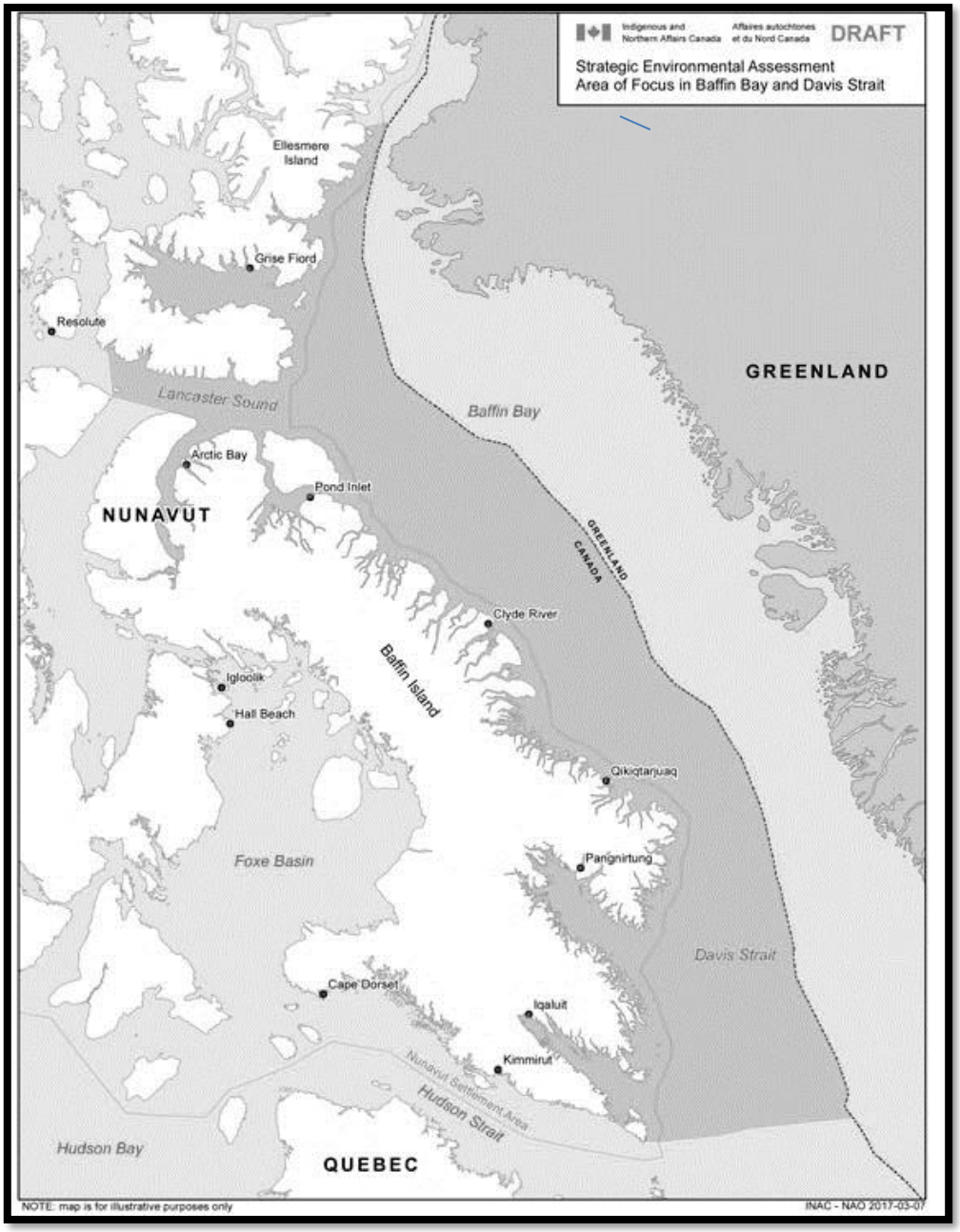


Figure 5.1 The strategic environment assessment area. Reprinted from NIRB's SEA in Baffin Bay and Davis Strait, September 11, 2017.

The NIRB's completion of the SEA is significant to this research as it provides an example of how a new form of conceptualised governance that is initially spatially and functionally bound could be scaled beyond Tallurutiup Imanga/Lancaster Sound to protect the broader geographies of Baffin Bay and Davis Strait. Scalar expansion to include functions other than oil spill preparedness and response could also be

accommodated to apply to salvage, marine ‘clean-up’ of plastics and other waste products, and ecological programs to monitor invasive species migration. Empirical evidence obtained through completion of this research demonstrates a broad consensus of agreement on the commercial development of Tallurutiup Imanga/Lancaster Sound, provided it includes the implementation of best practices to protect the environment. Several interview respondents openly expressed angst towards the GOC, which reveals tension over commercial development and its emotive nature:

> Lancaster Sound and adjacent areas are oil rich areas. And I just want to mention that Canada has recently announced a moratorium on oil exploration and drilling in the Arctic. I was surprised by this. It was done without consultation with the governments of the territories all of whom have committed with Canada to discussing the management of the offshore in conjunction with the devolution of responsibility for managing onshore natural resources. You know Canada has devolved that responsibility 100% in Yukon and Northwest Territories and is actively discussing what we call devolution of onshore management and resource revenue sharing of onshore natural resources. All those discussions are in a sense constitutional development for the territories empowering the representatives, the elected representatives of the communities most affected by resource development to have a voice in managing their lands and waters rather than just in Ottawa. All those devolution agreements have included commitments to negotiate participation of the territorial governments and indigenous peoples, certainly Nunavut, in managing the offshore. So, the arbitrary announcement of the moratorium really is inconsistent with Canada’s commitments to territorial governments and indigenous peoples to involve them in considering how an offshore should be managed. Recently the Department of Indigenous Northern Affairs gave the Nunavut Impact Review Board, which is a designated Inuit and institution of public government under the Inuit Land Claims Act the authority to and the funds to conduct what they’re calling a strategic environmental assessment of offshore managing the natural resources in the offshore. That’s just been announced. And they’re going to hold public hearings. (Interview 3)

> Commercial development is not going gangbusters yet, and I don’t know how long it’s going to be. There’s a moratorium on oil drilling up here for quite a while since Trudeau came to power. And I know this has ticked off a few people, but it’s a bit of a relief because they could not handle a spill. (Robert Eno; Interview 8)

Framing governance through ‘forward-looking’ perspectives allows divergent actor interests to be considered in the context of spatial, functional, and temporal dimensions.

Actors local to Tallurutiup Imanga/Lancaster Sound who encourage development could be assured that their environment and lifestyle is protected, while NGOs that recognise commercial development is needed to support socio-economic growth would be comfortable knowing best practices could be implemented.

5.3. Discussion

Mindful that not all governance arrangements might be successful in solving the challenges that prompted their creation, the following chapters explore the conditions that can contribute to the success, or failure, of alternative forms of environmental protection measures governance. I analyse casual dynamics to identify mechanisms that influence actor engagement and assess how actor relationships will work in a new conceptualised setting. In this way, it is possible to deepen an understanding of the functionality of processes and engagement of actors who have been historically marginalised (MacKinnon 2010). Like emergent environmental risk, the conceptualisation of governance can be imagined accommodating emergent social processes of scale and in consideration of the potential impacts of commercial development in the Canadian High Arctic. It is realistic, in my opinion, to consider ontologies that involve horizontal networks and flat linkages between actors to work alongside those that are more ‘top-down’ and vertically driven. As such, I adopt a stance that asymmetry in actor roles better allows us to face, and confront, challenges to imagining and developing a form of governance that respects the power position of the GOC with attributes of horizontal and cross-scale linkages that reposition existing actors and introduce new entrants. The view expressed by Van Lieshout et al. (2014) — that ‘certain scale frames are filtered from the process does not necessarily mean that they are unimportant; on the contrary, this can equally mean that they are very

important but do not fit the ideas of some decisive actors and are thus ignored' (Van Lieshout et al. 2014, p.20) —is pointedly relevant to Tallurutiup Imanga/Lancaster Sound. While existing scale can be imposed as a 'conceptual given' for government funding and ultimate decision making, that does not mean that discourse with marginalised actors should not exist (Marston et al. 2005, p.422). Geographers need to capture 'innovative cross-disciplinary conversations about the nature of geographical knowledge' (Mahony and Hulme 2016, pp.4-5). Hulme (2008) and Powell (2007) have argued that epistemic communities should help shape public discourse and that tools of geography of science be applied to broader knowledge making. Applied to Tallurutiup Imanga/Lancaster Sound, these concepts are relevant in relation to local knowledge capture and to the cultural, political, and social dimensions of governance formation.

The purpose of this chapter was to provide background on why there is a 'window of opportunity' for a fundamental shift in governance thought processes on the protection of the Canadian High Arctic. These next chapters build upon the concept that there exists a need to transform social and environmental approaches in a process of conceptualising 'governance for navigating change' (Patterson et al. 2017, p.4). Scholars of transitional change have suggested that the governance of transitions can be 'steered through goal-orientated modulation of co-evolutionary change processes' (Patterson et al. 2017, p.4). Conceptualising a new form of environmental governance as a transformational process is based on the philosophy that today's arrangements to protect the Canadian High Arctic are not appropriate in the face of emerging risks. TC representatives are frustrated with a lack of funding. Nunavut communities and the GN are frustrated with a lack of federal support to protect their environment. NGOs are constantly seeking communication pathways to contribute knowledge and engage in protectionist measures (Interviews 1, 8, 12, 13, 15, 17, and 18). Construction of a form

of governance to accommodate a range of actors' social, economic, and environmental interests and that provides acceptance of both anthropocentric and biocentric approaches, would be a desirable outcome. It would help enable transformation of governance processes at a time when there exists an opportunity to envisage arrangements that are better suited to meet the nature of emerging environment risks.

CHAPTER 6

PREVAILING GOVERNANCE FRAMEWORK: ACTOR ROLES, INTERPLAY AND POWER DYNAMICS

6.1 Introduction

Empirical evidence suggests that a large-scale oil spill in Arctic waters would be devastating, and that any response in the Arctic environment would be more challenging than Exxon Valdez or Deepwater Horizon.[50] This is due to the remoteness and harsh physical conditions of the Canadian north, the difficulty to mobilise equipment without infrastructure proximal to a potential spill location, the absence of human resources physically located in the Arctic that have not been made available to support a response, and the technical challenges associated with marine and ecosystem restoration in a cold region environment. Based on the analysis of interviews with state and non-state actors completed for this research, the GOC would not be able to respond to a large oil spill to protect wildlife and the coastal communities (Interviews 3, 8, 10, 17, 18, and 21). While secondary sources confirm this primary knowledge (Nunatsiaq News 2017), it is alarming that the concern expressed across the actor network is so consistent in that there is no protection of the Canadian High Arctic from oil spillage impairment. While funding recently made available to the newly formed CCG Auxiliary and the establishment of an Arctic Region demonstrates intent, the prevailing governance structure still does not provide sufficient environmental protection, as

[50] Available at https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/activities-arctic (accessed April 10, 2018).

access to resources proximal to a potential spill location do not exist (Canadian Coast Guard 2015). Therefore, the conceptualisation of an alternative governance arrangement is imperative to the goal of protecting the Arctic in the face of emergent environmental risks. This research is particularly significant for stakeholders who contemplate the potential impact resulting from the interruption of shipping normalcy in Tallurutiup Imanga/Lancaster Sound. It further highlights the need to confront the gap that exists in prevailing environmental governance to protect the Canadian High Arctic. It is also significant because it provides—to those responsible for protecting the Arctic—a reason to contemplate new approaches that pre-empt impairment and protect coastal community lifestyles and wellbeing.

I employed thematic analysis to confront the gap in prevailing governance using spatial and functional imaginary. I identified themes of participatory engagement at local and regional scales in policy-shaping and decision-making, resource creation and capacity building, and inclusion of knowledge and best practices adopted among actors outside of the Arctic, which could be introduced as part of a new form of governance.

Achieving this aim requires the reshaping of epistemological construction of scale to allow for the rebalancing of power relationships across the actor network and the introduction of ontologies that support flatter linkages with less asymmetry of scale. Reshaping scale requires us to question the appropriateness of the prevailing 'top-down' hierarchical structure. Van Lieshout's (2014a; 2014b) scholarly work brings focus to the potential exclusion of certain scale frames in governance. This is a meaningful concept to consider in the re-construction of an epistemological scale. The applicability of Van Lieshout's work is that scale frames historically marginalised or ignored in Canadian High Arctic governance need to be considered and, in this research, are considered to be very important. This is despite the possibility that some

of the established actors might resist their inclusion, as it would disrupt prevailing governance arrangements. If actors can be positioned in an epistemological scale that is constructed to facilitate cross-scale communication through the opening of collaborative pathways to examine spatial and functional dimensions, this can shift governance towards an inclusive, rather than an exclusive, arrangement. This requires us to engage with the primary knowledge to reimagine the roles of existing actors and to carefully consider the inclusion of new actors that are able to broaden scalar dimensions and, thereby, facilitate the construction of a new form of governance arrangement. Such innovation allows us to consider the placement of current and new actors in a re-constructed epistemological scale to support cross-scale interplay and to create less hierarchical and flatter ontologies that enable knowledge sharing, exchange of best practices, resource sharing, and capacity building. To address this potential transition, I employ the knowledge obtained through interviews with both established actors and those who are excluded from today's governance arrangement to explore how ontologies might be flattened in a governance arrangement that is less hierarchical than the existing model.

6.2 Actor Roles in Prevailing Governance of the Canadian High Arctic

'We're under a lot of pressure, the Coast Guard is under a lot of pressure, and we want to do absolutely what's right, but we just have limited resources,' commented a TC advisor (Interview 1). The issue of a lack of resources committed to protect the Canadian Arctic is echoed in the sentiments expressed by representatives of the GN (DOE), WWF-Canada, PEW, ITOPF, and the Arctic Council (Interviews 4, 5, 6, 7, 10, 17, 19, and 20). Viewpoints expressed by representatives of North Baffin coastal

communities were similar. For example, Jaykolasie Killiktee, Chair, Pond Inlet HTO stated:

> The Coast Guard should be asked by the federal government to make oil spill response a priority. Coast Guard needs to resolve this issue. Halifax is probably the closest facility, if ever support is needed to respond to an accident. There is nothing in place and HTO should be involved. (Interview 13)

In relation to the academic analysis of political commentary, Rob Huebert, a political scientist at the University of Calgary, noted that 'The Canadian Coast Guard will carry the bag when they can't respond, and they know that' (Interview 21). The research findings indicate that there is agreement across the actor network that it will take an oil spill in Canadian Arctic waters to invoke more aggressive protectionist measures by the federal government. Based on empirical evidence, I agree with Ford and Clark (2019) that 'the case load of severity will increase in the coming decade with climate change and increasing use of Arctic marine environment' (Ford and Clark 2019, p.3). The argument of Ford and Clark that SAR must be improved resonates with the research findings presented in this thesis that oil spill preparedness and response, must too, be improved to adapt to rapidly changing risk profiles associated with maritime use in the Canadian Arctic. Remarks by interview participants in this research (Interview 3, 8, 17, and 21) expressly align with those of Col. LeBlanc that the government needs to shift its centre of gravity toward the North, but it will require a major disaster that is headlined across the world.

TC's Advisors declined to be recorded but provided valuable perspectives on response capabilities to an Arctic oil spill that allow us to construct a situational analysis of the current situation (Interview 1). Their contribution of knowledge is rich in terms of enhancing our understanding the role and perspectives of the primary actor

responsible for Canadian marine governance, as they have direct involvement in any oil spill response in the Canadian Arctic working alongside the CCG.

One question asked in all interviews was: Do you believe it will take an accident for a higher level of funding and planning of oil spill in Tallurutiup Imanga/Lancaster Sound and northern waters? 'Absolutely. This was the case with Exxon Valdez and the Gulf. The issue is the allocation of funding and how risk is viewed by the GOC.' and 'the intent has always been to make industry responsible.' Conversely, comments from Robert Eno, formerly Director of Environment, GN, challenge this statement: 'While the GOC will officially tell you it's the responsibility of the ship owner,' which it is under legal statutes, 'the government has responsibility because these activities would not be happening without its consent' (Interview 8). Eno's response is in alignment with that of Paul Crowley, WWF, Leader Canadian Arctic Program, that: 'if a spill did occur, the GOC is the only agency with the ability to make an initial response happen, but there are no resources located in the Arctic' (Interview 18). On this point, Eno explained that his argument has always been that oil spill preparedness and response should not be the sole responsibility of the government, but it should serve in an oversight capacity of responders contracted to industry. Under such a condition, would shipping firms avoid using Canadian waters as the costs to provide assurance to the GOC that it can respond to a spill could make alternative routes more attractive? It is a conundrum as socio-economic development of northern communities as a result of Arctic shipping is regarded as a positive aspect of commercial development of northern waters (Interview 8).

The data analysis process revealed that oil spill preparedness and response in the Canadian High Arctic is clearly disjointed, and that there is a lack of communication between actors. Eno noted that:

> While I hate using time-worn government bureaucratic phrases, but many of the agencies are operating as silos. It would be a monumental task, but there needs to be a coordinated effort and agreed course of action. But what constitutes preparedness and what should we expect in response capabilities, and by who? This is where experts need to be brought in. The problem is it's hard to stage the type of resources needed and I think it would be impractical but in an ideal world it would be great if they could have a huge stockpile of resources in every community. But the problem is that these communities are so far apart, there's so little expertise that it would be hard to get this equipment deployed. You'd have to get somebody in here to deploy that equipment and it would be totally impractical to have the kind of equipment that you need to response to a major ship's oil spill in every community. You need to have people that actually know how to use it because having it there is great, but you've got to have a quick first response.

> A problem is that when it comes to the day to day policies or how things are done this is done internally within each agency. So not to say that the feds are not cooperating, I mean there was great cooperation with spills working group probably one of the most useful administrative groups to which I ever belonged. But the problem is the decisions, the major decisions on how things are going to happen up here that happens within the agencies. I mean a case in point here the military every year holds an exercise in the North and we were asked to participate in this one particular exercise in Iqaluit. Department of Defense asked us to participate and so we were all part of the spill exercise. Every year they have some meet and so this particular year they had a spill exercise and it was going to be a terrorist attack on one of the tank farms and the tank was spilling oil into the ocean. And to make a long story short, we in the territorial government felt like the feds really didn't want us to participate in this exercise they just wanted to have that box ticked off that they consulted with the territorial government and we participated in the exercise. But we later learned that after the post exercise the Coast Guard and military had their own cozy little exercise for responding. And the territorial government wasn't invited at all**.**

Bringing state and non-state actors together is logistically and politically complex and Eno does not expect anything to happen to protect the Arctic until the first major oil spill: 'I honestly don't see the Canadian government moving on anything until a major disaster happens. For us in the north, it is a big deal, but people in southern Canada I bet half couldn't tell you where Pond Inlet are Arctic Bay are located' (Interview 8). This affirms the stated positions of Simon, Lockacheva and the knowledge gained in

completing interviews with representatives of the GN and Nunavut community members that geographic and emotional separation exists in today's governance arrangement and acts as barriers to collaborative and cooperative governance. Confidential Participant, when commenting on Senate committee work on oil spill response offered: 'It is alarming, but frankly not surprising that we heard horror stories about being unable to respond to a spill. It demands urgent attention' (Interview 3). Encouraged by the GOC's announcement that it is taking a new approach to offshore oil spill preparedness, the Confidential Participant expressed that it is a welcome development, but also requires vigilance on the part of elected officials to ensure that 'these new measures that have been announced with some fanfare actually translate into "real concrete."' In mentioning that Canada's Arctic coastline is longer than the east and west coasts combined, the Confidential Participant was addressing 'how will that announcement and the financial commitments translate into the protection of northern Canada.' Commenting further, the Confidential Participant stated that 'unless something improves, I predict that there is going to be an incident unfortunately and it will demonstrate Canada's neglect of this area' (Interview 3).

Analysis of interview and group forum transcripts does, however, provide empirical evidence that communication does occur between actors, albeit through a dominant power-over and hierarchical structure. Prior to completing the interviews, it was not possible to understand the nature of this interplay between the GOC and other actors, as these interactions occurred outside of a formal governance structure and any documentation on the subject matter is not readily available in the public domain. Primary knowledge obtained from interviews indicates that there is interplay between TC, the Coast Guard, and non-state actors. Representatives of the Arctic Council, WWF-Canada, and ITOPF (Interviews 1, 16, and 20), Dr. Mark Whittington (ITOPF)

(Interview 10) and Andrew Dumbrille (WWF-Canada) (Interview 16), reported that they interact with TC and the CCG through irregularly scheduled meetings organised through the GOC or special forums such as IMO (Interview 16) in London and Arctic Council working group meetings. This demonstrates actor interplay does occur and it provides a foundation on which expanded forms of communication pathways can be built.

The literature review did reveal that interplay between non-state actors, based on my analysis of work products primarily made available through electronic media. These products often mention the GOC, TC, and CCC as meeting non-state participants and knowledge contributors; however, no linkages provide evidence that the work of the Arctic Council is transformed into operationalised governance of oil spill preparedness and response. Based on the findings of this research, it is evident that representatives of the NCA and the Norwegian Polar Institute (NPI) are active in the Arctic Council, which enables linkages to TC and the CCG (Interviews 25 and 26), which facilitates knowledge transfer. The empirical evidence does highlight that the GOC, WWF-Canada, and PEW are working together on designated shipping corridors through the Canadian Arctic. The corridor initiative is perhaps the best form of functional governance that exists today relevant to the Canadian Arctic. This is significant as many of the actors involved with the corridor initiative are those who can be positioned in a conceptualised form of governance on oil spill preparedness and response to protect the transit routes of the NWP. Overlap also exists in terms of decision-making on resources that would need to be made available in support of salvage and rescue, navigation, hazard assessment, and infrastructure to enable shipping in consideration of risks to the environment. To illustrate this interplay, it is helpful to

provide quotes from interview participants to highlight connections, albeit outside of a formal governance structure, that demonstrate prevailing communication pathways:

> I was part of the Arctic Council shipping assessment. I've had some role in almost all their major assessments. The Arctic Council has been a great vehicle for the assessment, and I think that they have done a great job of laying out the problem and the issues of persistent organic pollutants and so on. Canada took those findings and used them to great effect in the global negotiations that led to the Stockholm Convention on POPs. (Dr. Henry Huntington, PEW Charitable Trusts, Eagle River, Alaska; Interview 19)

> With the relationships we have with the Northwest Territories Nunavut Spills Working Agreement it facilitate our access to other government agencies. So, for like eyes on the scene, we would normally go the Nunavut Department of Environment as they have conversation offices in each hamlet. But, as far as the Coast Guard taking charge, it's kind of hard for them to deliver. (Canada National Energy Board, Alberta, Canada; Interview 2)

> As a representative of the shipping industry we have been involved with the Arctic Council for quite a few years and participating in various regional workshops and seminars to try an understand what is going on. We also have sponsored some work at the University of Washington and with NOAA to look at emerging risks to the shipping industry. I met Amy Merton, with NOAA, in Seattle. We also provided input to the GOC on shipping north of 60 when the Coast Guard takes responsibility. This is where the challenge is for Canada and I've been working with the Coast Guard in Ottawa in looking at overall response in the Arctic. If we have a large incident in the Arctic, I do not see how the military cannot be involved to be build temporary runways, put up settlements with all the necessary communications, sanitation, catering and other logistics. (Dr. Mark Whittington, International Tanker Owner's Trust fund, London, UK; Interview 10)

> We share our work on navigation assistance conducted in Svalbard and our mainland coastal waters with the Arctic Council. We are also working the Arctic Council's EPPR working group on exchange of best practices in oil spill preparedness and response. We are also supporting PAME in looking at the shipping industry usage of heavy fuel and other cold region concerns. At Transport Canada, I have contacts that are also part of the Arctic Council's EPPR group. (Ole Kristian Bjerkemo, Norwegian Coastal Administration, Horten, Norway; Interview 25)

> I think people like Henry Huntington with PEW can be a really good bridge between communities and the federal government. I have been to the communities and the way they operate is different than how I operate. Henry knows what is important to them. WWF is a very active observer in the Arctic Council and help bring the community perspectives to supplement the input from the permanent participants. Transport Canada

> also works with us and has worked with Ole Kristian Bjerkemo and others on a small community outreach project to assess response capabilities in villages throughout the Arctic. (Amy Merton, Arctic Council, Chair EPPR, Seattle, United States; Interview 20)

It is also striking that the empirical evidence demonstrates that those actors that engage with the GOC, and a number of actors who do not, understand that there are multiple opportunities to contribute to prevailing governance in ways more significant than exist today, and some of these are identified in the following sections. This evidence allows us to reconsider actor roles to enable knowledge and resource contribution in a governance system that can better protect the environment and community lifestyles. Imagining these roles provides us with a framework to consider how existing and new actors might be repositioned in a reconstructed epistemological scale, to enable the GOC to better protect its Arctic environment. The remainder of this chapter considers how the roles of actors might be imagined.

6.3 Non GOC Actor Roles Re-Imagined

Part 4, Article 15.4.1 of the 1993 NCLA provides the legitimacy to form the NMC as a forum for priority setting and planning of marine activities. The responsibility for determining the need for a NMC lies with existing Boards of NIRB, NWB, NPC, and NWMB. The GOC, in response to a Standing Senate Committee on Fisheries and Oceans recommendation, supported formal development of the NMC (GOC 2009). In February 2018, Stratos, on behalf of the NMC, prepared the 'NMC Strategic Plan 2018-2023' intended to 'enhance the credibility and effectiveness of the NMC as a voice for the people of Nunavut on priority marine issues, while maintaining its ability to be responsive to emerging priorities.'[51] Release of the plan is timely in the

[51] Available at https://stratos-sts.com (accessed March 3, 2018).

context of this research and allows us to conceptualise the role of the NMC in a new conceptual arrangement. It post-dates the completion of an interview with a representative of WWF-Canada (Thoret-Gosselin) who commented in December 2016 that the council is really a 'shell' without funding and staff (Interview 17). WWF-Canada's position was echoed by Robert Eno who, also, had never had any interaction with the NMC in all the years that he worked with the GN as Director of Environment (Interview 8). In relation to the Arctic Council's interest in engaging in a knowledge-sharing capacity with the NMC, Amy Merton commented: 'It would be of interest to me and the working groups, if Canada opened it up to the Arctic Council. It is then, that I think people would try to participate' (Interview 20). This clearly suggests there exist opportunities to engage established and new actors as knowledge and resources contributors in debate on alternative approaches to protect the Canadian Arctic.

The NMC can be positioned as an actor with a capacity to have a strong power dynamic relationship with the GOC, the GN, and North Baffin communities. Reconstruction of scale positions the NMC in a networking capacity, and as an enabler of cross-scale interplay. As participatory members of the NMC, representatives of the Nunavut Wildlife Management Board (NWMB), the Nunavut Water Board (NWB), the NIRB, and the Nunavut Planning Commission (NPC) would be able to contribute knowledge, address the contribution of resources, and enable network sharing across scales with the GOC, the GN, and North Baffin community actors.

In a group interview with GN (DOE) representatives including David Akeeagok (Deputy Minister), Alex Brisco (Environmental Protection Officer), and Kristi Lowe (Environmental Conservation Officer), the Northwest Territory/Nunavut Spills Working Agreement (Northwest Territory-Nunavut Spills Working Agreement 2014) was discussed as a model of collaborative governance in Canada's north (Interviews 4,

5, and 6). The Northwest Territory/Nunavut Spills Working Agreement, referred to earlier as the *Spills Working Agreement*, is a forum aimed at providing a consistent approach to hazardous materials spill reporting and the dissemination of information throughout the Northwest Territory and Nunavut. National Energy Board of Canada (NEB), during a telephonic interview from Ottawa, expressed a similar sentiment on the Northwest Territory/Nunavut Spills Working Agreement (Interview 2). The signatories of the Northwest Territory/Nunavut Spills Working Agreement include the GN (DOE); the Government of Northwest Territory (Departments of Environment and Natural Resources, Industry Tourism, and Investment and Lands); Aboriginal Affairs and Northern Development Canada (formerly INAC); Environment Canada; CCG; TC; National Energy Board; and the Inuvialuit Lands Administration. The Department of National Defence (Northern Region Headquarters) and Parks Canada are not signatories but serve as active participants and contributors to the Agreement. In reflecting on how attributes of the Spills Working Group might be applied to an offshore response setting, Alex Brisco commented that:

> The groundwork framework is in-place, but it needs 'air to inflate' through funding and leadership. Oil spills are at the corner of everyone's desk and the Department of Environment has faith in Transport Canada and CCG. The GN working with the Canadian Coast Guard and the Spills Working Group and using the work of WWF-Canada on local response approach and trajectory oil spill modelling, can really help preparedness. (Interview 5)

Robert Eno, former Director, GN (DOE), shared perspectives on lessons concerning collaborative forms of governance using the Spills Working Group as a regional model. Eno stated:

> You have the Northwest Territories Nunavut Spills Working Group, which in my opinion is one of the most productive interagency working groups that exist up here today, but they are basically restricted to regulatory matters and I know, as I was involved. What really came in 'handy' was it was an interagency group and I don't know if you're familiar with some of the politics in the North but sometimes the rivalries between different

> agencies get personal. People stake out their territory and they jealously guard it. The Spills Working Group largely eliminated a lot of that bad blood and a lot of the grasping of the territory power. We'd be meeting with the National Energy Board, the Coast Guard, Environment Canada, Transport Canada, all these various groups and we'd be sitting together for a week. So, when an incident came up in the North and the Coast Guard needed support, they would contact the group and ask for assistance. (Interview 8)

In conceptualising governance to protect the Canadian High Arctic, I imagine the Spills Working Group as an actor with contribution of knowledge attributes, and as a promoter of inter-agency and inter-institutional collaboration. In terms of an epistemological framework, the working group would facilitate network scaling through its positionality and ability to collaborate with state and non-state actors across all scales through established communication pathways. The benefit of inserting the Spills Working Group into offshore governance is that cross-scale interplay already exists between these signatory parties and, as a working model with proven success on managing terrestrial spill matters, it can serve as a new actor that would be able to enable collaboration and cooperation in support of marine applications.

The concept of Norway as a responder to a spill in Tallurutiup Imanga/Lancaster Sound is, perhaps, the most striking piece of empirical evidence highlighting the lack of response capabilities in the Canadian Arctic. The comments of Madeleine Redfern, Mayor of Iqaluit, imply that the GOC might need to look elsewhere for the protection of waters offshore Nunavut, even to an actor not presently positioned in the governance framework with respect to oil spill preparedness and response (Interview 15). 'Norway is the best – they could be a responder for a spill in Tallurutiup Imanga/Lancaster Sound' (Interview 15). Similarly, Lydia Miner, formerly with State of Alaska, Department of Environmental Conservation stated, 'If you look at Norway, you'll find a very, very robust response industry that have really great knowledge and I think it can be applied here' (Interview 24). Robert Eno similarly commented that 'The

Norwegians are reputedly the masters' (Interview 8). ITOPF, as a representative of shipping industry on oil spill response, affirmed Norway's capabilities and particularly the operational forms of governance:

> Norway, they deal with a lot of traffic over the polar routes and because it is a pragmatic nation it recognizes that to operate, even in Tromso, it's all about community. Everyone has to kind of work together if there's a big incident, because there is no other way up there. And I think a spill in Tallurutiup Imanga/Lancaster Sound would require identifying the local water currents and where oil is likely to end up beaches and the inputting of environmental knowledge that the communities can do well. (Interview 8)

While recognising Norway's prominence in preparedness and response, Robert Eno was less inclined to look towards Norway as a responder in the Canadian Arctic, as ice-laden waters are less common along its mainland shoreline and maritime conditions present different challenges. Miner attributed industry drivers and offshore resource development as reasons for the advancement of Norway's preparedness and response systems.

Norway's first White Paper on environmental concerns related to oil and gas exploration north of 62 degrees latitude was prepared in 1976 (Knol and Arbo 2014). The White Paper argued that oil spill response systems were underdeveloped and there was scepticism about oil and gas development. The Ekofisk Bravo accident in 1977 led to further postponement of exploration in Norway's northern waters and, in 1980, the first blocks to explore north of 62 degrees were approved by the Norwegian Parliament. Since 1980, blocks have been released, including a process by Parliament that allowed the opening of new areas of the south-eastern Barents Sea. Russia and Norway ratified an agreement in 2013 on the delineation of formerly contested waters and 'These developments and the specific conditions and vulnerability of the Arctic area emphasized the importance of the conditions for emergency preparedness' (Knol and Arbo 2014, p.173). Oil spill preparedness and response is under the primary

responsibility of The Government of Norway's Ministry of Transport and Communications; the NCA advises, plans, controls and serves as an executive body. The Pollution Control Act of 1981 makes clear 'demands and obligations to different parties' (Knol and Arbo 2014, p.173) and the 'system' operates at three levels: industry, community, and the state. It is worth examining the responsibilities attached to each of these levels with regard to interplay and cross-scale spatial and functional attributes.

At the community level, Norway is divided into 34 emergency-regions, each administered through a committee responsible for local response crew and equipment to deal with smaller spills: 'The Coastal Administration considers these committees as the core of the total Norwegian preparedness network' (Knol and Arbo 2014, p.173). In the case of a major offshore accident, the state would assume the responsibility if Norwegian Clean Seas Association for Operating Companies[52] if a regional committee is not able to provide sufficient response capability. In this situation, the state would ensure that the responsible polluter takes measures to mitigate acute pollution. Post-incident monitoring is the responsibility of the Norwegian Environment Agency (subject to the Ministry of Climate and Environment) to monitor regulatory compliance.

Northern Norwegian coastline areas and Tallurutiup Imanga/Lancaster Sound do share similarities in that all are remote, sparsely populated Arctic locations and distant from central government in Oslo and Ottawa, respectively. Natural biological systems are intact but, unlike Tallurutiup Imanga/Lancaster Sound, the Norwegian coastline is more readily accessible by marine transport because warm currents result in open water. Tourism, fishing, and natural resource extraction (especially coal in

[52] Established in 1978, NOFO has become a recognised leader in oil spill response. Per NOFO's website, it conducts around 100 exercises each year and, two to three times a year, exercises that involve several hundred people and 30-50 vessels. These exercises involve the entire organisation and are intended to prepare every single participant by simulating realistic scenarios. NOFO is headquartered in Sandnes, office in Hammerfest, and has five bases along the Norwegian coast and two depots. Available at www.nofo.no (accessed March 13, 2017).

Svalbard) are industries that employ community residents and support socio-economic development at a local level.

The NCA has established sixteen oil spill preparedness and response depots along the mainland coastline: the largest in Horten. In the Horten office entrance, a large monitor shows the location of all marine traffic operating in Norwegian waters in real-time. Proximity of spill response equipment to each vessel is easily established and, in the incident command room, all this information is projected on large screens and readily available to support a response. Depot location is based on flexibility to respond to an incident in the shortest time. Each depot has ten people assigned, though not full-time (Bjerkemo thought about 10% of their available work hours are allocated for depot support), and most are employed by the fire brigade (Interview 25). These people are available to support government, municipalities, and industry. Two training exercises are arranged each year for the larger depots. Industry (shipping and oil and gas) is accountable for initial response through the Norwegian Clean Seas Association for Operating Companies, which is a non-profit industry funded to represent the companies it serves. Norwegian Clean Seas Association for Operating Companies has five depots, located strategically along the Norwegian coastline. It is responsible for preparedness planning and emergency response systems. Each company is expected to have response equipment in-place at each location it operates, and mechanical technologies are the preferred oil removal strategy. Bjerkemo's comment that 'What is really important to understand in Norway is that, we have government equipment, we have industry equipment and municipality equipment' is insightful (Interview 25). It speaks towards collaborative governance and shared responsibility across multiple actors to access resources that might be needed for oil spill response. Coastal municipalities are required by the Government of Norway to provide equipment and

personnel needed to respond to smaller spills. While the Coast Guard can also be mobilised to respond to all marine spills, the NCA looks toward an inter-municipal committee that is divided into 34 emergency response regions as core to Norwegian preparedness and response (Knol and Arbo 2014).

With regard to Norwegian economic development, the Norwegian Clean Seas Association for Operating Companies together with Eni (an Italian oil company) and Statoil (a Norwegian oil company) developed a cooperative agreement with Fiskarlaget Nord (the national Fisherman's Association's division in the north) to involve fisherman in response activities. Increasing exploration activities in the Barents Sea prompted the inclusion of fishermen in remote coastal communities of Norway to assign them responsibilities to support emergency response. Knol and Arbo (2014) associated the development of the Goliat field off the coast of Hammerfest as the reason for their involvement. Norwegian Clean Seas Association for Operating Companies, Statoil, and Eni Norway worked with Fiskarlaget Nord to establish an agreement that involves local fishermen as first responders. Fishermen are required to complete training courses and be involved in spill simulation drills. Compensation is also provided for the use of their vessels that must meet specific requirements and each fisherman needs to routinely report their location and accessibility. Akin to the hunters, trappers, and fishermen of Arctic Bay, Resolute, Pond Inlet, Clyde River, and other Nunavut communities, those under contract with Norwegian Clean Seas Association for Operating Companies have local knowledge that is essential for response. In promoting the attractiveness of this arrangement, Knol and Arbo (2014) refer to the contribution of local knowledge and the ability to mobilise fishermen in a short time, as arguments to support such a community-driven program, stating, 'Owners of 140 fishing vessels have registered their interest in the coastal response around Goliat in the western part of

Finnmark, of which 110 are from the region. In the first instance, Eni Norway articulated a need of 3-40 fishing vessels to be part of this cooperation in the Goliat case' (Knol and Arbo 2014, p.174).

Another innovative organizational feature of the Norwegian system is the establishment of the coastal task force (Innsatsgruppe kyst). Given that oil companies must take the lead in oil spill response in Norway, the coastal task force initiative self-promotes industry through demonstration of commitment to spill response, which helps secure exploration approvals through the mobilisation of a task force that can reduce environmental impairment and minimize financial burden to the responsible companies. Arctic Protection AS is responsible for task force establishment and its operation. The force consisted of approximately 40 responders from Finnmark in 2014 and can be mobilised within 48 hours to protect and clean-up shorelines. Goliat field development provided the reason to create a task force to protect the Finnmark shoreline (Bjornbom et al. 2012). Today, the task force can be deployed anywhere along the Norwegian coastline.

Self-described, ITOPF 'has evolved into the maritime industry's primary source of objective technical advice, expertise, and information on effective response to ship-source pollution' (ITOPF). Dr. Mark Whittington, Technical Team Manager, shared viewpoints that demonstrate how ITOPF can be positioned in an epistemological scale to facilitate interplay between the actors and the global shipping industry (Industry 10). Speaking as an 'elite' representative of ITOPF with experience on global oil spill preparedness and response, he offered this perspective on the protection of the Canadian High Arctic:

> I think that a large oil spill response in the High Arctic is still going to require a national response. There's going to have to be a system that will mobilize the military. But mineral extraction, oil and gas and tourism is clearly going to need a community level and, perhaps, local industry or

> regional industry involvement to developing response plans. Honestly, I think it's going to be a case-by-case situation because the communities cannot help themselves. (Interview 10)

The positionality of ITOPF in an epistemological scale enables the contribution of knowledge and brings to governance framing a perspective on how commercial development that can support regional socio-economic development can serve as a catalyst for environmental protection through 'balanced' consideration of the risk-profile. Analysis of primary and secondary knowledge sources does reveal, however, that actor sentiment on the commercial development of the Arctic environment differs within North Baffin communities, the GN, NGOs, and the GOC. ITOPF is an actor that is well positioned to facilitate interplay and inform decision-making to a governance process. For example:

> ITOPF applies a sympathetic approach to those that would like to see development and provide future for the communities other than perhaps just trapping and hunting. One of the pieces that we work on is community-level group training. We have breakout rooms and talk to try and put them in a position so that they could make an informed decision on behalf of their community. We've worked alongside IMO on their work around the world at a national level, and at a local level, in delivering this sort of contingency and advisory work. (Interview 10)

ITOPF, according to Whittington, would 'much prefer to be able to sit down with the command or with the communities who are going to have to be on the front line to try and give them the facts and the advice and the information, so they are knowledgeable' (Interview 10). Through the re-construction of epistemological scale, ITOPF is an actor that can be placed as a contributor of knowledge and a strong provider to the actor network of best industry practices related to spill preparedness and response.

The Arctic Council's Working Groups (Emergency Prevention Preparedness and Response [EPPR], Protection of the Arctic Marine Environment [PAME], and Arctic Monitoring Assessment Programme [AMAP]) produce technical publications and guidance documents that are developed through collaboration of its members. Yet,

Amy Merton reported that, while she hopes the work of the Arctic Council is getting pushed down to a local level (such as the Nunavut Territory), this is not always happening and is dependent on knowledge dissemination by member states (Interview 20). Merton commented:

> We hope it gets to the regional level. I see that happening within the state of the countries themselves reaching into their regions and communities. And then one of the great things about the Arctic Council is that it has permanent participants that are in on the policy-making projects. So, I think that is an avenue for taking the best practices and recommendations and putting it into the region or the communities. For my working group, I think getting the communities involved in drills and exercises is key in making sure that they – you know, I think Alaska's come a long way in incorporating the region – the borough level into decision-making for response planning and response but there haven't really been any big responses in that area for a while so, or at all. I know from our perspective residents are going to be part of that first response community and people aren't going to be able to operate at all without local knowledge and having local responders totally incorporated into a response.

Merton has confidence in the Arctic Council to continually produce 'soft law' guidance documents and contribute knowledge on environmental protection at the circumpolar level (Interview 18). On further examination, however, Merton's belief that Arctic states are pushing best practices to the local level in support of local communities should be challenged based on the results of interviews conducted with community representatives of Pond Inlet, Arctic Bay, Clyde River, and Iqaluit (Interviews 12, 13, and 14). The Arctic Council's limited mandate is too restrictive, and regional forums are needed to cover some of its workload (Interview 20). As regional governance is getting more complex, there is a need to identify new forums; these should be welcomed by state and non-state actors to address Arctic needs, in the opinion of Heather Exner-Pirot.[53] The Arctic Council's role in the Canadian High Arctic can be re-

[53] Heather Exner-Pirot is Managing Director of Arctic Yearbook, an international and peer-reviewed volume which focuses on issues of regional governance, circumpolar relations, geopolitics, and security. Available at https://arcticyearbook.com (accessed July 26, 2018).

imagined as a strong contributor of knowledge to interact with actors and disseminate its technical assessment reports and guidance documents on Arctic shipping and commercial development to actors in the construction of scale.

Transcript analysis of interviews conducted with Paul Crowley (WWF-Canada, Director, Arctic Program: Iqaluit), Andrew Dumbrille (WWF-Canada, Senior Specialist, sustainable shipping: Ottawa), and Rachel Thoret-Gosselin (WWF-Canada, East Arctic Specialist: Iqaluit) indicated WWF-Canada's role as an actor concerned over the GOC's ability to respond to an offshore oil spill (Interviews 16, 17, and 18). Crowley, Dumbrille, and Thoret-Gosselin each confirmed that a priority of WWF-Canada's work in the Canadian Arctic is shipping through the NWP and supporting Inuit action to protect Tallurutiup Imanga/Lancaster Sound and the Polynya. Paul Crowley provided a comment that resonated with me throughout the completion of the research interviews and the construction of a conceptualizing form of governance. It was a thought-provoking comment that made me reflect on how governance that is shaped as a result of political debate and influenced by parliamentary proceedings collides with the concept of what might be best to protect the environment and community lifestyles with regard to values and the preservation of cultural heritage. Crowley's remarks were as follows:

> Look at governance of oil spill from the bottom-up and build governance through Government of Canada moral and ethical responsibility, rather than trying to work through complex geopolitical issues. (Interview 18)

Based on analysis of interview transcripts with representatives of WWF-Canada and PEW, it is evident that no sentiment was expressed that opposed shipping through the Canadian Archipelago, or the adjoining waters of the Beaufort Sea to the west and Baffin Bay to the east (Interviews 17, 18, and 19). Respondents continually addressed commercial development that incorporates best practices to protect habitats for wildlife

and the overall marine environment as a positive factor; as such, these NGOs encourage ongoing collaboration with all actors in the prevailing governance arrangement. WWF-Canada and PEW agree that community involvement is lacking and greater participation in decision-making needs to happen at a local level to engage the local communities (Interviews 17 and 19). WWF-Canada and PEW consider the Arctic Council and IMO as positive contributors to governance shaping and policymaking in the Canadian High Arctic. Working as contributory knowledge actors to the broader network, PEW and WWF-Canada are especially well positioned to serve as advisors to help unlock and disseminate knowledge through engagement with coastal communities working alongside governments, the Arctic Council, ITOPF, indigenous groups, and academia. Henry Huntington of PEW offered that 'no missing key will unlock that storehouse of information in one quick and easy step. Going beyond workshops and conferences to invest in the recording of knowledge and observation is essential.' Huntington commented further:

> There is ample opportunity for much more productive and collaborative conversations between industry, communities, insurers, government, environmentalists, and academics. It is okay if you do not want a ship passing through your community, but nobody wants a ship to run-aground. There is more scope for understanding each other and realizing that in most instances the concerns and interests are not that different. (Interview 19)

In a reconstruction of scale, the roles of NGOs can be strengthened and, as contributors of knowledge, would be better able to enable actor interplay through their active participation in governance process. Huntington's statement that 'fragmentation of governance is the problem and there needs to be one script and everyone saying OK we all agree that this is the time' gives credibility to conceptualising new forms of governance (Interview 19).

6.4 Discussion

Oil spill preparedness in the Arctic needs to be governed in consideration of the emergent risks, but simultaneously placed into context as a societal need. In this thesis, I take the position that it is not a 'wicked problem' as some commentators have implied, or one that defies resolution (Rittel and Webber 1983). As a societal issue, while it is does feature multi-layered interdependencies and complex social dynamics (Termeer et al. 2015, p.680), empirical evidence from interviews with government representatives does not indicate political intractability. There are not entanglements or conflicts but, rather, a shared understanding that governance in the Canadian High Arctic is complex due to its remoteness and the challenges associated with the allocation and placement of resources to enable a robust preparedness and response capability. If we 'unpack' prevailing governance and conceptualise a new and collaborative 'cross-organizational' structure, it would allow us to build-upon actor interplay that already exists and bolster multi-layered interdependencies to confront these complex social dynamics (Hicklin 2009, p.97).

Through this unpacking, the 'top–down,' hierarchical structure can be disrupted, and an alternative governance approach can then be imagined to allow debate on just how 'wicked' a problem is the protection of the High Arctic. Government representatives interviewed for the purposes of this research want to protect the Arctic, but lack the resources to do so, which produces stress in terms of providing oil spill response capabilities (Interview 1). Non-state actors express a desire to support the government, but, as Alex Brisco, GN (DOE), commented, for new governance arrangements to be considered and implemented, it does 'requires the air to inflate' (Interview 5). As stated by Brisco:

> A large spill would be terrible and prevention must be the focus. GN Department of Wildlife are trying to stimulate discussion with the Canadian Coast guard. There are caches of Coast Guard equipment North of 60, but they are not for marine spills. This equipment is just for shoreline and terrestrial response. (Interview 5)

The GOC can look towards other actors, including the Arctic Council, NGOs, ITOPF, Nunavut communities, and other stakeholders, for added assistance. The critical mindsets of actors that lay blame on the government for not being responsive or dedicating resources to protect the north could be softened through the demonstration that a new innovative form of governance can be imagined. As an act of 'deliberative democracy,' I adopt a viewpoint that there are collaborative solutions to help the government meet its 'solemn' obligation to protect the north democracy (Dryzek 2010). Power dynamics across the actor network can be shifted and a balance struck in a government-led collaboration to minimize dominancy of the 'lead' actor in the new arrangement. Idealistically, the guiding logic of governance would be consultation and cooperation rather than promulgate and enforce. This type of logic is grounded in collaborative governance through consensus decision making: 'In consensus decision making, all group members express their opinions, discuss the issue, and then choose an alternative they all can agree to, at least in part' (Tjosvold and Field 1983, pp.500-501). Significant to conceptualising a new form of governance is the inclusion of new actors. In the next chapter, these new actors are introduced and their roles and position in a re-construction of epistemological scale defined.

CHAPTER 7

SCALE RE-CONSTRUCTION IN A CONCEPTUALISED FORM OF GOVERNANCE

In this chapter, I address the third research question: what form of governance structure can be conceptualised to re-construct scale frames that are better able to protect the Canadian High Arctic? Theoretical concepts to re-construct epistemological scale frames are introduced, which allow us to imagine how power relationships between actors can shift to create flatter ontologies. This disrupts the current 'state of affairs' to position a new form of arrangement within the context of Arctic governance as an innovative mechanism using an integrated, cross-scale, and collaborative format. Further, this re-conceptualisation adopts the concepts of the 'construction of knowledge,' the 'construction of resources,' and the 'construction of well-being,' through re-construction of the epistemological scale. These constructs surpass a model of community consultation, and, instead, position actors who are marginalised in today's government arrangement in participatory roles in policy shaping, decision-making, and implementation of agreed-upon measures. Canadian courts have interpreted Section 35(1) of the *Constitution Act, 1982* to mean that the Crown has a duty to consult Indigenous communities 'when the Crown has knowledge, real or constructive, of the potential existence of the Aboriginal right or title and contemplates conduct that might adversely affect' (Newman et al. 2014, p.17).[54] This *is* a solemn obligation and, as the Confidential Participant expressed (Interview 3), the land claims

[54] Constitution Act, 1982, c 11 (UK) reprinted in R.S.C. 1985, app II, no 40, s 35 (Can).

agreement provides the authority to position the GN, Nunavut communities, and Nunavut organizations as actors in a re-conceptualised form of governance.

Theoretical frameworks are employed in this chapter to identify mechanisms that include all actors in a participatory form of environmental governance. This allows us to consider how Canadian High Arctic governance can shift along a framework spectrum that migrates from fragmented arrangements with spatial and functional boundaries, to those more integrated and multi-dimensional. In the contemplation of how to govern a distant and remote marine environment, policy-shapers and decision-makers can apply this new knowledge to support and promote forward-looking arrangements at a time when an opportunity exists to confront emerging environmental risks. It pre-empts the potential for offshore impairment from an oil spill and provides those who govern with a robust account of how anticipatory logic can be applied to re-conceptualise the governing of something that has not yet happened. As a case study, Tallurutiup Imanga/Lancaster Sound enables the development of a framework on which to build a governance model in consideration of the constructs of knowledge, resources, well-being, and commercial development. To do so, it is evident that rationalities to shift power dynamics in prevailing governance would have to be disrupted and actor roles re-imagined to re-construct the epistemological scale.

7.1 Resources, Knowledge, and Well-Being: New Scale Constructs

Philosophically, capacity building, through the construction of resource, would be a demonstrable act to help mitigate the GOC's self-proclaimed stress in being able to respond to an offshore oil spill in the Canadian Arctic. Policy shapers and decision-makers can confront this type of risk by 'bringing the future forward,' such that 'arrangements that are crisis prone in the sense that they have a limited capacity to cope

with day-to-day stresses can emerge as effective arrangements once the occurrence of a crisis is acknowledged' (Young 2010, p.8). This thesis acknowledges that a potential crisis could exist and that the conceptual form of new governance requires us to identify and situate *new* actors within a construction of scale. The envisaged roles of actors that support the 'construction of knowledge' and the 'construction of resources' in a re-construction of epistemological scale are described in the following sections. Research based evidence from transcript analysis reveals that representatives of the GN, Nunavut coastal communities, and NGOs all identify the absence of dedicated human resources and response equipment in the Canadian High Arctic as a governance gap (Interviews 4, 8, 13, 15). As an example, Amy Merton and Robert Eno each provided perspectives on capacity building:

> It's a huge issue and right now, under the Trudeau administration, I think there is an opportunity to build community-based capacity and create some of true partnerships. Maybe that they'd do a pilot in different communities or something. I'm not saying go cover all of Canada at once. (Merton; Interview 20)

> If there was a major spill, I am convinced that the Canadian government would not be capable of responding to it. (Eno; Interview 8)

7.2 Construction of Resources

7.2.1 The Canadian Rangers

On March 12, 2009, the Standing Senate Committee (Senate Committee) on Fisheries and Oceans was asked to prepare a report on the role of the CCG in the context of examining the Government's current and evolving policy framework for managing Canada's fisheries and oceans (GOC 2009). The Senate Committee submitted its recommendations to the Senate in December 2009 in a document titled 'Control of Canada's Arctic Waters: Role of the Canadian Coast Guard.' The report was submitted to the Senate Committee in December 2009, and included suggested

roles of the Canadian Rangers, the NMC, and Nunavut communities in the context of High Arctic environmental protection. I have summarised the Senate Committee's recommendations in Table 7.1.

It is evident from the analysis of interview transcripts with representatives of Hamlet Councils and Hunter and Trapper Associations that the input of the Canadian Rangers on marine protection beyond near-shore engagement has not been sought to date (Interview 14). In the new form of conceptual governance, the Canadian Rangers would be positioned as actors with multi-dimensional attributes including knowledge and community-based human resources and equipment to serve as first responders (Interview 14). The Canadian Rangers, already embedded in their own communities, are positioned to facilitate community engagement through solicitation of local support, in the selection of equipment and its storage, and well placed to work with other actors administered through TC. Confidential Participant noted that, while the CCG 'has at least six offshore patrol vessels and additional resources to be made available through the new Auxiliary, it is important that in the operationalisation of the launching and deployment of these assets, there are ways to take advantage of local resources where required and that is through the Coast Guard Auxiliary program or through an expanded Rangers capability' (Interview 3). Confidential Participant continued:

> The Department of National Defense can deploy the Canadian Rangers in an offshore capacity. Rangers would be paid, they would be issued equipment, they would be given recognition and training. The Canadian Rangers are role models in their communities, and they are highly regarded, highly respected people. Canada should step up to the plate and recognize that these assets are available, on call and virtually on call as required. It would provide meaningful employment and self-respect for people who sadly are not easily gainfully employed.

When asked if deployment of the Canadian Rangers in an offshore capacity has been historically considered, the Confidential Participant replied:

> That's a very good question. When the Department of National Defense conducts its annual Arctic exercises, or when it conducts sovereignty exercises like journey to Resolute Bay or Grise Fjord. Rangers are critical to the success of these operations. Rangers are heavily relied on for advice on weather, route, navigation all that kind of stuff. So, the military is quick to enlist the support of Rangers in an environment that they're not familiar with and where they have no real presence.

Robert Eno's response to a question on whether the Canadian Rangers could serve as an actor in offshore governance suggests that their inclusion may not be straightforward (Interview 8). He remarked:

> I don't know really if they can serve in a response role as they are a land-based outfit and they're under the auspices of national defence. It would only be a bailiwick if the Canadian government tasked them to do something like that but that will require that the Rangers be trained. Nowadays, Transport Canada's rules require that anybody operating a commercial vessel must have a master limited license and this is a problem the Coast Guard encountered when they wanted to train people. It opens up a whole can of regulatory 'worms,' but I mean certainly the Rangers would be a resource as first responders. You'd have to have a formal arrangement from the Canadian government to employ the Rangers in that capacity.

7.2.2 A North Baffin Emergency Response Organization (NBERO)

In Canada, TC requires that ships that transit Canadian waters establish an arrangement with a certified response organization.[55] This organization would respond to an oil spill on behalf of the owner or operator. In Canada, certified organizations exist in British Columbia (Western Canada Marine Response Corporation), New Brunswick (Atlantic Emergency Response Team), Nova Scotia (Point Tupper Marine Services Ltd), and Ontario (Eastern Canada Response Corporation [ECRC]). There is no certified response organization in the Canadian Arctic. Due to the attributes of these response contractors, as identified through transcript and policy analysis, alongside a review of secondary literature including industry and trade organization publications, I

[55] Under the Canada Shipping Act, 2001, procedures, equipment and resources are outlined in Response Organizations and Oil Handling Facilities Regulations. The Response Organization Standards, TP 12401, provides the parameters that organizations need to respond. Available at https://laws-lois.justice.gc.ca (accessed November 12, 2015).

suggest situating a North Baffin Emergency Response Organization (NBRO), or named otherwise, as a new actor in this dynamic. Such an entity does not exist today in any form and would require the establishment of an organization, possibly as an Arctic affiliate of an already certified entity with TC that is operating in Eastern Canada. The results of interviews with representatives of Alaska-based BP Exploration Alaska (BP Alaska), formerly responsible for offshore North Slope oil releases, and the NCA provide insight as to the worthiness of introducing this type of new actor in a new governance model.

In Alaska, the operators of commercial activities on the North Slope of Alaska are held responsible by state and federal government for oil spill preparedness and response. Many of these operators provide funding for Alaska Clean Seas (ACS), a spill response contractor based in Anchorage.[56] Member companies own equipment worth over $75,000,000 and the inventory includes over 61 miles of boom, 96 vessels, mini-barges, and a range of storage tanks. ACS employs over 80 full-time staff and has access to over 100 trained responders located in coastal communities throughout Alaska. Michael Bronson, formerly with BP Alaska, provided perspectives on how industry looks toward ACS to represent its interests and to engage with coastal communities through formalisation of a Village Response Team (Interview 11). It took coastal community activism to secure a 'voice' in the protection of the Arctic marine and coastal environments, according to Bronson. On the role of ACS and the significance of community engagement, he remarked:

> Alaska Clean Seas, which is a cooperative company owned by the oil companies on the North Slope, has a wonderful training program and part of that is called the Village Response Team. Alaska Clean Seas has formal business contracts with several villages on the North Slope. Alaska Clean

[56] ACS' current members consist of 12 oil and gas companies including BP Exploration Alaska, ExxonMobil Alaska Production, Inc., ConocoPhillips, Eni Petroleum, and Alyeska Pipeline Services Company. Available at http://www.alaskacleanseas.org (accessed November 12, 2015).

> Seas is spending oil company money, going out to the villages and training native folks in how to clean up oil spills. And they do this many, many times a year, year after year after year. As a result, a lot of native folks are very converse in responding to oil spills. In fact, Alaska Clean Seas and BP together looked to a lot of native hunters, particularly the whalers, to help us guide our boats through broken ice. Inupiat hunters were invaluable to us when it came to give us the confidence and the skills of operating our boats through broken ice. (Interview 14)

Bronson continued:

> We learned that the native folks on the slope have a lot to bring to the table in terms of skills and people along the coast when it comes to oil spill response. The native folks in these local villages insisted on having a place at the table. And they said we expect to be at the table with you guys because you're affecting our land and after enough lobbying in that direction the federal and state governments agreed. if I were to extrapolate that to Lancaster Sound it would be the local communities working with the government in Nunavut, working with the Canadian government, and probably through the CCG, to introduce this form of governance of which there would be representation of interested parties. (Interview 14)

In addition to the Village Response Teams, the U.S. Coast Guard, in the aftermath of Exxon Valdez, established Regional Citizens Advisory Councils to give further voice to communities proximal to Prince William Sound and Cook Inlet, Alaska. Consisting of volunteers appointed by the U.S. Coast Guard, these councils each receive upwards of a million dollars per year in funding. Each council has one or more full-time employees. Funding is provided through the U.S. Coast Guard under a federal law that was put into effect by Congress after the Exxon Valdez oil spill. According to Bronson, the Regional Citizens Advisory Committees have no legal authority over oil companies, or even over oil spill response. Yet, it is these councils that have contributed towards oil spill preparedness planning in ways that have shaped and influenced decision-making. Commenting as a former industry employee, Bronson said the following about these advisory groups:

> There's been a lot of heat, you know, a lot of controversy over the years between these citizen councils and the local oil companies. But really, if you step way back, they have generated a lot of positive contributions. I give them a lot of credit for opening the eyes of the oil companies. They

> have the oil companies think outside the box and, frankly, a lot of improvements have been made in Alaska when it comes to oil spill clean-up and prevention because of the regional councils. One example is the tanker escort service that is now required in Prince William's Sound and Cook Inlet. When Shell Oil Company returned to Alaska several years ago and were preparing to drill in Chukchi Sea, part of its oil spill preparedness plans required exactly that. (Interview 11)

In Alaska, a Unified Command Board that combines industry, federal, and state government leaders also exists. Any party responsible for a spill must call the Unified Command, for which an on-scene coordinator will have already been appointed. Speaking on his role as oil spill manager for BP Exploration Alaska, Bronson reported:

> The North Slope Rural Government, which is predominantly native, sits on the Unified Command Board and on the North Slope any responsible party is expected to sit down with the on-scene coordinator as well as the federal and state coordinators. An on-scene coordinator often is a native person that has a high position in government, usually in the capacity of emergency response on the North Slope. The local communities have a big place at the table.

A new actor in Canadian High Arctic governance would need to be certified by TC using procedures such as those used to approve the Western Canada Marine Response Corporation, Atlantic Emergency Response Team, Point Tupper Marine Services Ltd, and ECRC. Functionality of a Canadian Arctic-based organization would be more complex than 'South of 60-degree latitude' given the need to coordinate response activities in the remote and ice-laden marine environment, and the lack of coastal infrastructure. This actor could be a private or public entity, while the burden of funding would initially be on the Government, over time, the potential application of fees on commercial shipping and cruise operators that use Canadian High Arctic waters could offset this responsibility.

Table 7.1

Senate Committee in December 2009

Senate Committee Recommendations	**Government Comments**	**Senate Responses to Government Comments**
A defined maritime role for the Canadian Rangers	The Government positions the Canadian Rangers in a terrestrial role with no marine responsibilities.	Expanded roles for the Canadian Rangers would create new positions for employment and increase the capacity of Arctic communities to serve as trained first responders. Charlie Lyall, an Inuk businessman from Nunavut, stated 'The Rangers are a flexible, inexpensive and culturally inclusive way for Canada to show the flag in the North. The Rangers also encourage local leadership and capacity-building in the community.'
A defined role for the CCG	The Government supported this recommendation and the DFO introduced an internal process to develop a strategic 'Arctic Vision' led by the Commissioner of the CCG.	The CCG's vision for the Arctic, as expressed in 2015, was that it can serve as the lead federal agency to respond to marine pollution in Canadian waters. In case of needed response, equipment and personnel would be mobilised from across Canada and other Arctic Council states for deployment in a spill response.
A defined role of the GN and engagement of Nunavummiut	The Government supported this recommendation and, in its response, referred to Section 23.2.1 of the NCLA that includes objectives to elevate the level of Inuit recruitment in federal employment within Nunavut to a representative level. Aside from this obligation, the Government stated that it 'recognises the unique traditional environmental knowledge that Inuit provide in support of many Arctic programs.	The Department of Environment has participated in the Spills Working Agreement and the attendant Spills Working Group since 1985. The purpose of the Spills Working Group is to establish a clear division of agency responsibilities in the event of a spill of oil or other hazardous materials on the lands of Nunavut and the Northwest Territories. While not focused on offshore incidents it is viewed as a model of arrangement about agency cooperation and the conveyance of common goals on environmental protection.[57]

(continued)

[57] The first Spills Working Agreement was agreed in 1985 and referred to as the Working Agreement on Government Response to Spills in the Northwest Territories. The current NT/NU Spills Working Agreement signatories include the GN; the Government of Northwest Territories; Aboriginal Affairs and northern Development Canada (formerly INAC); Environment Canada; CCG; Transport Canada; National Energy Board; and the Inuvialuit Lands Administration. The Department of National Defence Northern Region Headquarters and Parks Canada while not signatories to the agreement are active participants and contributors to the agreement.

Senate Committee Recommendations	Government Comments	Senate Responses to Government Comments
A defined role for the NMC	The Senate Committee recommended that Part 4, Article 15.4.1 of the 1993 NCLA be used to form an NMC as a forum for priority setting and planning of marine activities. The Government partially supported the Senate Committee's recommendation and noted that under the NCLA 'The responsibility for determining the need for a NMC lies with existing Boards (NIRB, NWB, NPC and NWMB).'	Pursuant to Section 15 of the NLCA the resource management authorities of Nunavut have authority through the NMC to advise and make recommendations on marine areas and the Government must consider such input in making decisions on marine areas. Aside from correspondence from the council to the Government on matters regarding proposed seismic testing in the Baffin Bay/Davis Strait region, no other activity was identified during a policy review.

Pond Inlet is a possible regional hub location from which this new actor could serve, based on the results of interviews with Nunavut community representatives and Confidential Participant (Interview 3). Pond Inlet is a larger community than Arctic Bay or Resolute, which could be beneficial for the recruitment of community members. Commenting on Pond Inlet as a port facility and a hub for oil spill response, Jaykolasie Killiktee (HTO Board of Director) said: 'We would not have to wait to respond. The hub would be able to help all the communities of Tallurutiup Imanga. If an accident occurred, the animals would be a priority' (Interview 13). Mosha Cote (Research Director, NRI, Iqaluit) was less convinced about Pond Inlet as a hub, and suggested that other locations should be considered, including Arctic Bay (Interview 9). He mentioned that Iqaluit would welcome a 'deep-water' port in Frobisher Bay if capital funding is provided, but Tallurutiup Imanga/Lancaster Sound is 850km distant (by air) from Nunavut's administrative capital. Mosha Cote suggested that Nanisivik, a former mining community that had access to deep-water mooring, could also serve as a hub. Confidential Participant agreed:

> At Nanisivik, they're putting in the marine port facility to support our [Canada's] five to six new Arctic offshore patrol vessels. In the context of my understanding, it is land now owned by the Crown, so it could be a hub. It very well could be, but the big problem, and one thing I've never had fully explained to me, is the road system has deteriorated and if you talk to the guys in Arctic Bay, they'll say they don't understand why that road is being allowed to deteriorate. (Interview 3)

The Chair of Arctic Bay HTO (Leni), in agreement with Mosha Cote and Confidential Participant, expressed:

> We need a deep-water port and in Nanisivik. The Navy has plans to develop a port and ships could get to Lancaster Sound in 4 hours. There needs to be trained responders in Arctic Bay. Worst time for a spill would be in May and oil underneath the ice would be a real concern. (Interview 9)

Selection of a regional hub would need to be based on deliberations of actors in the new governance arrangements. Inclusion of the NMC and the Canadian Rangers

would give voice to North Baffin communities in the decision-making process. Inclusion of WWF-Canada and PEW would also be beneficial, so that the infrastructure demands of the proposed Corridors Initiative could be considered through conjunctive use of facilities and construction of marine facilities.

Engaging with Confidential Participant transcript further, his remarks indicate how geopolitical agendas in the Arctic could shape how the GOC elects to govern its marine waters. While it is outside the purview of this thesis, it is worth mentioning how beneficial usage of the NWP by foreign-state operators might shape infrastructure development. The Confidential Participant, in referring to potential hubs for oil spill response, commented:

> There are two potential locations. Nanisivik is one and the other one is Grays Bay. But there is a very real proposal and it involves a Chinese-owned mining company called Min Metals Group that has a huge zinc and copper deposit in the western Arctic. And the Inuit, the Nunavut Resources Corporation, an Inuit owned corporation and the Government Nunavut, are proposing to build a port and access road at Grays Bay west of Kugluktuk in the Coronation Gulf. It's been submitted as an application for infrastructure money from Canada and would be a tremendous asset for the Coast Guard and the Navy in addition to being a natural deep-water port and a terminus for sending out zinc pellets. (Interview 3)

This statement is of interest for two reasons. Firstly, it introduces a spatial scalar dimension to a conceptualised governance arrangement for Tallurutiup Imanga/Lancaster Sound to include the central passages of the NWP. It also allows those actors in the governance arrangement to consider the concept of hubs with multi-functionality and consider how actors might work together to address emergent risks to the Canadian High Arctic other than oil pollution, such as salvage and rescue, toxins and plastics in marine waters, and black carbon. Actors might also need to consider the significance of the admittance of several Asian countries as Observers to the Arctic Council, and how deployment of capital invested by non-Arctic states might threaten or

support Canada's ability to administer shipping activity, protect the environment, and defend its claim that the routes that make up the NWP are internal waters.

As a new actor, NBERO would be positioned to report to TC. ITOPF, IMO, the Arctic Council, and the NCA, as actors within the construction of the knowledge frame, would interact with NBERO and all other actors through communication pathways enabled through TC, or their designees. This framework does not jettison scale dominance of the GOC, as that entity cannot be replaced in terms of funding and resource commitment. Resource commitment does require that the GOC remains the dominant scale; however, there can be a purposeful shift to engage actors across smaller scales: to elevate their influence in 'power-over,' 'power-in,' and 'power-of,' relationships. In this framework, the NMC could enable knowledge flow between the Oil Spills Working Group and North Baffin Communities to scale-up local engagement in governance. ITOPF, academia, NGOs, and the Arctic Council are scaled as knowledge contributors and networked into TC. Further, TC, as coordinator of the new governance arrangement in this scenario, might wish to consider the establishment of working groups such as 'Resources, Capacity & Infrastructure,' 'Community Outreach & Communication,' and 'Institutional Coordination.'

7.2.3 A North Baffin Community Responder Group (NBCRG) and Shoreline Clean-up Team (SCT)

Inclusion of North Baffin community members in the conceptual framework, as regional responder groups and shoreline clean-up teams, is a governance feature inspired by the results of interviews with representatives of the NCA and the NPI. Unlike Norway, however, the GOC cannot look, at this time, toward an industry organization such as Norwegian Clean Seas Association for Operating Companies, or ACS in Alaska, to provide support for oil spill preparedness and response. Therefore,

the North Baffin Community Responder Group could be introduced as a new actor in regional governance to support NBERO, the CCG, and the Canadian Rangers in the containment and removal of oil (or other spilled materials) from ice and water, and to help coordinate waste management, wildlife protection, and post-incident environmental restoration. This North Baffin Community Responder Group (NBCRG) would include individual groups of community members located in Resolute, Arctic Bay, Pond Inlet, and Clyde River, and many of these will be Canadian Rangers. In concept, each hamlet group would consist of twelve to fifteen members with a leader responsible for selecting and coordinating local response crews and maintaining equipment that is readily available to support the CCG in larger spills and to facilitate recovery of smaller spills that might occur at the coastline.

Equipment could be stored in depots located in each community. Training exercises could be scheduled twice a year, for example, to coordinate the work of the community responder group; these trainings would be conducted at a community-level. Akin to the involvement of Norwegian fishermen in spill preparedness and response, community members of North Baffin communities have the local knowledge required to be able to respond at short notice, provided resources are available. Based on transcript analysis, hamlet community members have not engaged in periodically scheduled CCG training sessions because of lack of compensation (Interview 1). Evidence obtained while completing interviews suggests that community members have a strong desire to be active participants in oil spill governance but expect payment for this participation (Interview 13). Compensation to communities would be a fundamental element of a new governance arrangement; the empirical evidence suggests that, without this measure, community participation in environmental protection will not occur. Accordingly, compensation structures could be agreed upon

through the governance structure to the hunters, trappers, and fishermen of Arctic Bay, Resolute, Pond Inlet, and Clyde River for the use of their vessels and time as responders. Positioned in the NBCRG, a Coastal Shoreline Team (CST), akin to the Fiskarlaget Nord in Norway, that compensates fishermen for completing training and participating in spill response drills. Coastal Shoreline Teams could be established in Arctic Bay, Pond Inlet, Resolute, and Clyde River, each of which would include local personnel trained and equipped for shoreline restoration and wildlife rescue and protection. In an epistemological construction of scale, these community-based actors are positioned as a construction of resource.

7.3 Construction of Knowledge

7.3.1 Nunavut Marine Council

The NMC is a legitimate body through which advice, recommendations, and decision-making can be developed through horizontal and vertical interplay across spatial and functional scales. Triangulation analysis confirms WWF-Canada's belief that the council is really a 'shell' but without funding and staff (Interview 17). Absent inclusion in a form of participatory governance, I believe the NMC will remain a silent actor in terms of offshore environmental protection and will not meet expectations set-forth in Section 15 of the NLCA. Arctic Council's expressed interest in working with the NMC in a knowledge-sharing capacity is evidence that actor interplay can be enabled. The NMC is positioned in an epistemological scale to advise and make recommendations on the governance of marine areas offshore Nunavut mainland. Through participation, the NMC can support the GOC and work with the repositioned actors (Canadian Rangers) and new actors (NBERO, NBCRG, SCT, and the CCG) on infrastructure development as needed to support oil spill training and response

capabilities, such as incident command support, equipment storage, and docking facilities, waste management and wildlife rescue and rehabilitation, knowledge contribution on damage assessment, ecological restoration and post-event monitoring, and, through its connectivity with Nunavut communities, can help facilitate outreach to promote overall awareness of issues surrounding a potential offshore oil spill to Nunavummiut and the natural environment.

7.3.2 Norwegian Coastal Administration

Tallurutiup Imanga/Lancaster Sound and Finnmark share similarities with regard to geographic position, remoteness, and a marine environment that needs to be protected. While Tallurutiup Imanga/Lancaster Sound is located off the northern coastline of Baffin Island, Finnmark is in the extreme north-eastern part of Norway. The Norwegian Sea (Atlantic Ocean) and the Barents Sea (Arctic Ocean) lie to the north and the northeast of Finnmark's coastal waters. Finnmark is part of the Sapmi region and it is home to the Sammi and other indigenous peoples. Extending over 6,000 kilometres, Finnmark's coastline provides a rich habitat for sea bird colonies. In contrast to Tallurutiup Imanga/Lancaster Sound, winters are milder, with average temperature between -1C and -15C, and the waters are typically ice-free. Fishing is the traditional way of living, but oil and gas development in the Barents Sea is expected to drive regional development, including economic growth creation and community development. As such, I suggest that the hunters, trappers, and fishermen of Nunavut communities can fulfil a similar function as Fiskarlaget Nord and Innsatsgruppe kyst if resources are made available. In this study's re-construction of epistemological scale, the NCA is positioned in a construction of knowledge.

Akin to the hunters, trappers, and fishermen of Arctic Bay, Resolute, Pond Inlet, Clyde River, and other Nunavut communities, those under contract with Norwegian Clean Seas Association for Operating Companies have local knowledge that is essential for response. Knol and Arbo (2014) have addressed the contribution of local knowledge and the ability to mobilise fishermen in a short time, as a form of participatory governance that engages local communities. As mentioned earlier, Knol and Arbo (2014) noted that 140 fishing vessel owners registered their interest in the coastal response in the western part of Finnmark. In the first instance, Eni Norway articulated a need of 3-40 fishing vessels to be part of this cooperation in the Goliat case' (Knol and Arbo 2014, p.174)

Representatives of the NCA and NPI are actors in Norwegian offshore spill governance who can contribute knowledge to the shaping of Canadian High Arctic oil spill training and response policy shaping and decision-making. These actors already interact with the GOC (through its support in Arctic Council working groups), and with the ITOPF, NGOs, and IMO on marine protection. Rather than relying on Norway to assist in a Canadian High Arctic response, as was suggested by Madeliene Redfern, Mayor of Iqaluit, the positioning of the NCA as an active participate in Canadian Arctic governance through a 'formalised' structure would enable better knowledge exchange and help to promote best practices.

Northern Norwegian coastline areas and Tallurutiup Imanga/Lancaster Sound do share similarities in that all are remote, sparsely populated Arctic locations distant from central governments. While natural biological systems are intact for both locations, unlike Tallurutiup Imanga/Lancaster Sound, the Norwegian coastline is more readily accessible by marine transport because warm currents result in open water. Tourism, fishing, and natural resource extraction (especially coal in Svalbard) are

industries that employ community residents and support socio-economic development at a local level. Proximity of spill response equipment to potential spill locations, the establishment of incident command rooms, staffing level requirements, and the planning for training drills are elements of knowledge transfer employed by the NCA, which can be applied to governance in the Canadian Arctic.

As mentioned previously, the Norwegian Clean Seas Association for Operating Companies has five depots located strategically along the Norwegian coastline. Coastal municipalities are required by the Government of Norway to provide equipment and personnel needed to respond to smaller spills. While the Coast Guard can also be mobilised to respond to all marine spills, the NCA looks toward an inter-municipal committee that is divided into 34 emergency response regions as core to Norwegian preparedness and response (Knol and Arbo 2014). These structural concepts can be applied to the implementation of North Baffin community members as first responders. Knowledge transfer could enable North Baffin communities to be 'example-setters' for the Canadian Arctic in support the GOC, as Finnmark was 'first out with this development in Norway' (Knol and Arbo 2014, p.175). Norwegian fishermen have imparted their knowledge to shape protectionist measures of Norwegian waters, and interviews with hunters, trappers, and fishermen of Nunavut communities indicate that they wish to contribute in a similar manner to protect Tallurutiup Imanga/Lancaster Sound (Interviews 12, 13, and 14).

7.3.3 International Tanker Owners' Pollution Fund

ITOPF is another actor well placed to disseminate knowledge through reconstructed scaling. It has responded to 750 ship-source spills in 99 countries in the last 44 years and, in 2016, its membership included 7,320 tanker owners and operators

(ITOPF 2016/17). I imagine its role in a new form of governance to be as a contributor of knowledge: the maritime industry's primary source of objective technical advice, expertise, and information on effective response to ship-source pollution (Interview 10). With IMO observer status and existing cooperative arrangements with the Arctic Council, the Canadian Government, and NOAA, ITOPF is already positioned as an actor in the construction of knowledge in the epistemological scale. Figure 7.1 shows that ITOPF has not had to engage in any spill in the Canadian Arctic, so its placement in a re-constructed scale speaks to precautionary and pre-emptive governance.



Figure 7.1 Oil spill locations at which ITOPF has responded. Copyright-ITOPF.

ITOPF, as an actor positioned in the construction of knowledge, can provide new industry perspectives on how stakeholders involved in Canadian Arctic protection can apply lessons from responding to spills at a global level through an alternative governance arrangement. The ITOPF has knowledge sharing attributes; as Whittington explained: 'ITOPF applies a sympathetic approach to those that would like to see

development and provide future for the communities other than perhaps just trapping and hunting' (Interview 10). Positioning the knowledge contribution of an actor with demonstrable experience using commercial development as a catalyst to promote environmental protection would provide insight to help frame governance in the context of socio-economic considerations. In reflecting on oil spill preparedness and response in the Arctic, Whittington commented, 'I think in Canada you've got a plan of how things work south of 60, but less so north of 60 and I think there will need to be one, as it's not nailed down yet. Coast Guard and other collaborations are needed to actually get things sorted by dove-tailing together.' His perspective highlights the need to protect Canadian waters north of 60 degrees latitude and how ITOPF is supportive of collaborative arrangements to support TC and the CCG (Interview 10). I have identified contributory attributes to governance that inclusion of ITOPF would provide in Table 7.2.

7.3.4 Non-government Organizations

WWF-Canada's position towards development in the High Arctic has shifted in the last few years, and the organization now supports development that can bring economic growth to local communities, provided it is done with regard for best environmental practices (Interview 17). In adopting a 'more-relaxed' position on Arctic development, I suggest that WWF-Canada is an actor well suited to be positioned in a construction of knowledge. It brings to governance local knowledge of community concerns on environmental impairment and an 'accepting' approach that commercial development is needed for the longer-term wellbeing of the residents (Interview 17). Empirical evidence shows that representatives of ITOPF, the Arctic Council, the Canadian Senate, and TC are aligned in their views with those of WWF-Canada in

terms of the inadequacy of existing preparedness and response capabilities and support for socio-economic development. By itself, WWF-Canada has limited ability to influence decision-making, but in the proposed, novel construction of knowledge, it can help shape discussion and provide support for preparedness and response through its connections with state and non-state actors. As an actor, WWF-Canada is also already embedded with North Baffin communities working on its multiple programs, which includes oil spill preparedness in the Tallurutiup Imanga/Lancaster Sound region, and the designation of shipping routes through the Canadian Arctic. In 'acknowledging that something is a priority and taking action are two different things,' then re-construction of an epistemological scale requires us to frame a form of governance with operational functionality and at a spatially defined level (Interview 19). PEW, already working with the GOC, WWF-Canada, and other state and non-state actors, is another actor well positioned to help enable communication across the proposed epistemological scale.

7.3.5 Arctic Council

Ole Kristian Bjerkemo (NCA) and Amy Merton (Arctic Council) expressed a desire for the work of the Arctic Council to be applied through more aggressive mechanisms to support regional governance (Interviews 20). However, it is evident through the results of transcript analysis that Arctic Council work is not well understood at a local (community) level and the potential benefits of knowledge sharing with other actors is not realized. In the reconstruction of scale, the Arctic Council is positioned in construction of knowledge as an actor with the ability to support the inclusion of its working group participants in preparedness training and spill scenario planning. It allows the work of the Arctic Council to be 'downwardly scaled' by applying scientific and technological knowledge generated through its working groups

to introduce and make available best practices to those policy-shapers and decision-makers held responsible by stakeholders to mitigate environmental impairment resulting from an incident in waters proximal to their communities. In the previous chapter, I challenge the Arctic Council's proposition that its work products and the implementation of best practices are getting 'pushed-down' to the local level in support of local communities (Interviews 13, 14, and 17). Heather Exner-Pirot (Managing Director, Arctic Yearbook)[58] suggested that the Arctic Council's mandate is too limited and that regional forums are needed to cover some of its workload. In suggesting that regional governance is getting more complex and new forums that promote governance should be encouraged, the innovative concepts introduced in this thesis align with Exner-Pirot's expectations of forward-looking governance arrangements.

7.4. Construction of Well-Being

Degradation of a marine environment impacts human well-being through the loss or impairment of natural habitat and the lifestyles this supports. Impacts are more severe when traditional ways of life are interrupted and food gathering through hunting and fishing is not possible, and where food substitutes are averse to health. The situation of network management for oil spill preparedness and response is an understudied phenomenon (Moynihan 2009). Planning efforts focus on 'routine' activities to control a release using mechanical, biological, and chemical methods. Well-being of an impacted community, historically, has been considered non-routine in preparedness planning and introduced only after impacts have occurred to communities. To date, most research on climate change impacts in the Circumpolar North have

[58] Arctic Yearbook is an international and peer-reviewed volume which focuses on issues of regional governance, circumpolar relations, geopolitics and security. It is an open access, online publication. The Arctic Yearbook is an initiative of the Northern Research Forum's (NRF) and University of the Arctic's joint Thematic Network on Geopolitics and Security Network on Geopolitics and Security.

focused on biophysical issues, such as melting ice and coastal erosion, while ‘less is known about how these changes in the environment affect mental health and well-being’ (Cunsolo Willcox et al. 2014, p.169). This constitutes a significant lacuna in our understanding, especially given the pre-existing mental wellness concerns of indigenous peoples living in remote coastal community residents (Fritze et al. 2008; Page and Howard 2010; Cunsolo Willox et al. 2013; AMAP 2017; Cunsolo and Ellis 2018).

In positioning well-being in a re-construction of epistemological scale, I posit that an oil spill offshore Nunavut mainland would further introduce mental health impacts. This could result from the loss of wildlife, loss of livelihoods or economic means, physical health related to changes in diet, and the loss of a traditional way of life. Swim et al. (2011) identified mental health impacts, which might include elevated mood and anxiety disorders, strong emotional responses to sadness, distress, helplessness, and hopelessness. Loss of ‘place-based’ identity and sustenance-type lifestyles are also mental health implications based on discursive and observational analysis; residents in Pond Inlet, Arctic Bay and Clyde River explicitly addressed similar concerns during interviews (Interviews 12 and 13). Yet, well-being and mental health resources and practitioners are often difficult to access for members of these communities (Wexler and Graves 2008). Still more challenging is that service shortfalls ‘do not fully capture the challenges of mental health services for Indigenous circumpolar populations,’ as tension exists between Western bio-medical and Indigenous mental health perspectives, approaches, and interventions (Cunsolo Willcox et al. 2014, p.173). Wexler and Gone (2012) associated this tension with Western values, which are introduced without ‘incorporating broader understandings of Indigenous wellness, including interpersonal, social, cultural, and environmental

determinants of well-being' (Cunsolo Willcox et al. 2014, p.174). In the construction of well-being as a new scale in a conceptual form of governance, new actors can be introduced to 'operationalize' the accessibility of mental health resources, as a pre-emptive measure to protect residents in the Canadian Arctic from oil spill impacts residents located closest to a spill location who are most likely to be adversely impacted. In exploring pathways to deliver these services, decision-making should be locally determined, using traditional knowledge and healing approaches and featuring community engagement.

In the case of Tallurutiup Imanga/Lancaster Sound, it is envisaged that the GOC would make funding available to these actors to create resources and provide awareness training of possible community impacts of an offshore spill to Nunavut communities. This could be a 'first-step' in providing well-being and mental health resources to those communities. When Indigenous Circumpolar communities 'address mental health from their own perspectives, outcomes are often more positive than when programming, services, and resources do not reflect local cultural values, perspectives, and histories' (Cunsolo Willcox et al. 2014, p.178).

Table 7.2

Dr. Mark Whittington (ITOPF) on High Arctic Spill Planning Interview Quotations

ITOPF - Knowledge Sharing Capacity	**Contributory Attribute to Governance**
'I think that a large oil spill response in the High Arctic is still going to require a national response. So, there's going to have to be a system that will mobilize the military. But mineral extraction, oil and gas and tourism is clearly going to need a community level and, perhaps, local industry or regional industry involvement to developing response plans. Honestly, I think it's going to be a case by case situation because the communities cannot help themselves. When we get asked to get involved in preparedness planning, at the national or regional level, it is to ensure that the risks are identified appropriately. I think perhaps what's necessary is sort of building an area contingency plan for the Tallurutiup Imanga/Lancaster Sound area and for a wider passage.	Risk identification and position appropriate levels of response capabilities through location-specific contingency planning.
'One of the pieces that I worked on with community-level groups in training. Their decision-making structure is a real challenge given the time and the schedule of an operational cycle within a response. We need answers in hours and the decision-making structure in their community doesn't work to an hour. So, when I'm with communities, I'd sit down and just talk and did sort of an oil spill response 101 really and go through the various things to try and put them in a position so that they could make an informed decision on behalf of their community. On training, you know we do workshops to, and we're just about going to do one in Argentina. I've done them in Brazil where we've sat down and run a 2-3 day workshop. We've worked alongside IMO on their work around the world at a national level, and at a local level, in delivering this sort of contingency and advisory work.	Proven experience conducting community-level training and allowing engagement in oil spill preparedness and response decision in a timely manner.
'ITOPF, traditionally, we've tried to stay in the shadows. I'd much prefer to be able to sit down with the command or with the communities who are going to have to be on the front line to try and give them the facts and the advice and the information so that they can then appear knowledgeable	Engage ITOPF as an actor in shaping protectionist measures and introduce to local communities' industry perspectives on commercial development.

Introducing a construction of well-being in this proposed epistemological scale would be unique in comparison to existing Canadian Arctic oil spill preparedness and response governance. It would introduce a non-biological and non-physical dimension to the governance of emerging environmental risks that is often introduced only after consequences of an offshore spill are realised at the community level.

Much additional research is needed in the field of wellness and mental health of Northern communities, and scholars should promote an interdisciplinary approach to address multifaceted issues that are 'situated within a contextual understanding of the complex challenges, priorities, and daily realities of the North' (Cunsolo Willcox et al. 2014, p.179). In introducing well-being as a scale construct, I defer to state and non-state actors to determine which actors might best be included in the conceptual governance to provide support for Nunavut communities in our case study. For illustrative purposes, the National Collaborating Centre for Indigenous Health, an organization established in 2005 by the GOC, is one such actor that could fulfil a role in a wellbeing construct. This organization is funded through the Public Health Agency of Canada to support indigenous peoples (Inuit, First Nations, and Métis) through knowledge translation and exchange. The purpose of its work is to promote the use of evidence-based research and other knowledge to strengthen public health practices, programs, and policies in Canada.

The term 'ecological grief' is increasingly used in scholarly literature to refer to a condition related to experienced, or anticipated, damage to a damaged environment (Cunsolo and Ellis 2018). Cunsolo and Ellis (2018) addressed the 'loss of species, ecosystems and meaningful landscapes due to acute or chronic environmental change' (p.275). Referencing research completed in northern Canada, Cunsolo and Ellis (2018) contended that grief is more severe for people who are closely attached to natural

environment and depend on it for lifestyle sustenance. Ecological grief resulting from impairment of the Arctic marine environment from an oil spill can be easily envisaged. Construction of wellness in the epistemological scale situates the awareness of ecological grief in conceptual governance and introduces dimensions of psychological and geographical inquiry.

In relation to conceptual governance, the construction of wellness concept brings into focus how grief might be healed, or partly healed, if ecological damage occurs as a result of an offshore spill. Because climate-change is already resulting in the changing of lifestyles as a result of melting sea-ice—as shown through empirical evidence obtained by Cunsolo and Ellis (2018) and this study's completion of interviews completed in Arctic Bay, Pond Inlet, Clyde River and Iqaluit—forms of ecological grief already exist. While such narratives on climate-change and its resultant impact to ecosystems at the circumpolar level exist, they are functionally specific. Oil spill derived ecological grief, as previously mentioned, is, thus, left unconsidered.

Relatedly, Leopold (1953) suggested that a penalty of an ecological education is that it exposes us to wounds. Moreover, it engages us with environmental futures and requires us to ask how ecological grief can best be imagined. In the case of oil spill preparedness and response, the placement of new actors in Canadian High Arctic governance can contribute the resources required to identify and minimise the harm caused by ecological grief. TC, positioned as the lead actor in the conceptual governance arrangement, would facilitate communicating pathways with the GN, NMC, QIA and academia to identify knowledge sources on wellbeing of North Baffin communities and the 'management' of ecological grief. In relation to conceptual governance of oil spill preparedness and response TC can occupy a unique position in an epistemological scale as a 'wellbeing knowledge hub' to identify gaps in the

protection of Nunavummiut and to foster interplay between all actors using evidence-based resources to anticipate oil spill impacts to health and lifestyles.

Reflecting on dasein philosophy, it again directs attention to thought processes that position health and potential environmental impairment as a salient consideration in the construction of wellbeing specific to place. The uniqueness of a specific location can be overlooked through the generalisation of findings of population health research and it 'is not without criticism, regarding the under theorization of environment as a place' (Durkalec et al. 2015, p.19). These authors, referring to how epidemiological research might be criticised when conceptualised within the fields of population health and health geography, contemplate that the culture of place is often overlooked with regards to how it 'shapes health beyond socioeconomic status' (Durkalec et al. 2015, p.19). In the context of environmental impairment resulting from an oil spill, the placement of construction of wellbeing into an epistemological scale enables connectivity and interplay between those actors that are responsible for mitigating impairment and those that reside in the place where they belong. Cunsolo Willox et al.'s (2014) work supports this proposition promoting the consideration of place whenever disruption to space occurs as a result of climate change. In this thesis, I argue that such a case would be an offshore oil spill that brings ecological grief as lifestyles are adversely impacted through the potential loss, or diminishment, of hunting, trapping and fishing access. Construction of wellbeing is a mechanism whereby a health framework to protect the residents of Nunavut communities can be introduced into the governance of oil spill preparedness and response. It can provide a communicative pathway to inform all actors on place-specific health aspects of oil spill impacts; as a precautionary measure in advance, or as a planned response, to environmental and lifestyle impairment, if such impacts were to ever occur. As noted by (Durkalec et al.

2015), this confronts solastalgia, distress from the deterioration of home environment, due to environmental change and a ‘loss of place.’

7.5 Conceptualisation of an Environmental Governance Framework

In this paper, the term epistemological construction of scale is used to position actors across a spectrum, from a ‘realist contention that there are natural scales independent of observers through to the constructionist view that scale is subjective and socially mediated’ (Manson 2008, p.776). This scale spectrum allows us to position actors within a human–environment that provides a framework for us to examine roles, knowing that ‘scale is not a single measure or object of study, nor is any single definition of scale sufficient for human–environment systems’ (Manson 2008, p.776). It is a theoretical framework adopted in this thesis to consider how an array of diverse viewpoints and the interplay between actors shape policy-making and decision making in the context of emerging environmental risks to the Arctic environment.

The conceptualisation of a new governance arrangement would ‘shift’ power dynamic relationships, with an expectation that the new framework accommodates collaboration and cooperation. In applying Manson’s (2008) epistemological scale as a theoretical framework, the GOC is positioned as the most powerful actor that dominates a hierarchical structure of governance (see Figure 7.2).

In analysing the empirical evidence, strikingly lacking were references to ‘power-of’ dynamics when questions were asked on the interplay between non-state actors and the Government of Canada. This is striking because it offers perspectives on how non-state actors are excluded from deliberative processes that would consider and incorporate their viewpoints. Absent are non-state actors’ contributions of knowledge and resources that could better enable governance through collaborative processes.

Following Van Lieshout et al.'s (2011) analytical analysis of power relationships, I examined all interview transcripts to identify when mention of scale framing occurred. Participants' use of language and how they responded to my questions revealed how actors viewed their position, relative to others in power relationships. Evident from interview analysis is that power-over prevailing governance is dominated by the Government of Canada, through the Ministry of Transport Canada and the Ministry of Oceans and Fisheries. Through the Ministries, there is power over decision-making and the agenda for environmental governance in the Canadian Arctic. Transcript quotes from Transport Canada representatives highlight the institutional power, while quotes from Nunavut coastal community representatives show the level of expectation on the Government to protect the environment. These quotes are as follows:

Interview Question: So, do you think it will take an accident for a higher level of funding and planning of oil spill response in Lancaster Sound and northern waters?

Transport Canada (Interview 1): 'Absolutely. This was the case with Exxon Valdez and the Gulf. The issue is the allocation of funding and how risk is viewed by the Government of Canada.'

Interview Question: Who should be responsible for oil and spill preparedness and response to protect Tallurutiup/Imanga/Lancaster Sound?

Hunters and Trappers Organisation (Interview 13): 'Canadian Coast Guard is responsible but not always in the community. Coast Guard should be asked by the federal government and to make it a priority.' Analysis of 'power-in' dynamics is far more nuanced than 'power-over' relationships, based on empirical evidence, and is at a higher level of engagement than identified in the literature review. It demonstrates a willingness of non-state actors to be

involved in the protection of Tallurutiup Imanga/Lancaster Sound and as contributors of knowledge. Empirical evidence is reflected in these quotes:

Interview Question: How is the interaction between the Government of Canada, the Government of Nunavut, and other Nunavut-based organisations?

> WWF-Canada (Interview 17): This depends on individuals and their level of engagement at the Government of Nunavut Department level. WWF's most productive discussions are with the Canadian Coast Guard. The Coast Guard is open to discussion and is aware of the risks. There is conflict sometime between the Government of Canada and the Government of Nunavut – case in point, Government of Canada opposition to Government of Nunavut's request to prohibit ship traffic and icebreakers through parts of the Northwest Passage.

Interview Question: What level of input does the Arctic Council and NGOs have in oil spill protection in the Canadian Arctic?

> Arctic Council (Interview 20): The way Inuit communities operate is different than how I operate. So I think people like Henry Huntington with PEW who knows the communities well and what's really important to them can help and speak translational language – well the federal government said this, but what they meant to say was probably closer to this, so Henry can help negotiate what the real issues are.'

To conclude this analysis, I examine Power-over, Power-of, and Power-in relationships between the Government of Canada (including Transport Canada, the Ministry of Oceans and Fisheries, and the Canadian Coast Guard) and other actors that participated in this research. Shown in Table 7.3 are the rankings of power, using 1 (Weak) through 10 (Strong) and the descriptors that I used for each rank. The analysis demonstrates the asymmetry of power of the Government of Canada and other actors. Fundamentally, it confirms that today's governance in the Canadian Arctic is dominated through a top-down and hierarchical institutional-led structure. It also indicates that prevailing governance is of a 'classical-type,' rather than accommodative of deliberative processes to confront the emergence of new forms of environmental risks. However, the empirical evidence suggests that the power relationships can shift,

and new forms of governance can be conceptualised through deliberative dialogue. It does not mean that the Government of Canada is no longer the most powerful actor, but that through power-in and power-of relationships, broader possibilities exist to shape and implement governance through higher levels of non-state actors. Power relationships that exist between actors and the Government of Canada are graphically portrayed in Figure 7.2.

Table 7.3

Power-over Relationships between the Government of Canada and Other Actors – Ranking and Power Descriptors

Actor Relationship with the Government of Canada	**Power-over In Prevailing Governance**	**Power-over in Conceptual Governance**
Government of Nunavut.	4	8
Nunavut Marine Council	2	8
Nunavut Coast Communities	2	10
WWF-Canada	2	6
Industry (International Tanker Owners' Pollution Fund)	2	6
Academia	2	2
Arctic Council (EMPR) Working group	4	6
Norwegian Coastal Administration	2	6

Scoring System	Power Descriptor	Criteria
0	Absent	Analysis of primary and secondary knowledge shows that engagement in governance processes does not exist.
2	Weak	Little Engagement in Providing Input to Governance Framing. Occasional mention in interview transcripts that the Government of Canada is the responsible actor to protect Canadian Arctic marine environment.
4	Moderately Weak	Some evidence of engagement with the Government of Canada but with marginal involvement in governance processes and limited interactions through informal mechanisms.
6	Moderate	Evidence of some level of engagement based on the analysis of interview transcript that shows participation in discussions and forums, but through 'ad hoc' arrangements.
8	Moderately Strong	Significant Evidence of Engagement and Inclusion in Governance Shaping. No formal and defined mechanisms to allow participation in governance processes. Informal communication pathways identified and evidence of participation in shaping processes, based on primary and secondary knowledge.
10	Strong	Power Relationships Firmly Established in Governance Shaping. Formal and defined participation mechanisms in governance processes clearly stated by interview participants in interview transcripts and documented in government policies and public domain.

These relative rankings shown in Figure 7.2 provide a visual representation of the asymmetry that exists today between the GOC and other actors.

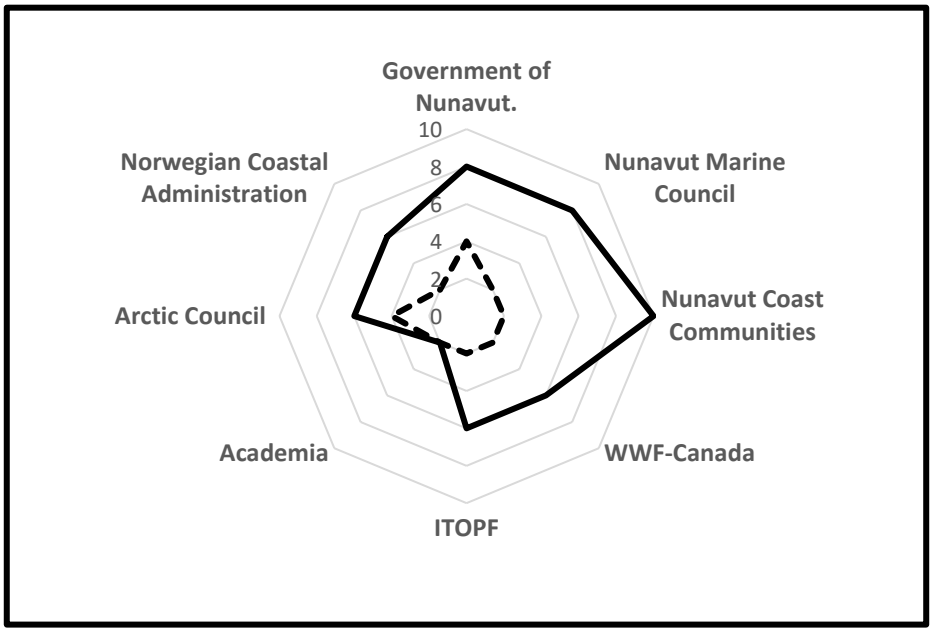


Figure 7.2 Re-positioning of actor influence in a constructionist scale frame. Dashed line denotes power dynamics in terms of influence in prevailing governance. Solid line denotes the shift of power dynamics in conceptualised governance.

The power relationship of the prevailing 'top-down' hierarchal scale is shown using a dashed-line, while a solid line represents the dynamics of actors in an emergent hierarchical theory that fundamentally shifts towards a constructionist scale. A powerful operationalised dimension is conceptualised in this governance arrangement, made possible by the inclusion of community-based actors through constructionist theory. It is presented to the social and political sciences as an innovative arrangement at a time when there is a 'window of opportunity' to implement preparedness and response measures that are anticipatory in nature and would be 'in-place' before there is an interruption of normalcy in shipping activity in the Arctic waters.

Through this optic, it is reasonable to foresee how the 'stressors' on the GOC, associated with the complexity of providing response capabilities offshore North Baffin can be mitigated. An attribute of this imagined governance is that it is transformational, in terms of providing communication pathways that allow state and non-state actors to

engage in collaborative work, together as ‘problem-solvers.’ In governance, there can be a tendency not to assign authority and responsibilities ‘to specific public agencies for administering them or providing lead agencies with the resources needed to both administer them on a day-to-day and to elicit compliance on the part of subjects’ (Young 2017, p.216). Young has suggested that actors be ‘nudged’ in conceptualising and redefining problems, to place value on ‘ecosystem services,’ ‘social rates of discount,’ and ‘well-being’ not attached to material gain. TC is positioned as the enabling actor to administer governance, which I suggest will require them to aggressively ‘nudge’ decision-makers and policy-shapers to demonstrate the will and ability to act. Without this commitment, I argue that political agendas within Governmental institutions will override the promotion of this new governance to protect Tallurutiup Imanga/Lancaster Sound, and that TC may wish to reflect on Young’s suggestion that:

> Doing nothing is in effect a decision to continue with business as usual. It follows that we face a situation that cannot be solved simply by calling for more and better research to eliminate, or at least to alleviate, the problem. We must come to grips with the necessity of making choices among options characterized by high levels of uncertainty regarding the nature of the options available as well as the results of pursuing one option rather than another. (Young 2017, p.219)

Evident from the interview transcript analysis, there is broad acceptance across the actor network that the GOC is responsible for resource delivery to mitigate impairment of the marine environment (Interviews 1, 2, 3, 5, 15, 17, and 21). Representatives of the GOC openly expressed views during interviews that resources and equipment do not exist in the Canadian High Arctic, and any response measure to an offshore oil spill would be extremely difficult, due to the remote location, harsh weather conditions, and extreme tidal and current conditions. The results of the interview also indicate a strong desire of the GN, Nunavut institutions, and Nunavut

communities to be included in policy shaping, decision-making, and implementation of measures to protect their homeland communities. Construction of Knowledge and Construction of Resource concepts highlight the operationalisation of governance and provide an innovative mechanism through which to conceptualise the conversion of 'concept to action' through new actors, using constructionist theory. I have shown this relationship using Figure 7.3. Using the Construction of Knowledge and Construction of Resources, new roles for Nunavut-based actors, including the NMC, the NBERO, the NBCRG, the SCT, and the Canadian Rangers are visualised (see Table 7.4). In the proposed framework, all these actors would provide locally based human resources to support the North Baffin Response Organization and the CCG to mitigate environmental damaged resulting from an offshore oil release. As imagined, these actors' roles would include community members in initial response activities as contributors of resources and knowledge to protect the natural environment.

7.6 Imagining Functionality and Operational Elements of Governance

Power dynamics and interplay relationships between actors in prevailing governance are disrupted in this imagined form of new governance. For this to occur, it would require the GOC to promote dialogue with representatives of TC and the CCG on Canadian High Arctic governance to explore their willingness to re-imagine a new arrangement to protect the marine environment and to govern an incident that has not yet occurred.

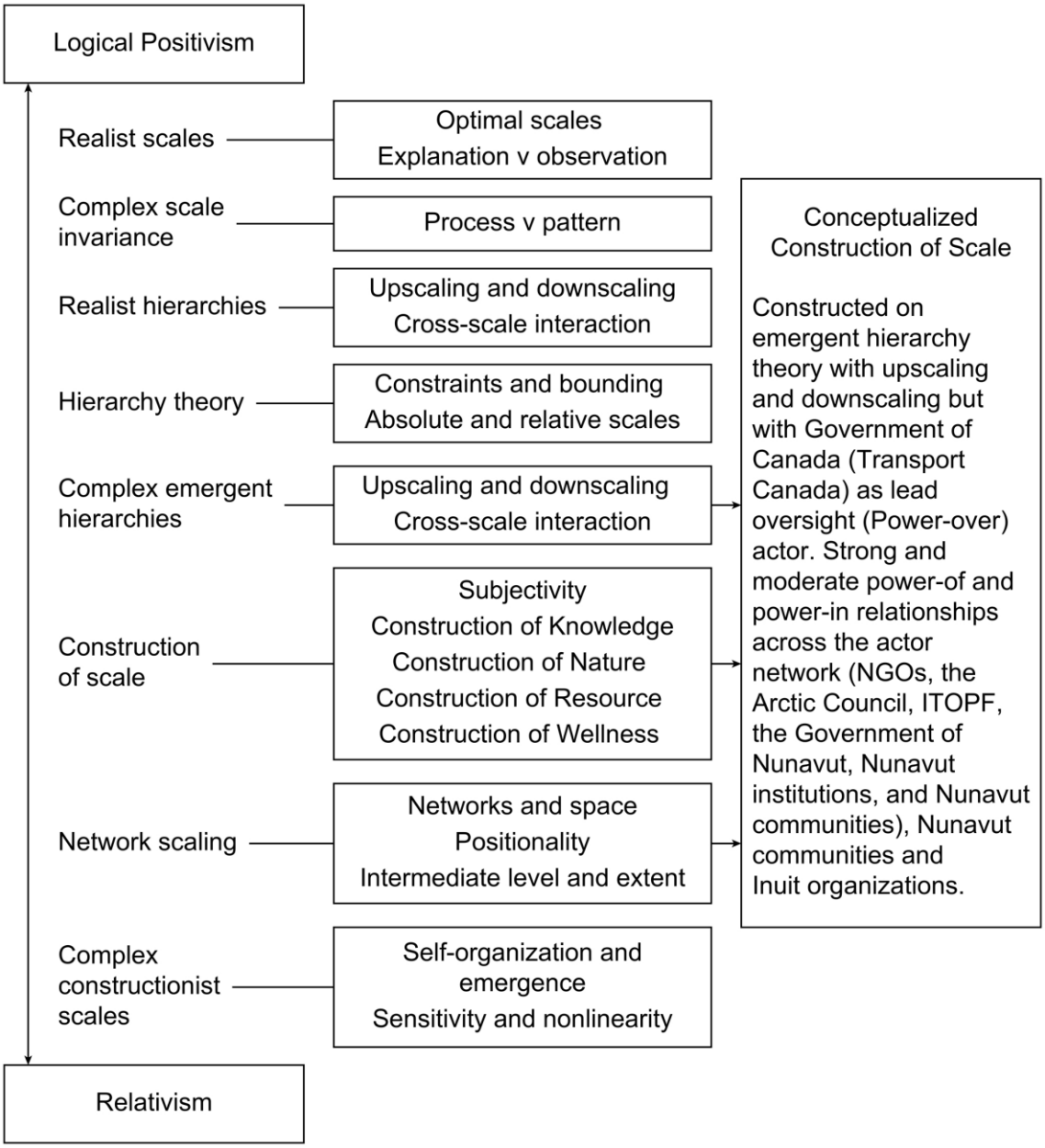


Figure 7.3 An adaptation and re-construction of Manson's (2008) epistemological scale adapted for this thesis.

Table 7.3

Constructs of Resources, Knowledge, and Wellbeing

Construction of Resources	**Construction of Knowledge**	**Construction of Wellbeing**
Canadian Rangers	Nunavut Marine Council (NMC)	To be identified by TC in consultation with GN, NMC and communities. For example, the National Collaborating Centre for Indigenous Health.
North Baffin Emergency Response Organization (NBERO)	Northwest Territory/Nunavut Spills Working Group (Spills Working Group)	
North Baffin Community Responder Group (NBCRG)	International Tanker Owners Pollution Fund (ITOPF)	
Shoreline Clean-up Team (SCT)	The Arctic Council Academia	

This paradigm shift would require existing actors to accept that the prevailing fragmented arrangement to protect this Arctic environment occupies too narrow a niche in an epistemological framework dominated by a top-down hierarchical structure. Actors positioned in a reconstructed epistemological scale would shape how this form of governance would be implemented.

In this model, actors in all scale constructs would have the ability to represent their interests, so that protection of the Arctic environment might be better governed, while facilitating socio-economic development of the local communities. This

conceptual framework does not jettison scale dominance of the GOC for constitutional rights, and its obligations require that funding and resource commitment be provided (Interview 3). In this model, the GOC would remain dominant through power-over scale dynamics in funding and the provision of resources, but there would be a purposeful shift within the scale frames to re-position actors who, otherwise, would have weak power relationships with Ottawa. This transformational process is illustrated in Figure 7.4, which shows the shift in the prevailing structure to the conceptualised form of governance. Figure 7.5 Depicts the positionality of new and existing actors and their interrelationships in 'Policy Shaping and Decision-Making' and 'Preparedness and Response Implementation' in the conceptual arrangement. Linkage mechanisms are shown between the CCG and TC in Figure 7.5.

TC is positioned as the coordinating GOC ministry in the proposed governance arrangement, rather than Fisheries and Oceans. While the CCG reports to Fisheries and Oceans, TC's role in Arctic navigation and surveillance, ice breaking, vessel registration and licensing, voyage reporting, and pollution prevention, in my assessment of the empirical evidence, aligns better with the governance of oil spill preparedness and response. TC's ongoing commitment to work with NGOs and other actors on the shipping corridor initiative is of particular interest in the present study, given the spatial and functional scalar potential of the proposed governance arrangement.

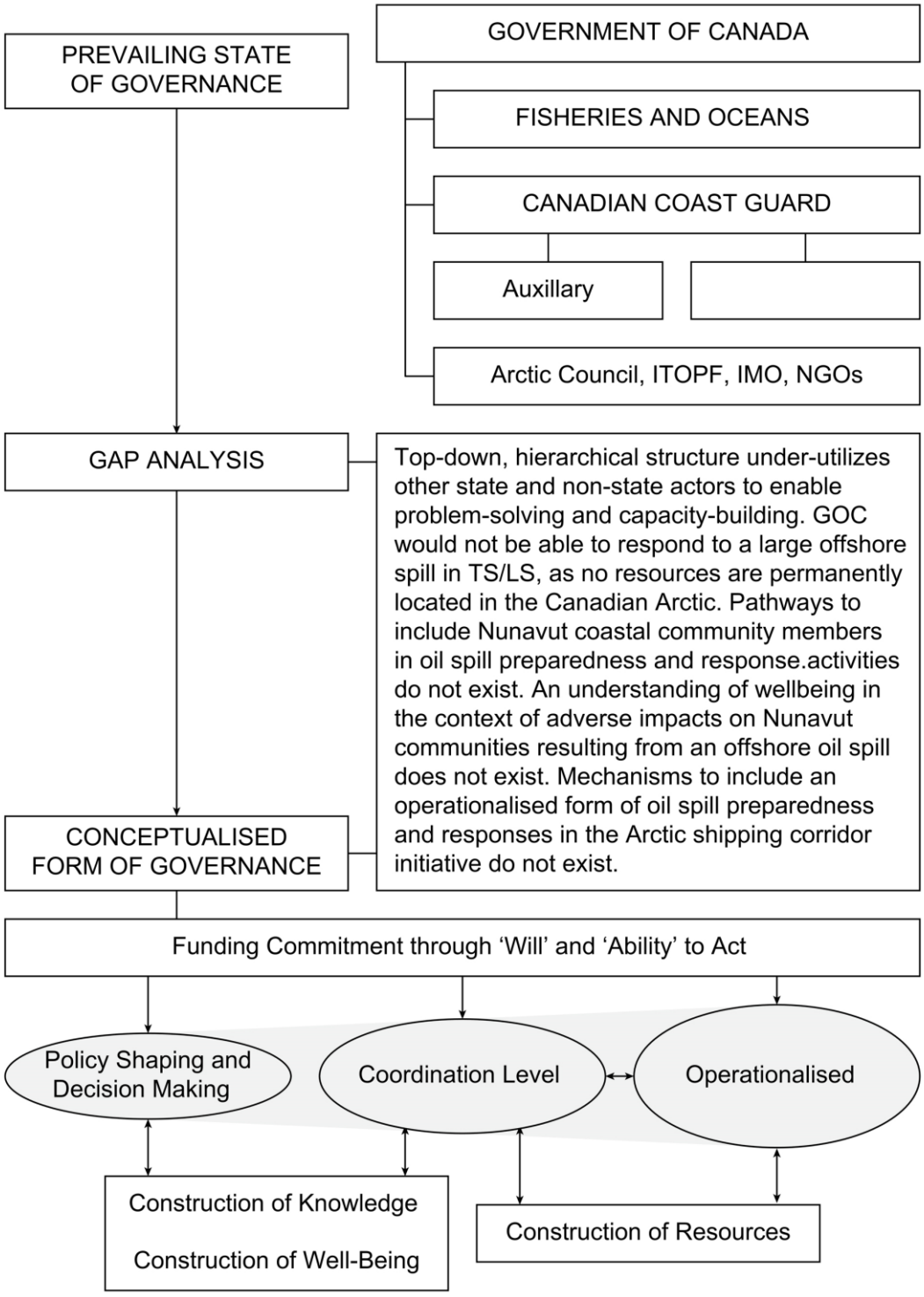


Figure 7.4 Prevailing and conceptual forms of governance.

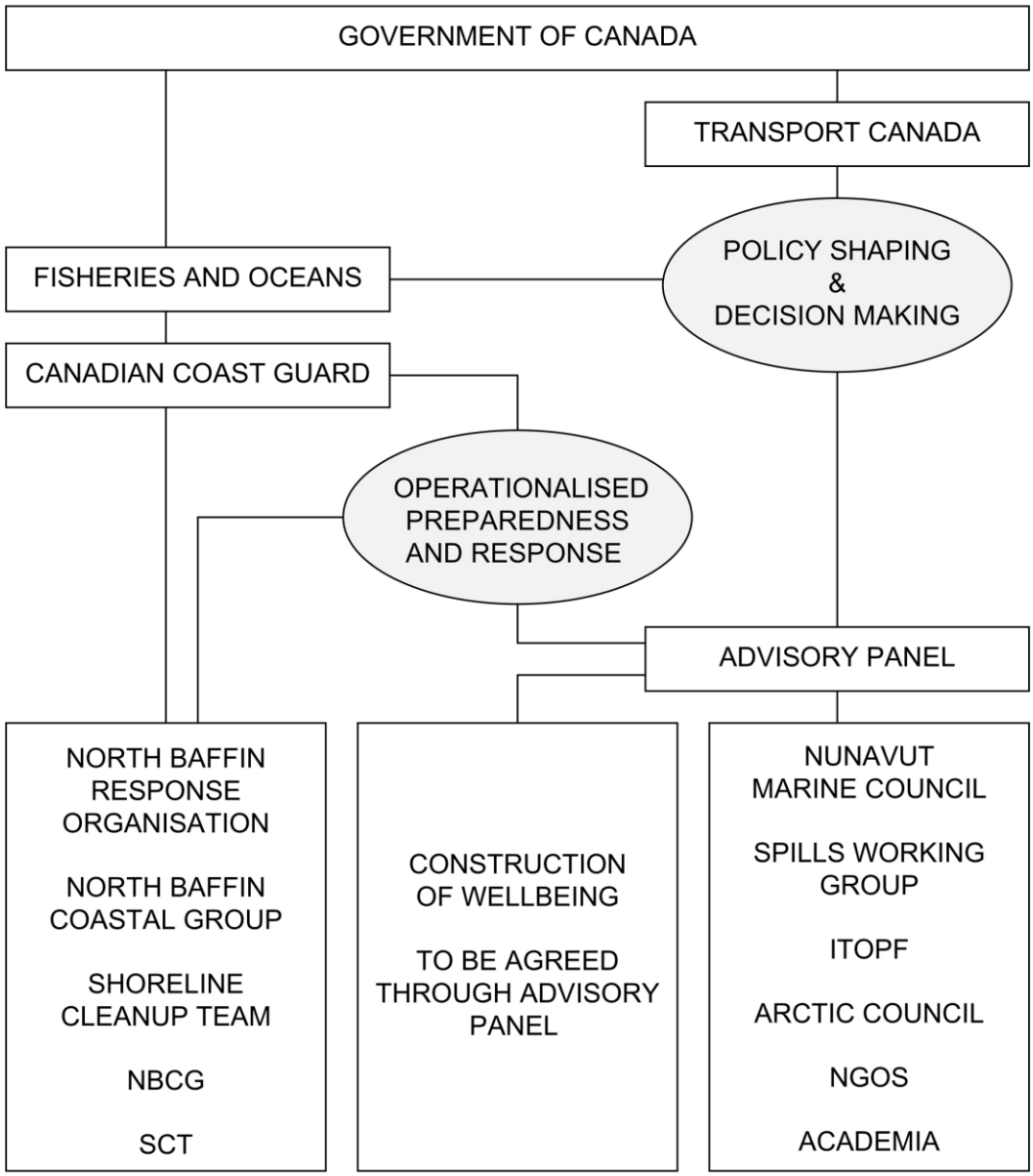


Figure 7.5 Positionality of new and existing actors in conceptualised governance arrangement.

TC's obligation under the GOC's Federal Sustainable Development Act, to create, and update annually, its own Departmental Sustainable Development Strategy, is another reason why I have chosen to position it as the lead actor in this new form of governance arrangement.[59]

[59] Transport Canada's 2017-2020 Departmental Sustainable Development Strategy – tabled in Parliament in October 2017 <https://www.tc.gc.ca/en/transport-canada/corporate/contact-transport-canada.html>

Part of TC's strategy includes 'Transportation 2030: Waterways, Coasts and the North.' Explicit in this initiative, TC commits to the following:

> Build stronger protection of Canada's coastlines and make sure TC's actions support a government priority to protect sensitive coastal areas.
>
> Work with northern communities to address basic transportation infrastructure needs and adapt the system to a changing climate.
>
> Develop an Arctic transportation policy framework and look at North-specific policies, programs, and regulations to improve social and economic development.

TC is as an actor with the power to shape policy and to enable decision-making through its broad actor engagement. Most significantly, its position within the GOC and representation through the Minister of Transport and Deputy Ministers in Sarnia and Ottawa, Ontario enable this body to consider oil spill preparedness and response in the Canadian Arctic, in the overall context protecting northern ecosystems and lifestyles.

This proposed model envisions the new actors situated within the proposed governance complex would interact with TC through cross-scale relationships. The Canadian Rangers, the NBERO, the NBCRG, the SCT would support TC in capacity building for preparedness and response coordination and make available resources to support the CCG. Knowledge flows from the NMC, the Oil Spills Working Group, North Baffin Communities, ITOPF, academia, NGOs, the NCA, and the Arctic Council would enrich advisory contribution through coordinated activities of TC. I further imagine that TC would wish to consider the establishment of working groups to focus on functional aspects of preparedness and response, such capacity and infrastructure development, community outreach and communication, and connections to industry through ITOPF. Further, TC might wish to establish spill-drills, once or twice a year, during which advisory actors and those responsible for implementing preparedness and response measures would participate in desk-top and field planning for scenarios at

locations in Tallurutiup Imanga/Lancaster Sound at different times of year (especially break-up and freeze-up). Participation of the NCA and ITOPF in desk-top and field drills should be encouraged to exchange knowledge of best-practices and to contribute perspectives of other governance state programs, like those employed in Norway, and to engage the shipping industry.

Philosophically, my purpose in introducing this conceptual form of governance to the field is to demonstrate how pathways of continuous learning can be enabled through multi-actor engagement in governance. This model draws upon knowledge exchange across organizational levels to stimulate learning of best practices to mitigate impairment of the Arctic environment. This thesis confronts a notion that 'practitioners are willing to embrace new practices but are currently constrained by, amongst other things, traditional servicing arrangements' (Rijke et al. 2012, p.74). The governance framework, shown in Figures 7.4 and 7.5, reflects a reconstruction of epistemology that GOC practitioners of policy shaping and decision-making might consider a catalyst to considering the appropriateness of the prevailing traditional servicing agreements. Drawing upon the empirical research evidence, consensus across the actor network is that it will take a large oil spill and impairment of the Canadian Arctic to be that catalyst (Interviews 1, 3, 8, 15, 20, and 21). For this reason, the proposed governance framework positions the GOC (through TC) as a dominant institutional actor, as opposed to suggesting flatter ontologies, whereby non-state actors have greater flexibility; further, this is positioned as a 'starting-point' in an assemblage of actors (Rijke et al. 2012, p.76).

The belief that only a spill would function as a catalyst is also why the proposed form of governance for our case study is spatially bound and functionally specific. In presenting this framework for consideration by policy-shapers and decision-makers in

Ottawa, and to those that practice environmental governance at a broader level, three supportive arguments can be made to remove constraints and provide reason to question the appropriateness of prevailing arrangements. Firstly, it is focused on an immediate need to protect the Arctic environment from the threats associated with an offshore oil spill that is of 'low-likelihood' but 'high-consequence,' and for which no protection is in-place today. Secondly, it brings attention to the governance of a distant and remote location that is considered 'just too difficult to protect' (Interview 17). As no such governance proposal has been presented to the GOC, based on the literature review, it is imperative to address how those most concerned about impairment will be represented (Interviews 12, 13, 14, 15, and 17). Thirdly, the GOC through its centralised structures can serve as the 'lead' actor, and if we assume that it has the 'ability to act' in terms of time and resource commitment, it can then demonstrate a 'will to act,' which is *expected* by representatives of actors who participated in interviews, including TC (Interviews 4, 8, 9, 16, and 21).

In accepting the challenge to construct a new form of governance to protect Tallurutiup Imanga/Lancaster Sound, I am mindful that many scholars identify the difficulties in 'matching governance with the dynamic characteristics of ecosystems and the inherent uncertainties related to change' (Rijke et al. 2012, p.80). Therefore, the proposed new arrangement must be spatially bound, functionally specific, and the roles and positionality of actors identified must be engaged in governance, in order to best meet this challenge. In alignment with the primary aim of this research, this allows us to assess the appropriateness of today's prevailing governance arrangements and their suitability to govern a rapidly changing Arctic in tomorrow's world. Implementation of this new form of governance could result in a 'small-win' that can enable further

exploration of alternative and modified structures to protect the Arctic at broader spatial and functional scales.

Epistemologically, the conceptual form of governance remains institution-led with social constructionist ideals used to situate constructs of knowledge, resources and wellbeing. In using an interpretivist philosophy, governance is framed using primary and secondary knowledge to give power to non-state actors in policy shaping and decision making. It does not mean the state is dominant in the sense that it exerts power at the expense of all other actors, but is a hybrid-form of governance that would embrace Swyngedouw's concept that the state should not dominant governance processes. Rather, it provides collaborative pathways for knowledge sharing and capacity building through the new constructs to better enable decision-making that is accommodative of the nature of emerging risk in a complex Arctic setting. Power is 'diffused' from the state to actors situated within the constructs in a transformative manner, meaning that it shifts traditional top-down structures to make such accommodations. I envision a temporal dimension of the conceptual framework in which non-state actor participation could become increasingly influential as the government might shift the burden of environmental protection to beneficial users of the marine environments – primarily shipping companies that realize economic gain.

This new conceptual governance accepts that knowledge to protect the environment is the product of human interactions. It has social, cultural and political implications and attempts to bring together cultural values and wellbeing in the context of increasing risks to the marine environment as a result of oil spillage. Further, it emphasises environmental factors that affect human lifestyles and does not exclusively position biological protection as the sole determinant in proposing this governance form. I regard it as a transitional type of post-foundationalism that uses the power of

government to enact change while the actions to be acted upon are developed, and can be partly implemented through the social construction of knowledge, resources and wellbeing.

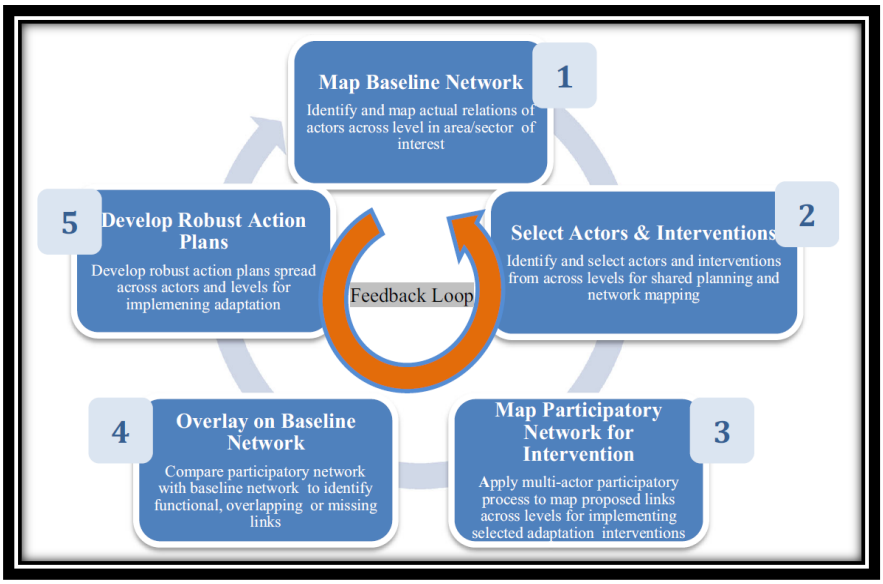
An underlining concept in the framing new governance is that new spaces of engagement to expose and deliver broader opinion to policy shaping and decision making through deliberative, effective and efficient processes (Chaudhury 2017). Introducing new forms of governance that can better protect the Canadian Arctic is an adaptive action and a deliberate act that is underpinned on anticipatory and precautionary logic. Existing and new actors that have the ability to contribute new perspectives to prevailing governance can be situated, but 'scaling the participatory framework to feed into policy, without losing the quality of participation' can be challenging (Chaudhury et al. 2017, p.659). Chaudhury's work is relevant in this thesis as the framework of today's existing governance to protect the Canadian Arctic, albeit deficient through inclusion of broader actor constellations, need not be jettisoned. As framed, the new form of conceptual governance retains the GOC as the most powerful and dominant actor, as it has the ability to fund and commit resources. In Chaudhury et al.'s work on climate change adaption in Ghana and the significance to agriculture, a Robust Adaption Planning (RAP) framework was introduced that resonates with many features incorporated into the conceptualised governance arrangement presented in this chapter. In Table 7.6, I map Chaudhury's RAP framework, which was used in the Ghanaian work, across to the conceptual form of governance, to protection TI/LS. While the five-steps are labelled differently, the mapping works well, in terms of providing directional processes. I find this a useful tool to help illustrate how conceptual governance can transform into operationalised protectionist measures. As discussed earlier in the thesis, my research uses traditional methods, but I envision that

if this proposed arrangement is presented to the Government of Canada, the Government of Nunavut, and the Nunavut Research Institute, then participatory and community-based engagement will allow for specifics on how new constructs of knowledge, resources, and wellbeing are situated in operationalised governance,

Table 7.4

Applying Chaudhury's Ghana Adaption to Tallurutiup Imanga/Lancaster Sound

Five Steps	Ghana Agriculture Adaption	TI/LS Conceptual Governance
1	Map Baseline Network	Analysis of Prevailing Arrangements
2	Select Actors & Interventions	Completion of Research Methods
3	Map Participatory Network for Intervention	Reimagined Roles and Responsibilities for Existing and New Actors
4	Overlay on Baseline Network	Conceptualise a New Form of Governance
5	Develop Robust Action Plans	Operationalise Governance through Inclusion of All Actors in Participatory and Community-Based Processes



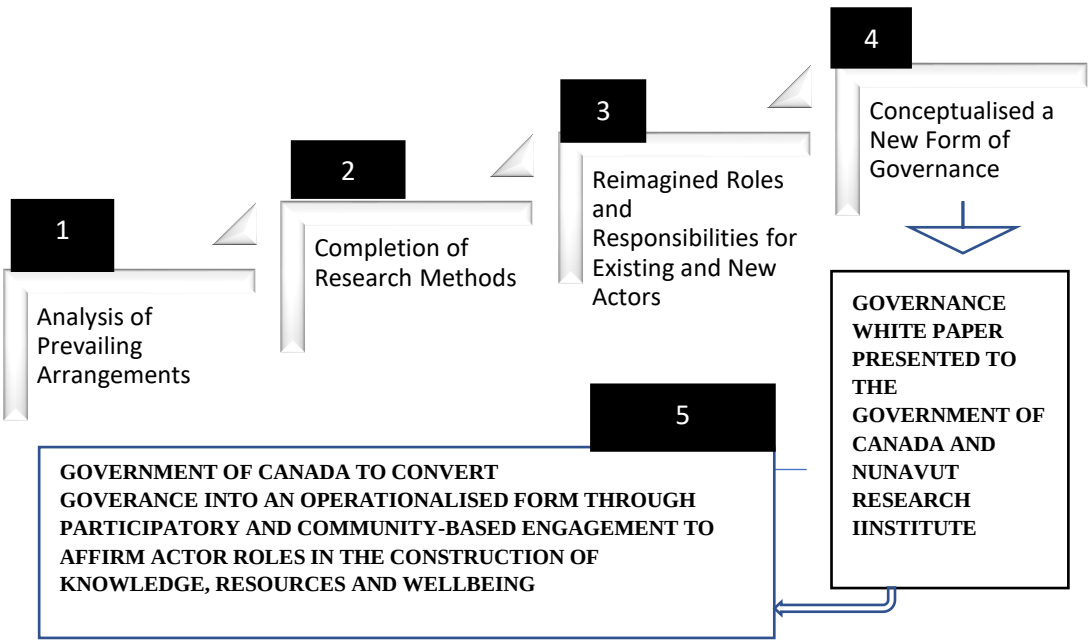


Figure 7.6 Chaudhury's five steps applied to the conceptual form of governance.

Four of Chaudhury's five steps (1 through 4) map the structure of this thesis. Step 1 (Map Baseline Framework) is met through the completion of Chapters 1, 2, and 3 (Introduction, Environmental Governance and the Arctic, and Prevailing Governance-Canadian High Arctic). These chapters provide the context for conceptualising new governance in the Arctic and identify Actors' roles and interests. Step 2 is mapped to Chapter 4 (Research Framework and Methodology). Selection of research

methodologies and the completion of interviews to generate primary knowledge, I align with Chaudhury's 'Select Actors and Interventions.' It allows for the examination of interplay within the actor constellation and across scale and levels. Step 3 maps across to Chapters 5 and 6 (Participatory Governance in the Context of Multilevel Engagement and Prevailing Governance Framework: Actor Roles and Power Dynamics). These chapters explore rationalities to reimagine governance arrangements and identify existing roles of actors, actively engaged or otherwise, in prevailing governance. Step 4, in which Chaudhury uses participatory research to modify baseline network understandings and confront functionality and gaps, maps across well to Chapters 7 and 8 (Scale Re-Construction in a Conceptualised Form of Governance and Governance Imagery of Spatial and Functional Scaling). These chapters introduce a new governance arrangement that requires the disruption of prevailing actor roles and positions actors, previously marginalised, in deliberate policy shaping and decision-making processes. In Step 5, Chaudhury takes knowledge and actions, identified in earlier steps, to Develop Robust Action Plans as adaption measures. In this thesis, I envisage that the form of new governance proposed to protect Tallurutiup Imanga/Lancaster Sound is presented to the Government of Canada, the Government of Nunavut, and the Nunavut Research Institute. It is structured so that the Government of Canada, through Transport Canada, then initiates participatory and community-based engagement that is well beyond consultative in nature.

In the conceptual governance model, the GOC would retain the strongest power position in terms of power over, power in and power over decision making. Discursive mechanisms are constructed to allow for the softening of the prevailing GOC Westphalian based governance system and thickened through meaningful inclusion of non-state actors with combined responsibility to protect the environment. It would

signify to all stakeholders of the environment the emergence of a political space in which oil spill governance is constructed through communicative processes between actors (Simmerl 2011). Legitimacy would be through the GOC, who would need to demonstrate that the commitment to mitigating potential oil spill impairment in the Arctic is recognized and that discourse occurs amongst the network of actors across epistemic communities. Within the actor collective, functional differentiation would exist and the task of shaping and implementing environmental protective measures would be enabled. Positioning the GOC as the most powerful actor makes the proposed form of governance a political space but with multidimensional contributions of knowledge and resources as represented by the various actors. Oran Young's sentiment on the role of government in governance aligns with how I have situated the role of this most powerful actor in the conceptual arrangement presented in this thesis. Young commented:

> It's not easy, but I mean you have to convince them [government] that while your structure may look nice on paper, it needs to be able to work. And, that is an extremely hard thing to get across to many federal bureaucrats. It's often been like pulling teeth certainly, as they have the authority and believe that they are the ones who make the decisions. And you say well, okay, but do you care about conforming to formalities on paper or do you care about constructing a governance system that actually solves the problem. And it usually takes dramatic crisis like episodes to get their attention. And so, I guess we better sit down with you and think about it and they still insist at the end of the day we can't create a system where we legally share authority with you, but we can create a system in which we do create a mechanism for involvement of others. It often takes an episode, an event, to get the attention of government.
>
> One of my big thoughts, by the way, is if something like that does happen these can then become windows of opportunity. I mean things that everybody says, ah, come on, it's pie in the sky you're crazy this won't work. It's hardly beyond the realm of the feasible that all those things that people normally say just won't happen, suddenly can cross the boundary of the feasible and all kinds of things that were dismissed out of hand completely as unrealistic, suddenly become within the realm of reason. But the window of opportunity doesn't last long. Politics doesn't like a vacuum and whatever the remedy some damn fool will come along with some proposal which may be horrendous, but in a window of opportunity in the

> vacuum of needed governance, it'll go through. And so my argument is that those of us who really think and weigh-in about this really, really have got to do our homework as carefully as possible in advance and think through what the options might be –what are the responsible options so that we've got a lot of things in place through thoughtful studies that address this issue and that look at a plausible range of options and then assess the relative pros and cons.
>
> So, it might be that we could do this with relatively modest adjustments to the existing institutional structure and that wouldn't necessarily have to pass new laws or create new departments, or whatever, to various progressively more extensive kinds of changes from the status quo. (Interview 22)

Dimensions of operational functionality would require cross-sectoral disciplinary influence through the discursive mechanisms while remaining politically guided through the GOC. If, as suggested by Forman and Segaar (2006), networked coalitions of multiple state and non-state actors that are able to operate across levels are the most effective political force of governance, then the proposed new form of governance can be constructed on a solid foundation. Adopting a critical constructivist viewpoint, the proposed collaborative and cooperative arrangement will emerge only if the hegemony practices of the GOC apply 'common sense' about the protection of the Arctic marine environment within the political space it can shape. Exploring further this concept, it opens up our learning pathways to engage in broad discourse to enable collective policy to shape and implement operationalized governance. In applying constructionist philosophy, the GOC can then work with all other actors in helping to 'coordinate and pattern behaviour and channel it in one direction rather than another' to create protective practices (Ruggie 1998a, p.54).

As I contemplate further on the contribution that this thesis makes to the field of Arctic governance, key findings of AMAP's work on adaption actions for a changing Arctic provide a helpful framework through which to highlight the relevance and applicability of my research (AMAP 2017a). I am reminded through the words of

Raychelle Daniel, Yup'ik, Alaska that the 'linkage between environmental health and my cultural identity is inseparable' (p.12). The attachment between community lifestyles and the environment are thoroughly intertwined, and this linkage was identified early in this thesis (Chapter 1). The photograph (Figure 1.2) showing the isolated melting iceberg, which symbolised to Seaman a forlorn presence within a sombre atmosphere, highlights the spiritual relationship between the residents of the Canadian Arctic and non-human objects. 'I don't see people as separate from the environment: in the Arctic people are a central part of the land and seascape. Therefore, conservation efforts need to account for and directly link with values important to people' as stated by Daniel (p.12). AMAP's work highlights the complexity of these linkages; in both the AACA Bering Chukchi and Beaufort Region Overview Report (2017a) and the AACA Baffin Bay/Davis Strait (BBDS) Overview Report (AMAP 2017b), characteristics of governance that can enable adaptation and protect the environment are presented. In Table 7.6, I show how the attributes of the proposed conceptual form of governance generated through this research align very well with AMAP's characteristics.

As noted in the AACA Baffin Bay/Davis Strait (BBDS) Overview report (2017b), connectivity between Nunavut and the rest of the world is poor. Improvements in transportation and communication systems within Nunavut are planned and include a deep-water port in Iqaluit, improved airport facilities and improved internet access, if an underwater fibre optic cable is installed between Japan and the UK (2017b). For now, however, the reality is that residents of Nunavut are experiencing profound changes in the Arctic and the health and well-being of the environment and lifestyles are at risk.

Table 7.6

AMAP's Characteristics of Governance and Attributes of the Proposed Conceptual Governance

AMAP's Characteristics of Governance	**Proposed Conceptual Governance**
Ability to respond to change in a timely fashion.	Situates oil spill preparedness as a precautionary measure and positions actors in a governance structure to anticipate potential environmental impairment in the face of emerging risks.
Flexibility, allowing institutions to respond to anticipated and unanticipated changes.	Provides a governance model that enables the GOC to position knowledge, resources and well-being in anticipation of changes to be expected because of climate change.
Cross-scale interactions, in which overlapping institutional arrangements offer redundancy in the event of system failures and provide opportunities for action across different scales of governance.	Enables collaborative and cooperative mechanisms for cross-scale interplay that identifies roles and responsibilities for all actors. Establishes clear communicative pathways that allows actors to implement agreed-upon measures.
Partnerships with local communities in co-management arrangements.	Situates Nunavut communities alongside the GOC, Nunavut institutions and non-state actors through participatory forms of governance.
Consideration of short-term disaster risk management together with longer-term adaption.	Provides an operationalize form of governance to respond to an offshore oil spill. It establishes a governance framework that can be constantly adapted to address the nature of emerging environmental risk as Arctic commercial development accelerates.
Recognition of the larger context of change, including multiple stressors and cumulative effects.	Confronts a governance gap in the environmental protection of the Canadian Arctic. GOC is under stress to provide preparedness capabilities and unable to demonstrate an ability to respond to an oil spill offshore Nunavut and the adverse impacts to the environment and community lifestyles today and in the future.

The AACA Baffin Bay/Davis Strait (BBDS) Overview Report (2017b) makes clear that 'Improved Ecosystem Approaches to Management are Necessary to Protect Biodiversity in the BBDS region' (p.17). Also, 'Political Leadership is Needed on Adaption, and Governance Needs to be Improved' (p.21) and that 'There is a Need for Better Links Between Scientists and Decision Makers' (p.20). On inclusion of local participation into decision-making, the report (2017b) emphasises that there is a real need for 'Stakeholder and Community Involvement, Social Networks and Traditional and Local Knowledge Offer Sources of Resilience in the Face of Change' (p.14). Further, the report stresses that 'Addressing Health Vulnerabilities Will Help BBDS Residents adapt to the Challenges Expected to be Exacerbated by Climate Change' (p.18) and that 'Cross-cutting Approaches are Needed Across Sectors' (p.18), meaning the interconnectivity among social, economic and environmental changes that can be expected in the region.

In presenting the conceptual form of governance to protect a part of the Baffin Bay/Davis Strait region to the field, this innovative structure positively demonstrates how prevailing governance arrangements can be repositioned to include forward-looking measures or characteristics for adaption and the protection of the environment. This governance arrangement demonstrates how the recommendations of AMAP, and other entities that are confronting the impacts of climate change, can be interwoven into alternative governance arrangements that are more suited to the protection of the environment and the lifestyles of those who live in parts of the world where adaption to changing climatic conditions is most needed. In the case of my research, situating new actors – and reshaping the roles of existing actors in the construction of knowledge, resources and well-being – enables political leaders within the GOC to better confront today's emerging environmental risks through an improved form of spatial and

function-specific governance. Academia, industry, non-state actors and Arctic institutions and organizations are represented in the construction of knowledge, which situates not only scientists but also a broader array of actors with abilities to shape thought processes in decision-making. Situating Nunavut communities in the constructions of knowledge, resources and well-being can facilitate a form of governance that operationalizes community engagement in the protection of the environment and the sustainment of lifestyles. Through my research, I have been able to construct a form of governance that preserves an institution-led arrangement but positions a diverse array of actors to better capture knowledge, enhance capacity building and protect community wellness and lifestyles. The Arctic setting is extremely vulnerable to potential oil spill impairment: more so than any other part of the world (excluding the Antarctic) because of the nature of under-developed coastal infrastructure, poor transportation networks and communication systems that are lacking investment. For these reasons, the inclusion of local residents as knowledge contributors, first responders, post-spill monitors and public outreach and community well-being representatives is particularly meaningful to support the GOC (as well as potential polluters such as shipping companies or natural resource developers) in preparing to respond to an adverse event. Therefore, it is my belief that the adoption of this conceptual framework would positively disrupt prevailing governance arrangements through more inclusive forms of policy-shaping, decision-making and implementation of agreed upon measures. This model would be unique in the governance of the Canadian Arctic marine environment because it positions state and non-state actors in a collaborative network able to pre-empt impairment and consider how best to adapt to emergent risks associated with commercial development that has been triggered as a result of climate change.

Situated in Manson's epistemological scale, the new constructs of knowledge, resources and well-being are positioned closer to the Relativism than Logical Positivism pole. Therefore, the philosophical framework used to structure the proposed form of governance accepts that cost-benefit analyses is not a driving force – a characteristic of realists and institutionalists – and adopts the stance that social processes, as shaped through the interaction of actors, underscore legitimate governance conduct. In this model, GOC remains the dominant actor but is repositioned from occupying a 'Hierarchical' to a 'Complex Emergent Hierarchy' position using Manson's scale continuum as a theoretical framework. Complexity arises as the proposed governance structure introduces constructs of knowledge, resources and wellbeing in Manson's 'Construction of Scale'. Power dynamics would prevail as the GOC would retain a leading role in the promotion and implementation of collaborative decision making and resource allocation. If adopted, the GOC could then implement the proposed governance arrangement and seek common understandings and agreed-upon actions across the actor network based on a conception of power not solely dominated through the prevailing hierarchical arrangement. Barnett and Duvall (2005) argue that shifting power dynamics between actors can produce new forms of social encounters and relationships that can then enable those actors to determine their own futures. Accepting that power dynamics could be shifted, the GOC would then have an opportunity to balance the capabilities of all actors with a behavioural focus that is less institutionally driven and focused specifically on the functionality of oil spill mitigation and impairment risks. Such typology, that takes power as a productive form and that uses institutional *and* societal relationships to operationalise governance in the Canadian Arctic in complementary ways.

It would, however, be naive to suggest that the implementation of new governance using a reconstruction of the epistemological scale would not entail challenges. One such challenge would be for the GOC to sufficiently understand the nature of the existing power relationships among actors and how they would need to shift within a new governance arrangement. To address this challenge, the GOC would need to embrace discursive processes between actors and social processes that can operate within and between the constructs of knowledge, resources and wellbeing to result in meaningful behaviours. Such discursive processes would also need to include debate on ethics and moral responsibility and the role of the GOC to protect the Canadian Arctic and the lifestyles of its communities. As Oran Young's transcript states:

> ….. many people think about ethics and ethical principles as simply underdeveloped rules that they are sort of the first step and we're going to upgrade these into things we call requirements and prohibitions. But I think that's absolutely a misconception about what ethical principles are. I don't think ethical principles are prescriptive in the same way that laws and rules are. I think ethical principles are systems of appropriate and proper conduct in complex situations where they're almost always situational elements. (Interview 22)

In the context of the Canadian Arctic, debate would likely focus on moral responsibilities. However, it is worth questioning what that would mean in terms of decision making and the willingness of the GOC to act and to embrace a new form of governance better suited to protect Tallurutiup/Lancaster Sound. In the case of potential oil spill impairment, the GOC would need to work with all actors to confront such ethical considerations and to contemplate the appropriateness of a new form of proposed governance built upon the concepts of precaution and the pre-emption to protect the environment and community lifestyles from the adverse impacts of potential oil spill impairment. In presenting this thesis to the field, I claim that the GOC should

adopt such an obligatory action as its guiding principle, to protect the Canadian Arctic through transformative governance mechanisms proposed herein.

CHAPTER 8

GOVERNANCE IMAGERY OF SPATIAL AND FUNCTIONAL SCALING

Tallurutiup Imanga/Lancaster Sound is positioned as a vulnerable 'risk-scape,' for which there has been no 'spatially-bound' and 'function specific' governance proposed, to-date, for oil spill preparedness, based on a review of interview transcripts, discursive analysis, and engagement with primary or secondary literature. Weick (1984) suggested that momentum for larger-scale transformation of governance systems could occur by an approach that focuses on small-wins, which refer to 'concrete, complete outcomes of moderate importance' (Weick 1984, p.4). Scalar opportunities of space and function require us to imagine a new form of governance for Tallurutiup Imanga/Lancaster Sound as a 'small-win,' in terms of allowing better environmental protection. Worthiness of a small-win can be contemplated in the context of how governance can be progressively shaped so that future is not taken for granted, a notion that perplexes human and political geographers (Anderson 2010). Adopting Anderson's thinking that human geographers have rarely engaged with the 'category of the future,' (Anderson 2010, p.778) compared to the past and present, I argue that emergent risks in the Canadian High Arctic from oil spill impairment have received only superficial mention in policy shaping and that no 'region-based' forms of operational governance, aside from supplementary funding of the CCG Auxiliary, exist. As such, the contribution this thesis can make to scalar debate relates to how a 'small-win,' which is bounded at a spatial and functional level, can be scaled-up into new governance frameworks for the protection of the Canadian Arctic. Governance of shipping throughout the Canadian Arctic (and the attendant environmental risks), is a scalar

opportunity to leverage a ‘small-win’ into forms of transformational Arctic governance that have broader dimensions of spatiality and functionality.

Scale has been, and remains, a concept of theoretical reflection (Marston et al. 2005) and there is divergent opinion within the scholarly community as to what it means and how it should be operationalised. Smith (2000) defined scale as platforms for specific kinds of social activity of absolute space in a ‘wider sea of relationship space’ (Smith 2000, p.725). In the case of the present study, the platform can be used to conceptualise a form of governance to protect the Canadian Arctic from oil spill impairment through the re-construction of epistemological scale. Manson’s (2008) epistemological scale, which is re-constructed in the previous chapter to conceptualise a new form of governance, replaces a dominant ‘top-down’ hierarchical structure that exists today with an emergent structure that includes the construction of knowledge, the construction of resources, and the construction of wellbeing as new frames. Jones (1998) suggested that ‘we may be best served by approaching scale not as an ontological structure which ‘exists,’ but as an epistemological one: a way of knowing or apprehending’ (Jones 1998, p.28). These descriptions position scale as spatially bound, functionally orientated, and epistemologically focused, which provided my platform for theoretical reflection on how a form of conceptualised governance constructed to protect Tallurutiup Imanga/Lancaster Sound can ‘fit’ into broader arrangements as we contemplate complicating scale to apply to the protection of Arctic geographies beyond the eastern gateway to the NWP. In the case of Tallurutiup Imanga/Lancaster Sound, the empirical evidence generated while meeting representatives of North Baffin communities strongly emphasises the significance of place and the meaning of nature beyond anything discerned in the literature review. Inuit of Nunavut communities regard themselves as part of the ‘Nuna’ or the ‘land’they share with the animal

community. These communities ‘participate to the same collective without detaching nature and culture’ (Battistini 2018, p.587). As Battistini explains, ‘because of the fact that their way of living is deeply linked to their environment they have a strong interest to preserve land and animals’ (Battistini 2018, p.587). For the purposes of this research, it is important to recognise that the mode of living and location of Nunavut communities does not, at least historically, lend itself to the imposition of Western-style governance through the implementation of laws, regulations, and forms of ‘expected behaviours.’ In this thesis, I make every effort to conceptualise a form of governance that is not an ‘exterior cultural intrusion’ and which does not lead ‘to the prevail of one of the two cultural systems in collision and to the suppression of the other’ (Battistini 2018, p.590). Structuring a governance arrangement that can best protect the lifestyles the land and the water support, while remaining respectful of cultural differences, is a driving principle of this research.

Construction of knowledge in the epistemological scale is relevant to questions of place and nature, and it is, therefore, helpful to engage with Swyngedouw’s (2000) theoretical work on including nature in scale framing (Marston 2005). Research participants with NGOs (WWF-Canada and PEW), the GN, Nunavut communities, and actors local to the Arctic region know best how nature and humankind interrelate in Canada’s north. Swyngedouw’s work is germane here as his argument is that ‘nature and society operate together in the construction and contestation over ‘partially hierarchical and usually nested spatial scales’ (Marston 2005, p.418). As we consider transformation of prevailing governance to mitigate oil spill impairment, Swyngedouw’s work is helpful to understand how scale configurations need to shift as actor inter-relationships change in spatial, function and temporal considerations.

As with the construction of a new form of conceptual governance for Tallurutiup Imanga/Lancaster Sound, transformation requires us to construct ‘new significant social and ecological scales’ (Marston 2005, p.418). This includes conceptualisation of governance that allows ‘new landscapes of power and recognition and opportunity’ (Howitt 2003, p.150). This perspective also facilitates a conceptualisation of scale that includes actors previously marginalised or excluded. Further, as a theoretical framework, this proposed scale provided a basis for recommendations on how a governance framework, to protect Tallurutiup Imanga/Lancaster Sound, can fit into broader structures, in which the scales of nature and local communities, NGOs and industry, multinational organizations, and governments can collaboratively operate simultaneously and multi-directionally to broaden the spatiality and functionality of Arctic governance. Imagining the scaling-up of this spatially bound and function-specific case-study, constitutes a contribution to the field of governance by showing how a ‘small-win’ in local governance can fit into larger governance frameworks to protect marine waters from impairment risks associated with shipping activity in broader geographies of the Canadian Arctic. To clarify the significance of this contribution, it is first necessary to highlight how shipping activity in the Canadian Arctic is expected to accelerate, and how the governance is being framed to protect the marine environment.

8.1 Beneficial Usage as a Driver for Transformational Process: Opening Passages of Discovery?

In 2013, the Danish owners of Nordic Orion, a freight carrier that shipped 15,000 metric tons of coal to Finland from British Columbia, saved $50,000 per day

using the NWP (Lu et al. 2014).[60][61] Their analysis assumed a voyage from Busan to New York, 7,034 nautical miles (nm) of open water and 576 (nm) of sea ice, and compared costs of transit using the NWP and the Panama Canal. Lu et al. (2014) used data to show that the Canadian government would need to apply a transit fee to be 'at least 40% less low than the Panama Canal' to attract shipping companies' interest based on modelling assumptions (Lu et al. 2014, p.66). On the basis that Canada holds sovereignty over the NWP, Lu et al. (2014) considered it reasonable that a usage fee 'toll' can be applied to vessels transiting Canada's northern waters. Liu Pengfei, with China's Maritime Safety Administration, suggested that 'Once this route is commonly used, it will directly change global maritime transport and have a profound influence on international trade, the world economy, capital flows and resource exploitation.'[62] China's Maritime Safety Administration recognises that the routes of NWP are internal waters of Canada and, as such, foreign ships should, in its opinion, be obliged to apply for a permit and pay relevant fees. It is fascinating that China's Maritime Safety Administration publication reminds ship operators to comply with the Canadian Shipping Act,[63] and to submit sailing plans to Canadian marine communications and traffic services. Compliance with Canadian regulations enables China and its shipping companies to avoid damaging political relationships, while accessing markets for

[60] <https://lynxglobalintelligence.wordpress.com/2017/07/05/russias-northern-sea-route-the-superior-course-for-maritime-trade-in-the-arctic/>

[61] Cost savings of USD 6,854 000 can be realized for shipping companies on a round trip voyage from Melkøya to Yokohama using the NSR (rather the Suez route) on a journey that requires 42 less days. This saving was calculated after a NSR tariff of USD 632 000 is applied. As noted by the Centre for High Northern Logistics 'official' NSR's tariffs are currently much higher than Suez Canal fees but are listed as maximum rates subject to negotiations. Clearly, cost saving analysis needs to be completed by an individual shipping company dependent on the nature of freight and destination and the Centre for High Northern Logistics in order to bring attention to a condition that future tariffs for NSR usage could need to undergo fee-pricing models in consideration of other Arctic and non-Arctic shipping routes such as the NWP. From the authorities' viewpoint, tariffs collected need to be sufficient to cover the services rendered, with ice-breaking services being the most significant (Kiiski 2015).

[62] 'Arctic Navigation Guide (Northwest Passage)' was prepared in early 2016 to assist Chinese shipping companies in their decision-making of transit route selection.

[63] https://laws-lois.justice.gc.ca/eng/acts/C-10.15/

competitive reasons. On payment for transit usage, ‘it is the details that are always a problem’ in deliberating fees and tolls for transit usage of the NWP, according to Rob Huebert (Interview 21). In explaining complexity of transit financing, he added:

> North of 60 we don’t have fees for ice breaker requirements and that is because there is an assumption that we’re trying to support economic development in the northern regions and so the fear is that if you start attaching fee, people won’t do it. But statistics show that there is limited shipping right now through the Northwest Passage and what shipping there is, it is declinational only. So, if you start charging a fee then you start hurting the communities? And that’s the thing that of course people would not accept. So, then you turn around and say okay, as we claim these as our internal waters, let’s put in differential fees. But the problem with putting differential fees in is then you start running afoul of some of the IMO requirements. There are ways to introduce a pay level in terms of regulatory jurisdictions, but that’s always been the game stopper.

Encouraged by some communities (including Pond Inlet) and discouraged by others (Clyde River, for example), the first cruise ship that passed through the NWP (Crystal Serenity in 2016), provided an influx of tourism money to the communities through performing arts and the sale of locally made products (Interviews 12, 13, and 14). This voyage was significant in terms of the ‘opening’ of the Canadian Archipelago for the cruise industry and the beginning of Arctic tourism at commercial levels not previously witnessed. If such beneficial usage is to accelerate, how might these waters be able to generate funding for environmental protection through governance structures? There is precedent with the Alaska’s ‘head-tax’ on cruise ship passengers for this to be a source of governance funding (Mak 2008).

Mak (2008) considered the likely economic effects of Alaska cruise tourism, with regard to an imposed tax by an intermediate port. This was the first occasion on which an intermediate port in the United States had applied a head tax in addition to a marginal fee ($2 in 2005) specifically to support port infrastructure development. Mak concluded ‘that the head tax need not harm the state’s cruise industry’ (Mak 2008, p.610). Further, Mak (2008) claimed that residents potentially benefit as ‘to the extent

that money is fungible, proceeds from the head tax can be employed to substitute for some of the local funds previously used to support the cruise industry, allowing the local funds to be redirected to other public uses that benefit residents. Aligning well with the concept of considering a 'head-tax' to support, Mak (2008) made an important contribution to this argument in bringing attention to the World Bank's suggestion that any cruise ship head tax should be explicitly linked to an environmental or resource protection fee.

Similarly, China, in declaring itself a 'near-Arctic state, is looking to build a Polar Silk Road off Canada's northern coastline (*National Post* 2018). Chinese state media announced that it is China's ambition to become a major shipping power through the Arctic.[64] China unveiled an official Arctic strategy that emphasises 'respect' as a basis for its participation in Arctic affairs. Joel Plouffe, a fellow at the Canadian Global Affairs Institute, told the National Post 'the document is heavy on politeness because it is attempting to frame China as a responsible player in a region where it has no actual sovereignty.' Rob Huebert stated that 'I'm a little shocked. The Chinese do not issue white papers. This clearly illustrated how important the Arctic is to the Chinese.'[65] The Chinese policy also refers to the rights of the Indigenous peoples of the Arctic and a need for environmental protection through scientific research and international cooperation. Frédéric Laserre, Professor at Université Laval, mentioned that 'It's this ambiguity over what China wants to do in the Arctic that's a bit troubling.' Huebert and Lasserre both agreed that the document is notable, in part, for what it leaves out. According to these authors, China regards itself as a champion of and contributor to Arctic affairs and issued the white paper to articulate its policy and to encourage other

[64] China's Arctic Policy, The State Council Information Office of the People's Republic of China (January 2018) Available at www.gov.can.
[65] Available at www.CBC.ca/news/canada/north (accessed August 12, 2018).

governments to get involved with Arctic governance. The white paper notes that the region will undergo a significant impact from shipping and the promotion of global trade. The threat posed to the natural environment is mentioned, as is the social and economic change that could result for the indigenous peoples. In consideration of China's clear intent and many other countries' active interests in using Canada's Arctic waters, commercial development as an enabler to promote environmental governance, must be examined.

8.2 Directional Paths towards Multi-governance Frameworks – Corridors for Opportunity?

The GOC's Oceans Protection Plan, includes an objective to develop 'a network of low-impact marine transportation traffic to use routes that pose less risk and minimize the impact on communities and the environment.'[66] In support of this objective, Arctic Corridors Research, led by Dr. Jackie Dawson from the University of Ottawa, completed work that developed a long-term geospatial track database (1990-present) in Arctic Canada, identified temporal and spatial shipping trends, established zones of high commercial and non-commercial shipping activity, documented Culturally Significant Marine areas, and established potential management strategies for the lower impact shipping corridors. Dawson's team completed group discussions and interviews with communities throughout the Canadian Arctic to understand Inuit and northerners' perspectives on shipping and potential environmental impacts. In Pond Inlet, nine representatives of the community participated in the research, including Natasha Simonee and Sheatie Tagak, both of whom were also participants in this research who I met at the HTO in November 2016 (Interview 13). Key

[66] Available at https://tc.gc.ca/eng/oceans-protection-plan (accessed January 23, 2019).

recommendations of Dawson's work specific to the Tallurutiup Imanga/Lancaster Sound region were to introduce narrower corridors located minimum distances from shore that are monitored for compliance, introduce seasonal speed limits, establish no-go shipping areas, allow no anchoring, and improve communications between government, ship operators, and the community. Explicit in the Arctic Corridors Research is that, today, 'the community and Department of Fisheries and Oceans (DFO) are not prepared or equipped for oil spills, or ship fuel leaks.'[67] Neither is there protection for community members against physical and mental health (well-being) concerns if the environmental was impacted and hunters and fishermen not able to gather country food that is needed for their diet, which is a need rather than a preference.

PEW's work on Arctic shipping must be considered alongside the Arctic Corridors Research led by Jackie Dawson. PEW actively supports the widening the parameters of any corridors initiative to encompass the environmental and social complexity of Canada's Arctic, such as in an *Integrated Arctic Corridors Framework* (PEW 2011). Doing so would bring together multiple actors, including Inuit organizations, to manage a series of Arctic shipping corridors designed to achieve the highest possible level of human and vessel safety, environmental protection, and safeguarding of Inuit rights. I envisage that such a framework could accommodate a new form of governance specific to oil spill preparedness and response. As Tallurutiup Imanga/Lancaster Sound serves as the eastern gateway to the Canadian High Arctic shipping routes, it is a 'spatial-fit,' in terms of positioning a functional form of governance to mitigate oil spill impact that, most likely, would be derived from an offshore ship-source. Preparedness and response could be situated within a corridor's

[67] Available at www.arcticcorridors.ca/about (accessed May 12, 2018).

initiative framework. In imagining an Integrated Arctic Corridors Framework, oil spill preparedness and response can be co-situated such that infrastructure requirements, navigation, hazard assessment services, storage deports, waste management facilities, salvage and rescue, and accommodation can be co-developed. PEW (2011) believes that the corridors initiative would provide a framework to allow for a more holistic approach to shipping management in the Canadian Arctic. This would allow for better informed decision-making, while reducing risks for the shipping industry, Inuit communities, and Arctic ecosystems. Business risks to shipping companies, including the costs to clean-up a spill and restore the environment and reputational damage, would also be reduced with the implementation of measures to prevent and mitigate oil impairment.

Further, Inuit communities would be less vulnerable to adverse lifestyle impacts (such as being unable to hunt, trap, and fish), as a result of less potential damage to marine and coastal environments. Arctic ecosystems, so sensitive to the presence of oil-derived and other types of contamination in the marine environment and the resultant impact to the food chain, would be protected and the threat of oil-laden ice, oil on open-water, and oil dissolved in the water column would be protected. PEW identifies that building integrated shipping corridors would require the collection of new information, as major gaps exist in the data on Arctic offshore ecology. In PEW's report (2011), the need to improve the federal government's understanding of oil spill sensitivity and response planning is identified as a critical gap. This information is especially important, given that the eastern Arctic experiences extended periods when spill response is not possible because of environmental conditions. In the context of constructing and implementing oil spill preparedness and response in the Canadian High Arctic, I consider the corridors initiative an instrument of shipping governance,

which is well positioned to provide multi-dimensional functionality. Oil spill mitigation is one function, but salvage and rescue, environmental monitoring, wildlife rescue facilities, and waste handling and disposal, among other benefits, can also be achieved by such a program.

As stated by PEW, a corridors initiative 'would make shipping in the Canadian Arctic safer and more affordable while strengthening environmental protections and protecting Inuit rights. Importantly, the framework would be built to adapt as conditions change in this dynamic and complex area.' Such an adaptive element of the framework, for instance, could be the provisioning of medical care facilities available to northern Canada coastal residents and visitors. Clark and Ford (2017) identify the grounding of the *Clipper Adventurer,* 100 km east of Kugluktukin, Nunavut, in 2010 as an incident that required 128 passengers to be evacuated and, therefore, placed a strain on emergency systems. Consistent with the empirical evidence generated in this research—that all actors believe it will take a large oil spill offshore in the Canadian Arctic before preparedness and response measures will *actually* be implemented—Clark and Ford (2017) suggest that it is just a matter of time before an incident occurs in the Canadian Arctic.

The prevalent belief that an incident will be required before positive change will be implemented, which is reflected in the interview transcripts completed for this thesis, reinforces the need for the GOC to act now and enact protectionist measures to reduce the risks of an offshore shipping incident in order to protect the marine environment and to provide infrastructure development, including medical facilities, salvage and rescue capabilities, waste management handling programs, wildlife rescue, and other functional needs. All of this speaks to capacity building at national, regional, and local

levels and positions the GN and Nunavut communities to serve in roles that need to be re-imagined.

The integrated corridors initiative should, in my opinion, be viewed as a governance framework capable of protecting the Canadian Arctic through multi-dimensional functionality. Oil spill preparedness and response is one function that cannot be implemented independent of other functions, such as salvage and rescue, community well-being, and wildlife protection. All actors' personal reflections on the subject, discussed while completing interviews, and among Nunavut residents in particular, justify promoting the findings of this research to those who govern the Canadian High Arctic before an incident occurs and causes an environmental impact. Ironically, the findings of this study support the premise that commercial development of the Canadian Arctic enables the best available environmental protection measures to be considered and implemented. Representatives of ITOPF (Mark Whittington), former BP employee (Michael Bronson), Robert Eno (formerly GN DOE), the NCA (Ole Kristian Bjerkemo), and Rob Huebert all stated during interviews that best environmental practices cannot be implemented without commercial development. On this point, it is worth mentioning that, in 2013, Canada chaired the Arctic Council and sought to introduce economic development to supplement its core focus: Arctic environmental protection through intergovernmental cooperation (Nicol 2017).

Accordingly, the Arctic Economic Council (AEC) was established within the Arctic Council to direct efforts towards regional economic development and to allow business leadership within the Arctic states. In contemplating how the AEC can be positioned in a new form of conceptual governance, it is envisaged that it would be placed alongside ITOPF and other industry actors (such as SFO) in the reconstructed epistemological scale. This would allow discursive interaction to help frame

governance of the environment and economic agency. In the Fairbanks Declaration, the Arctic Council stated that it looked forward to 'strengthened co-operation in order to enhance responsible economic development' and to build partnerships 'for issues of common interest and capacity building of Arctic populations' (Nicol 2017, p.234). Nicol argued that the Arctic Council will have difficulty 'containing the broader interest and capacity for investment and development in the circumpolar North, now that it has successfully institutionalized in the AEC and ostensibly decoupled the process of economic development from environmental sustainability' (Nicol 2017, p.236). I disagree with Nicol on this point, based on empirical evidence obtained through interviews with a range of actors, and for the reasons addressed in the following sections.

The concept of politics of connectivity is implicitly based on the premise that spatial and functional scales are interconnected. Nicol (2017) argued that scales are driven by different logics of actors; while this may be the case under other types of frames, it is not true in the case of Tallurutiup Imanga/Lancaster Sound, whereby the desire to protect the Canadian Arctic is common to all actors. However, conflict and disagreement occur amongst actors in deliberations on *how* to protect the Arctic. Accepting that commercial development is required as a driver to enact oil spill preparedness and response measures, and recognising actor agreement that a different approach to protecting the Canadian Arctic is needed, I take a position that 'webs of relations' should be exploited, and practices and processes applied to broader spaces through spatial and functional dimensions. In completing interviews for this research, the Arctic Corridors Research Project provides both spatial and functional dimensions of larger scale governance into which oil spill preparedness and response governance can best 'fit.'

As the Canadian Arctic, and the broader circumpolar region, becomes increasing developed through shipping, resource extraction, and industrialization, it can be expected that interactions between state and non-state actors will become more complex and environmental and commercial development processes increasingly intertwined. Natural resource development in Norway spurred oil spill preparedness and response measures. The commercialization of the Canadian Arctic can similarly spur environmental governance to protect Tallurutiup Imanga/Lancaster Sound through the opening of broader channels of discourse to contemplate broader spatial and functional scales. Beyond the Eastern Gateway of the NWP, the navigable routes of the Canadian archipelago through which shipping transit is possible to the Beaufort Sea, is a space without protection from oil spill impairment. Opening debate in human geography can further prompt inquiry as to how Tallurutiup Imanga/Lancaster Sound and contiguous Arctic spaces are politically linked and how scholarship that engages with exploring relationship practices may be used to enable connections between places (Nicol 2018).

In the case of this scholarly work, the reconstruction of epistemological scale is necessary to conceptualise how the governance of Tallurutiup Imanga/Lancaster Sound could be adapted. At a broader spatial level, social construction of the conceptualised form of governance could undergo further social construction, but within a framework of emergent structures that the GOC, in its ‘power-over’ relationship with other actors, can promote. Linked through collaborative pathways that might include the NT/Nunavut Spills Working Group, the GN, NGOs, and the GOC, it would be unique to the Canadian Arctic.

As introduced earlier, functionality of processes and engagement of actors who have historically been marginalised and differently scaled (MacKinnon 2010) are repositioned in the proposed framework. Like emergent environmental risk, the

proposed governance construct is designed to accommodate emergent social processes of scale to consider the potential impacts of commercial development on North Baffin lifestyles. It seeks to bring together the structuralism of a prevailing political-economic approach with engagement of discourse and social process treating the protection of Tallurutiup Imanga/Lancaster Sound as a privileged scale in an epistemological sense.

Reshaping of existing scalar arrangements through privilege allows us to rebalance scalar power through socio-political-economic input. To consider ontologies with only horizontal networks and flat linkages between actors is not realistic. Asymmetry in 'power to fund' must remain with the Government, while these horizontal and cross-scale linkages are regime attributes that reposition existing actors and introduce new entrants. The view expressed by Van Lieshout et al. (2014)—that 'certain scale frames are filtered from the process does not necessarily mean that they are unimportant; on the contrary, this can equally mean that they are very important but do not fit the ideas of some decisive actors and are thus ignored' (p.20)—is pointedly relevant to Tallurutiup Imanga/Lancaster Sound. Geographers need to capture 'innovative cross-disciplinary conversations about the nature of geographical knowledge' (Mahony and Hulme 2016, pp.4-5). Hulme (2008) and Powell (2007) argued that epistemic communities should help shape public discourse and that tools of geography of science be applied to broader knowledge making. Applied to Tallurutiup Imanga/Lancaster Sound, these concepts are relevant to local knowledge capture and to the cultural, political, and social dimensions considered in regime formation. It better enables actors across multiple scales to confront the challenge of constructing governance frameworks that allow both individuals and organizations to operate within a collaboration and cooperation structure - a space of engagement and a space of dependence. This approach towards the framing of governance has allowed me to

confront environmental protection of Tallurutiup Imanga/Lancaster Sound knowing that it must be addressed now, despite the sentiment of some scholars that the subject matter presents a 'wicked problem' that is just too difficult to address. I am aware that the presentation of a new form of conceptual governance to protect the Canadian Arctic – and Tallurutiup Imanga/Lancaster Sound in particular – could be met with scepticism, in part because it confronts the notion that oil spill preparedness is not a 'wicked problem' and that it can be more effectively governed. As I reflect on Young's transcript and comments that he made regarding the engagement of policy makers in forward-looking governance arrangements, it reminds me that pre-emptive and precautionary type thinking must prevail in protecting Arctic waters. Young commented:

> We know that people in the policy room have considerations that they are not going to politically overlook and we're not naive enough to know that they have to be responsive to certain kinds of forces within and outside of their constitutes. And we're not going to change that. But we can say at least we'd like you to be thinking in a somewhat coherent thoughtful way about how should we frame an issue? What are the options? There are certainly going to be all kinds of things where there are probabilities and we don't know if big or small. We're going to have to say that an event could happen, no question it could happen but is it 1%, 10%? We can't tell you that. But we'd like you to at least be thinking about the best evidence we have. In some cases, we can do things like develop scenarios and start with different initial conditions. We really would like to say to those who are going to make decisions that we know you've got various factors to think about, but at least we would like to provide you with the best thinking on part of the community regarding what the options are and what the likely outcome could be for communities.
>
> Our familiar practices just aren't adequate anymore. Whatever was the case in the past we've got to find new ways of thinking and acting in terms of the knowledge community. We need a new social contract about the nature of our respective roles and contributions and practice on both sides of how we operate this new – and it certainly includes things like not just sitting down with people at the beginning, but throughout to brainstorm about what do we collectively to confront issues on the horizon that are likely to develop into significant policy or find their way under the policy agenda. (Interview 22).

Conceptualizing an alternative form of governance to that which prevails today emphasizes the concept that familiar practices to protect Canadian Arctic waters are no longer adequate. Oil spill impairment is an ever-increasing risk to these waters. However, through collective engagement of all the actors positioned in the proposed governance arrangement, what is currently a severe problem for decision makers could become a catalyst for change in terms of how we bring the future forward to confront the nature of impairment risks and mitigate potential impairment.

8.3 Discussion

This thesis confronts how shipping in the High Canadian Arctic might trigger debate on the introduction of new forms of governance. An interruption of shipping normalcy could adversely impact North Baffin communities. Timely in its contribution to the social and political sciences, this new conceptualised form of governance to mitigate potential risks is introduced as a result of climate change and the opening of northern navigable shipping route. It gives policy shapers and decision-makers an opportunity to reflect on the attractiveness of considering alternative forms of protection measures in the Canadian Arctic. It can be regarded as a governance proposal that is a form of 'strategic agency' for actors, particularly those new actors positioned in the construction of scale and those that have been historically marginalised, to shape protectionist measures (Westley and Antadze 2010). Structured to facilitate cooperation and to engage actors collectively, its purpose would be to govern oil spill preparedness and response to enhance the GOC's ability to govern territorial space, which, as noted in this thesis, is a challenging task. Placed within the government's hierarchical structure, this spatially and functionally bound arrangement would occupy a discrete position, like a 'Russian doll' in broader Arctic-wide governance frameworks (Brenner et al. 2003). In network terms, it promotes interaction across scales and epistemic communities and 'While governments are the main authoritative political institutions, politics as an activity or politically relevant behaviour is not exhausted by them' (Wapner 1996, p.7).

This thesis is presented to the field of Arctic governance mindful that context matters and not all environmental protection practices are transferable across geographies. The Canadian High Arctic is a place more distant from any location in the world where large-scale oil spills have occurred, where no designated response

equipment exists, and where the resultant impacts of climate change are more severe than anywhere else on the globe. Moreover, potential impacts to indigenous and northern peoples has been 'largely been overlooked in the debate about how Arctic resources are managed' (Johannsdottir and Cook 2019, p.14). These authors also acknowledge that a large marine oil spill in the Arctic that has adverse social, cultural, environmental and economic, could 'act as a tipping point for, the severe instability or collapse of an industry' (Johannsdottir and Cook 2019, p.14). Inclusion of industry, as initially represented by ITOPF, to network with all actors in governance is a deliberate act so that impairment risks associated with the beneficial use of the Canadian is not overlooked, and how commercial development that is sought by many members of coastal communities might be accomplished in a precautionary manner.

To conclude, there is a demonstrable gap in prevailing governance of the Canadian High Arctic and the acceptance by the GOC to consider a new form of governance would be a meaningful demonstration of intent to protect its northern waters. When there is a 'mismatch between the dynamic character of the problem and the sluggishness of our institutional processes for coming to terms with it,' a dilemma in governance can be caused (Young 2010). I agree with this statement, as today's prevailing governance is not able to meet the problem of responding to a large oil spill in the Canadian High Arctic and any type of response is expected to be sluggish.

Gaps exist in today's governance to protect the Canadian High Arctic from the adverse impact of an offshore oil spill. These gaps have been identified and a new form of governance presented in this thesis for policy shapers to consider. In answering the research questions that were set-forth at the onset this work, it is evident that the top-down governance arrangement, dominated by the GOC, is not appropriate to confront the emergent risks that are associated with Arctic shipping. The re-construction of

epistemological scale positions existing and new actors in a spatial and functional form of governance that would pre-empt potential impairment. In presenting this thesis to the social sciences, I claim that if debate on the need to transform governance in the Canadian High Arctic is not undertaken now, then when would it be, and under what circumstances? Lessons from previous offshore oil spills, such as in Prince William Sound and the Gulf of Mexico, tell us that such debate occurs only after damage to the marine environment has occurred. The empirical evidence shows us that there is broad actor support to implement forms of operationalize governance and it is hoped that this thesis may be used to help structure a 'white paper' that can be presented to those responsible for shaping policy and committing resources to undertake this solemn obligation to protect the Canadian High Arctic.

Research questions set-forth at the onset of this work have been answered and tell us that the top-down governance arrangement that is dominated by the GOC is not appropriate to confront the emergent risks associated with Arctic shipping. Nunavut communities are generally supportive of Arctic shipping provided that it is associated with the adoption of best environmental protection practices. Placement of industry, in our case ITOPF, in the re-construction of epistemological scale would demonstrate to these and other northern communities how commercial development and environmental protection can co-exist. Now is an opportune time to be presenting this thesis to the field to help inspire debate on why there is a clear need to transform governance in the Canadian High Arctic. This is also an opportune time for northern communities to embrace commercial development and to work with all other actors to facilitate change to protect the environment through a new form of governance arrangement.

A loss of species, ecosystems and meaningful landscapes due to acute or chronic impairment resulting from an oil spill offshore Nunavut could introduce 'ecological

grief,' particularly given the close attachment northern communities have with the natural environment. In this thesis, the potential for ecological grief is envisaged and adverse impact to sustenance lifestyles imagined. While the concept had not received attention in extant literature on environmental governance in the Canadian Arctic, construction of wellness emerged during this research as a result of completing interviews in these communities given the linkages to oil spill impairment. Situated in the epistemological scale as a new construct of wellbeing it recognises ecological grief as a dimension of governance that, to-date, has been not considered in the context of oil spill impairment.

Considering the construction of wellness provides a framework for psychological and geographical inquiry into how the escalation of emergent environmental risks requires the social sciences to engage in precautionary logic to govern today, that which is considered just too hard to govern. It brings into focus how grief might be healed, or partly healed, if ecological damage ever does occur as a result of an offshore spill. There is an opportunity to reflect on Leopold's work and to shape new governance knowing that expanding ecological education can expose those at risk, to a higher level of awareness and concern. This thesis has attempted to show that, if we engage with environmental futures and bring them forward, environmental impairment risk can be mitigated, concern can be diminished, and ecological grief can be pro-actively managed.

CHAPTER 9

CONCLUSION

As the NWP becomes free of ‘multi-year’ ice and only first-year remains, ice-strengthened ships and escorted vessels will be able to transit between the Atlantic and Pacific Oceans year-round. Sea-ice disappearance will compound climate change impacts through the warming of marine waters, and the altering of ocean currents and wind patterns. In this context, scholarly work that generates knowledge to understand how climate change is changing terrestrial and marine environments, as well as lifestyles in the Arctic and at the global level, will be paramount. Application of scientific, technological, social, and political science work to construct governance arrangements with spatial, functional, and temporal applicability, facilitates consideration of how transformative mechanisms might exist to migrate ideas and concepts into forms of operationalised arrangements, which will better protect the environment and lifestyles.

In the case of the Canadian High Arctic, the conceptual form of governance presented in this thesis would disrupt the prevailing ‘top-down’ and government dominant structure. It inserts new actors, and repositions the roles of existing actors, in operationalised governance, built upon constructs of knowledge, resource, and wellbeing, which are positioned in a reconstruction of the epistemological scale. Presentation of this proposed governance arrangement to the social and political sciences is well-timed to confront how an interruption of normalcy, such as oil spillage from an offshore shipping incident, can be imagined and response capabilities envisaged. This research has also shown that, without commercial development of natural resources, oil spill preparedness and response measures have historically not

been introduced to protect a given location. A significant attribute of this proposed arrangement is that it offers—to actors who wish to preserve passive-use value of the Canadian High Arctic—a mechanism through which protectionist measures to mitigate potential impairment can be implemented. This proposed arrangement situates actors who seek beneficial-use value as potential enablers of governance through participation in policy-shaping and decision-making, implementation of agreed-upon actions, and as potential funding sources to help offset the burden, which currently resides solely with the GOC.

While marine impacts specific to the extent of damage to ecosystems and lifestyles cannot be fully understood, due to an inability to know where a spill might occur, at what time of year, and of what size, the empirical evidence overwhelmingly demonstrates that there is concern across the actor network that a spill could be devastating to community lifestyles. Inclusion of industry in the proposed governance arrangement, as represented by ITOPF, would position commercial shipping as an enabler of oil spill preparedness and response governance to collaborate with the GOC, the GN, Nunavut entities, NGOs, and multinational organizations to facilitate Arctic development, while adopting best environment practices. Inclusion of actors in a construct of wellbeing can help mitigate 'ecological grief' to North Baffin coastal communities, expected as a result of a spill and this has been identified in this research as a critical gap in today's governance that needs to be addressed. Inclusion of North Baffin community residents in constructs of resource would mobilise residents, as actors in new roles, to provide the GOC with first responder capabilities that are absent today.

Research participants are fearful that a spill will happen and that the GOC will not be able to respond in a timely manner, especially if support from other Arctic states

remains necessary in lieu of resources that are unavailable in Canada. Evident through the analysis of interview transcripts with representatives of North Baffin communities, is that such fear is based on the knowledge that gaps in resource availability exist in the Eastern Canadian Arctic. Yet, this research has shown that if the GOC has a *will* to consider and implement a governance structure that builds this capability, it would demonstrate intent, which would be welcomed across the actor network. For example, the GOC's development of Nanisivik, a coastal deep-water port facility, near Arctic Bay, Nunavut, is well located to serve as an oil spill preparedness and response 'hub.' Pond Inlet HTO expressed a desire to have a hub in its hamlet but, based on interviews with the Confidential Participant, GN DOE representatives, and Arctic Bay HTO, Nanisivik is a serious option, based on the knowledge gained in this research. There exist other locations in North Baffin that can be considered as operationalised 'hubs' to enable preparedness and response capabilities to be established but given the GOC's intent to develop Nanisivik as a deep-water port, it would be a practical location to serve as a response equipment depot.

All Nunavut community members that participated in this research, located in Arctic Bay, Pond Inlet, Clyde River, and Iqaluit expressed interest in active roles in the prevention of oil spill impairment. Best efforts of the GOC to engage with communities in oil spill awareness training have, historically, not been successful as participants sought compensation. Research evidence suggests that compensation *is* expected at the community-level and it would be required by participants if they were to engage as actors in new or re-imagined existing roles, such as NBERG, NBCRG, and the SCT. The prominent role of the Canadian Rangers envisaged in the conceptual governance arrangement is central to community engagement. Placement of the Canadian Rangers to serve as first-responders to an offshore spill is a governance attribute that would

enable better communication linkage between communities, government, and Nunavut actors. While a role for Canadian Rangers in offshore response has been proposed through the Senate of Canada, the remit is for it to remain only a terrestrial capacity, and there would not be engagement in spill response beyond the shoreline. Placement of the Canadian Rangers in a governance arrangement would provide the GOC (CCG and TC) capacity through the construct of resources; traditional knowledge through the construction of knowledge and as an enabler to bring communities closer to policy-shaping and decision-making to help manage wellbeing and minimize ecological grief. Moreover, it would 'set-forth' and serve to demonstrate that mechanisms can be imagined, and potentially implemented, to engage Nunavummiut and to bring governance closer to people whose lifestyles stand to be most adversely impacted by an offshore oil spill.

Human wellbeing emerged as a construct in the conceptual governance only after completing research interviews in Nunavut communities. Without completing these interviews and spending time with residents, it would not have been possible to gain the primary knowledge that reveals the concern of environmental impairment and lifestyle impacts from an offshore oil spill. This knowledge demonstrates that climate change impacts are very evident to community members as witnessed by the loss of sea-ice and shifting ice floe movement, as well as the changing marine and terrestrial wildlife behaviour in response to habitat loss. Communities are experiencing these lifestyle changes and the impact of climate change is increasingly being recognised while there exists little opportunity for the Arctic residents to prevent impacts as a result of extensional activities, other than perhaps to not allow cruise operators or other types of tourism to visit coastal hamlets. How ecological grief to North Baffin coastal communities can be envisaged through a construct of wellbeing is imagined in the

governance arrangement, which is alternative to that which prevails today. There exists this window of opportunity to position Nunavut communities to work alongside state and non-state actors in the form of conceptual governance envisaged in this thesis to protect the wellbeing of coastal residents.

To conclude, the concepts that have been formulated to construct this alternative governance arrangement have been framed through the listening to the voice of actors. No actor can advance debate on what protectionist measures can be embedded in governance structures in isolation. Multifaceted spatial, functional, and temporal dimensions of environmental protection in the Arctic will become increasingly complex. For this reason, new communication mechanisms are required to better enable all actors to collaborate and to cooperatively work together. Inaction to consider environmental protection in the Arctic using pre-emptive logic is not an option, in my opinion, and absent the GOC's commitment to promote precautionary governance there is a risk that 'cost-benefit' and 'what if' types of analysis will prevail, resulting in a lack of decision-making. In articulating the nature of emergent risks from oil spillage impairment in this thesis, it is hoped that the effort to protect the Canadian Arctic is not considered excessive by those in a position to commit resources and support its promulgation. In accomplishing the research aim, this thesis provides a reason for those actors that can promote its worthiness, a mechanism to confront a very real gap that exists today in governance in the Canadian High Arctic.

I believe that the relevance of this thesis to the social and political sciences constitutes a meaningful contribution, which will enable debate on how governance can be envisaged in anticipation of an interruption of normalcy, such as oil spillage from an offshore shipping incident, by applying pre-emptive logic to mitigate impairment. Moreover, it can serve to demonstrate how empirical evidence through community

research can lead to the construction of governance, which funds participatory engagement in policy-shaping, decision-making, and implementation processes, which is lacking in prevailing arrangements. This type of engagement pre-empts environmental impairment and situates actors within timelines that, hopefully, accommodate forward-looking participatory processes, rather than being responsive to impairment that has already occurred.

This thesis provides to actors in Arctic governance and to all those that engage in reflection on the polar region futures, an example of how the findings of empirical research can be transformed to actionable protectionist measures either stand-alone or positioned within larger scale, multi-dimensional frameworks, such as an Integrated Arctic Corridors Framework. I am hopeful that this will promote debate on the worthiness of a new governance arrangement driven on a need to address emerging environmental risks from oil spill impairment using knowledge newly created and our understanding of prevailing governance and actor interests. It advocates the sharing of the conceptual governance concepts with all research participants and, I will remain hopeful, that Nunavut communities will be able to work alongside the GOC and other actors situated in the arrangement, to enable discourse and to operationalise agreed-upon actions. To consider how this can be accomplished, I have sought to demonstrate how power relationships might be disrupted, how actor roles might be redefined, and how new actors could be positioned in a re-construction of spatial, functional, and temporal scales. I have attempted to illuminate why this research confronts the reality of the potential impairment of Arctic waters from oil spill and to provide a considered argument as to why prevailing governance should be critically assessed and alternative arrangements considered. ‘What we think are the real issues that may not yet be in the public eye, but when you start to think about what is going to be an issue, we’re going

to hear about, if not in five years, then in ten years. We would actually like to make a contribution to the future of the Arctic being better rather than worse from a very important sense of that term' (Interview 22). I hope, also, that this work delivers – to those indigenous communities whose lifestyles would be most adversely impacted through environmental impairment – a pathway for inclusion in the shaping and implementation of protectionist measures. Jones et al. (2018) presented to the scholarly community the question: 'Who is research serving?' in the context of a review of circumpolar environmental-related indigenous health literature. These authors acknowledge that indigenous communities often experience a sense of being 'researched to death' (Jones et al. 2018, p.2) and 'positioned only as subjects of research, resulting in research that does not respond to local priorities, nor incorporate Indigenous way of knowing.' In completing interviews in support of this research, I encountered the similar sentiment that researchers often visit northern communities, but do not share the findings of their work. The NRI requires that those who approved the issuance of the research licenses submit a summary of this thesis for review. Accordingly, a summary will be provided to the NRI and, thereby, the findings of this research will help serve the people of Nunavut and all actors who are engaged in the protection of the Canadian High Arctic.

How the findings of this research are then introduced to policy-shapers and decision-makers, responsible for the environmental protection of the Canadian High Arctic, will require Kőrösi-type leadership – that is, an open, entrepreneurial style of leadership with engagement with those who can articulate and facilitate policy shaping when prevailing 'formal' systems may not allow for collaborative and cooperative discussion pathways. Leadership that confronts emerging environmental risks using pre-emption and precautionary logic, and capacity building through resource

multipliers, such as inclusion of residents proximal to a potential impairment locations and infrastructure designed for multi-purpose functionality, is required. The report and summary of this thesis presented to the Nunavut Research Institute will inform Nunavummiut about oil spill preparedness and response, or lack thereof, in their homeland. It will not, in my opinion, serve as a catalyst for change in Nunavut, with regards to capacity building, on its own, as that will require significant funding. In order to procure such funding, the Government of Canada will have to act. As such, a route towards this goal is the presentation and promotion to the Canadian Senate of the new conceptual forms of governance argued for in this thesis. In future work, my research findings will be converted into policy concepts that can be converted to operationalised governance to protect the Canadian High Arctic. My intention is, therefore, to develop a 'white-paper' type document that develops my research findings for these audiences.

REFERENCES

Abram, D. (1996), *The spell of the sensuous,* Vintage Books, New York, NY.

Adey, P., Anderson B. and Graham, S. (2015), Introduction: governing emergencies: beyond exceptionality, *Theory, Culture & Society*, Vol. 32 No.2, pp. 3-17.

Adger, N. (2003), Social capital, collective action, and adaptation to climate change, *Economic Geography*, Vol. 79 No.4, pp. 387-404.

Afenyo, M., Khan, F., Veitch, B. and Yang, M. (2017), Arctic shipping accident scenario analysis using Bayesian Network approach, *Ocean Engineering*, Vol. 133, pp. 224-230.

Agrawal, A. (1995), Dismantling the divide between indigenous and scientific knowledge, *Development and Change*, Vol. 26 No. 3, pp. 413-439.

Agreement between the GOC and the government of the United States of America on Arctic cooperation, available at https://treaties.un.org (accessed 10 October 2015).

Allen, K. (2006), Community-based disaster preparedness and climate adaption: Local capacity building in the Philippines, *Disasters*, Vol. 30 No. 1, pp. 81-101.

AMAP (2017a), *Adaption Actions for a Changing Arctic (AACA) – Bering/Chukchi/Beaufort Region Overview report.* Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. pp. 24.

AMAP (2017b), *Adaption Actions for a Changing Arctic (AACA) – Baffin Bay/Davis Strait Region Overview report.* Arctic Monitoring and Assessment Programme (AMAP), Oslo, Norway. pp. 24.

Anderson, B. (2010), Pre-emption, precaution, preparedness: Anticipatory action and future geographies, *Progress in Human Geography*, Vol. 34 No. 2, pp. 777-798.

Anderson, B. and Adey, P. (2011), Affect and security: Exercising emergency in UK Civil Contingencies, *Environment and Planning: Society and Space*, Vol. 29 No. 6, pp. 1092-1109.

Anderson, B. and Adey, P. (2012), Governing events and life: Emergency in UK Civil Contingencies, *Political Geography*, Vol. 31 No.1, pp. 24-33.

Andrews, T. 2012. 'What is social constructionism?,'*Grounded theory review: An international journal*. Vol. 11, No. 1.

Aoki, M. (2007), Endogenizing institutions and institutional change, *Journal of Institutional Economics*, Vol. 3, pp. 1-31.

Aprioku, I. (1999), Collective response to oil spill hazards in the Eastern Niger Delta of Nigeria, *Journal of Environmental Planning and Management,* Vol. 42 No. 3, pp. 389-408.

ArcticNet. (2005), Vulnerability in the Canadian Arctic: ArcticNet 4.2, University of Guelph.

Arctic Council. (2009), *Arctic marine shipping assessment report,* Arctic Council Publications, Tromso.

Armitage, D. (2005), Community-based narwhal management in Nunavut, Canada: Change, uncertainty, and adaptation, *Society & Natural Resources,* Vol. 18 No. 8, pp. 715-731.

Asch, M. (2007), Governmentality, state culture and Indigenous rights, *Anthropologica,* Vol. 49 No. 2, pp. 281-284.

Atland, K. (2008), Mikhail Gorbachev, the Murmansk Initiative, and the desecuritization of interstate relations in the Arctic, *Cooperation and Conflict,* Vol. 43 No. 3, pp. 289-311.

Baker, J. (1999), Ecological effectiveness of oil spill countermeasures: How clean is clean?, *Pure and Applied Chemistry,* Vol. 71 No. 1, pp. 135–151.

Baird, I., Plummer, R., and Bodin, O. (2016), Collaborative governance for climate change adaption: Experimenting with adaptive co-management from a social network perspective, *Regional Environmental Change,* Vol. 16 No. 3, pp. 747-758.

Barnett, M., and Duvall, R. (2005), Power in International Politics, *International Organization*, Vol. 59, pp. 39-75.

Barnett, J. and Nicandri, D. (2015), *Arctic ambitions*, University of Washington Press, Seattle.

Bartenstein, K. (2011), The Arctic exception in the Law of the Sea Convention: A contribution to safer navigation in the Northwest Passage?, *Ocean Development & International Law,* Vol. 42, pp. 22-52.

Bates, P. (2007), Inuit and scientific philosophies about planning, prediction, and uncertainty, *Arctic Anthropology,* Vol. 44, January 2, pp. 87-100.

Battistini, E. (2018), Sealfie, phoque you and animism: The Canadian Inuit answer to the United-States anti-sealing activism, *International Journal Semiot Law,* Vol. 31, pp. 561-594.

Beamer, G. (2002), Elite interviews and state politics research, *State Politics & Policy Quarterly,* Vol. 2 No. 1, pp. 86-96.

Beckman, R. C., Henriksen, T., Kraabel, K., Molenaar, E. J. and Roach, J. (Eds). (2017), *Governance of Arctic shipping*, Brill, Leiden, The Netherlands.

Benson, D. and Jordan, A. (2010), The scaling of water governance tasks: a comparative federal analysis of the European Union and Australia, *Environmental Management*, Vol. 46 No. 1, pp. 1-16.

Berkes, F., Mathias, J., Kislalioglu, M. and Fast, H. (2001), The Canadian Arctic and the Oceans Act: The development of participatory environmental research and management, *Ocean and Coastal Management*, Vol. 44 No. 7, pp. 451-469.

Bevir, M. (2012), *Governance, A very short introduction*, Oxford University Press, Oxford.

Bing Bing Jia, (2013), The Northwest Passage: An artificial waterway subject to a bilateral treaty regime?, *Ocean Development and International Law*, Vol. 44 No. 2.

Bjornbom, E., Hansen, O., Engen, F. and Knudsen, S. (2012), Implementation of the oil spill preparedness for the Goliat offshore oil field development—the first oil field development in the Barents Sea, in: International conference on health safety and environment in oil and gas exploration and production, Perth, Australia.

Bodin, O. (2017), Collaborative environmental governance: Achieving collective action in social-ecological systems, *Science*, Vol. 357 No. 6352.

Bourke, B. (2014), Positionality: Reflecting on the research process, *The Qualitative Report*, Vol. 19 No. 33.

Boyd, E., Nykvist, B., Borgstrom, S. and Stacewicz, I. (2015), Anticipatory Governance for social-ecological resilience, *Ambio,* Vol. 44 Suppl. 1, pp. 149-161.

Braun, B. and Whatmore, S. (2010), The stuff of politics: an introduction, in B. Braun and S. J. Whatmore (eds.), *Political matter: technoscience, democracy and public life*, pp. ix-xl. Minneapolis and London, University of Minnesota Press.

Bravo, M. (2006), Science for the people: northern field stations and governmentality, *The British Journal of Canadian Studies*, Vol. 19, pp. 78-102.

Braune, B., Outridge, P., Fisk, A., Muir, D., Helm, P., Hobbs, K., Hoekstra, P., Kuzyk,Z., Kwan, M., Lextcher, R., Lockhart,W., Norstrom, R., Stern, G. and Stirling, I. (2005), Persistent organic pollutants and mercury in marine biota of the Canadian Arctic: An overview of spatial and temporal trends, *Science of the Total Environment,* Vol. 4 No. 56, pp. 351–352.

Brenner, N. (1998), Between fixity and motion: space, territory and place in the social production of spatial scale, *Environment and Planning-Society and Space,* Vol. 16, pp, 448-459.

Brenner, N. (2001), The limits to scale? Methodological reflections on scalar structuration, *Progress in Human Geography*, Vol. 15 No.4, pp 525-548.

Brenner, N. (2003), Metropolitan institutional reform and the rescaling of state space in contemporary eastern Europe, *European Urban and Regional Studies*, Vol. 10 No. 4, pp. 297-324.

Briske, D., Illius, A. and Anderies, J. (2017), Nonequilibrium Ecology and Resilience Theory. In: Briske, D, ed., *Rangeland systems. Springer Series on Environmental Management*, Springer, Cham.

Brisk Shipping and Security https://www.briskshippingandsecurity.com

Buizer, M., Arts, B. and Kok, K., (2011), Governance, scale, and the environment: The importance of recognizing knowledge claims in transdisciplinary arena, *Ecology and Society*, Vol.16 No. 1, p. 21.

Bulkeley, H. (2005), Reconfiguring environmental governance: towards a politics of scales and networks, *Political Geography*, Vol. 24, pp. 875-902.

Byers, M. (2009), *Who owns the Arctic?* Douglas & Mcintyre, Vancouver.

Byers, M. (2010), Cold peace: Arctic cooperation and Canadian foreign policy, *International Journal*, Vol. 65 No. 4, pp. 899-912.

Byers, M. and Lalonde, S. (2012), Who controls the Northwest Passage, *Vanderbilt Journal of Transnational Law*, Vol. 42 No.4, pp. 1133-1206.

Caine, K., Salomons, M. and Simmons, D. (2007), Partnerships for social change in the Canadian North: Revisiting the insider–outsider dialectic, *Development and Change*, Vol. 38 No. 4, pp. 447-471.

Callicot, J. (1989), *In defense of the land ethic: Essays in environmental Philosophy*, State University of New York Press, Albany, N.Y.

Callicott, J. (1987), The conceptual foundations of the land ethic, in J. B. Callicot, (ed.), A *Companion to a Sand County Almanac*: *Interpretive and critical essays*, pp. 186-217. Madison, WI.

Callicott, J. and Frodeman, R. (eds.) (2009), *Encyclopedia of environmental ethics and Philosophy* (Vol. 1), Macmillan, Detroit, MI.

Canadian Coast Guard (2008), *Baffin Region, Nunavut Area Plan*.

Canadian Coast Guard (2015), available at https://ccga-gcac.ca.

The Canadian Encyclopedia <www.thecanadianencyclopedia.ca>

Charron, A. (2005), The Northwest Passage: Is Canada's sovereignty floating away? *International Journal*, Vol. 60 No. 3, pp. 831-848.

Chaudhury, A. (2017), Ties that bind: Local networks, communities and adaptive capacity in rural Ghana, *Journal of Rural Studies*, Vol. 53, pp. 214-228.

Chaudhury, A., Thornton, T., Helfgott, A. and Sova, C. (2017), Applying the robust adaption planning (RAP) framework to Ghana's agricultural climate change adaption, *Sustainable Science for Meeting Africa's Challenges,* Vol. 12, pp.657-676.

Choi K., Lim, M., Ha, M. and Cheong, H. (2015), Psychological vulnerability of residents of communities affected by the Hebei Spirit oil spill, *Disaster Medicine and Public Health Preparedness,* Vol.10 No.1, pp. 1-7.

Chircop, A. (2009), The growth of international shipping in the Arctic: Is a regulatory review timely?, *The International Journal of Marine and Coastal Law*, Vol. 24, pp. 355-380.

CIGC (2016), North of 60: Toward a renewed Canadian Arctic Agenda. Special Report that stemmed from Centre for International Governance round table, Revitalizing Canada's Arctic Policy, held on November 27, 2015 at Carlton University.

Clark, D. and Ford, J. (2017), Emergency response in a rapidly changing Arctic, *CMAJ-JAMC*, Vol 189 No.4, E135-E136.

Clewell, A. and Aronson, J. (2013), *Ecological restoration*, Island Press, Washington, DC.

Coen, R. (2012), *Breaking ice for Arctic oil: The epic voyage of the SS Manhattan through the Northwest Passage*, University of Alaska Press, Anchorage, AK.

Cohen, L., Manion, L. and Morrison, K. (2000), Research methods in education (5th edition), *Book Review British Journal of Educational Studies*, Vol. 48 No. 4, p. 446.

Colgan, J., Keohane, R. and Van de Graf, T. (2012), Punctuated equilibrium in the energy regime complex, *The Review of International Organizations*, Vol. 7 No. 2, pp. 117-143.

Comín F. (2020), Ecological Restoration and Ecosystem Services. In: Leal Filho W., Azul A., Brandli L., Özuyar P. and Wall T. (eds), Life on Land. Encyclopedia of the UN Sustainable Development Goals. Springer, Cham.

Connon, I. and Simpson, A. (2018), Critical geography: An introduction. In *International Relations Theory – an E-IR Foundations beginner's textbook.*

Comberti, C., Thornton, T. and Korodimou, M. (2016), Addressing indigenous peoples marginalisation at international climate negotiations: Adaption and resilience at the margins, ECI, University of Oxford.

COP10. (2010), 10th Conference of Parties of the Convention on Biological Diversity (CBD), Nagoya, Japan, 2010.

COP12. (2012), 12th Conference of Parties of the Convention on Biological Diversity (CBD), Pyeongchang, North Korea, 2012.

Cowell, R. (2003), Substitution and scalar politics; negotiating environmental compensation in Cardiff Bay, *Geoforum*, Vol 34 No. 3, pp. 343-358.

Cox, K. (1997), *Spaces of globalization. Reasserting the power of the local*, The Guilford Press, New York.

Cross, M. and Davis, K. (2013), Re-thinking epistemic communities twenty years later, *Forthcoming Review of International Studies*, Vol. 39 No.1, pp. 137-160.

Crotty, M. (1998), *The foundations of social research*, Allen and Unwin, Sydney.

Cunsolo, A. and Ellis, N. (2018), Ecological grief as a mental health response to climate change-related loss, *Nature Climate Change*, Vol. 8, pp. 275-281.

Cunsolo Willox, A., Harper, S., Edge, V., Landman, K., Houle, K., Ford, J., and the Rigolet Inuit Community Government (2013). "The Land Enriches the Soul": On environmental change, affect, and emotional health and well-being in Nunatsiavut, Canada. *Emotion, Space, and Society*, Vol. 6, pp. 14-24.

Cunsolo Willox, A., Stephenson, E., Allen, Jim., Bourque, F., Drossos, A., Elgarøy, S., Kral, M., Mauro, I., Moses, J., Pearce, T., MacDonald, J. and Wexler, L. (2014), Examining relationships between climate change and mental health in the Circumpolar North, *Regional Environmental Change*, Vol.15, pp.169–182. Published online May 2014, Harvard Libraries.

Cunsolo, A., Harper, S., Ford, J., Landman, K., Houle, K. and Edge, V. (2012), From this place and of this place: climate change, sense of place, and health in Nunatsiavut, Canada, *Social Science & Medicine*, 75, pp.538-547.

Dacks, G. (1993), Nunavut: Aboriginal self-determination through public government, Royal Commission on Aboriginal Peoples, Ottawa.

Dacks, G. (2002), Nunavut: Inuit regain control of their lands and their lives, *Canadian Journal of Political Science*, Vol. 35 No.1, pp.183-185.

Dale, A. and Armitage, D. (2011), Marine mammal co-management in Canada's Arctic: Knowledge co-production for learning and adaptive capacity, *Marine Policy*, Vol. 35 No.4, pp. 440-449.

David-Chavez, D. and Gavin, M. (2018), A global assessment of Indigenous community engagement in climate research, *Environmental Research Letters*, Vol.13, 123005.

De Goede, M., Simon, S. and Hoijtink, M. (2014), Performing pre-emption, *Security Dialogue*, Vol. 45 No. 5, pp. 411-422.

Dellink, R., Lanzi, E., Chateau, J. and Hyunjeong, H. (2017), International trade consequences of climate change, OECD Trade and Environment Working Papers, 2017/01, OECD Publishing, Paris.

Dexter, L. (1970), *Elite and specialized interviewing*, Northwestern University Press, Evanston, Illinois.

Dobbin, J., Lemay and Dobbin, N. (1983), Tallurutiup Imanga/Lancaster Sound regional study: Coastal and marine resource planning in the Canadian High Arctic, *Coastal Zone Management Journal*, Vol. 11 No. 1-2.

Dobson, A. (1995), *Green political thought*, 2nd ed., Routledge, London.

Dodds, K. and Nuttall, M., (2019), *The Arctic: What everyone needs to know*, Oxford University Press, New York.

Dorais, L. (2010), The language of the Inuit: Syntax, semantics, and society in the Arctic, McGill-Queen's Native and Northern Series Book 5.

Dowsley, M. (2009), Community clusters in wildlife and environmental management: using TEK and community involvement to improve co-management in an era of rapid environmental change, *Polar Research*, Vol. 28 No 1, pp. 43-59.

Dryzek, J., (2010), *Foundations and Frontiers of Deliberative Governance*, Oxford University Press, Oxford.

Ducharme, S. (2017), A new report proposes Inuit cross-border management for North Water Polynya, available at https://www.arctictoday.com (accessed January 2018).

Durkalec, A., Furgal, C., Skinner, M. and Sheldon, T. (2015), Climate change influences on environment as a determinant of Indigenous health; Relationships to place, sea ice, and health in an Inuit community, *Social Science & Medicine*, 136-137, pp. 17-26.

Elliot-Meisel, E. (2009), Politics, pride and precedent; The United States and Canada in the Northwest Passage, *Ocean Development & International Law*, Vol. 40 No. 2, pp. 204-232.

Emmerson, C. (2011), *The future history of the Arctic*, Vintage Books, London.

English, J. (2013), *Ice and water: Politics, peoples and the Arctic council*, Penguin Random House Canada, Toronto.

Ernst, K., and van Riemsdijk, M. (2013), Climate change scenario planning in Alaska's National Parks: stakeholder involvement in the decision-making process, *Applied Geography*, Vol. 45, December, pp. 22–28.

Evans, J. (2012), *Environmental governance*, Routledge, London and New York.

Evans, L., Hicks, C., Fidelman, P. and Tobin, R., (2013), Future scenarios as a research tool: Investigating climate change impacts, adaption options and outcomes for the Great Barrier Reef, Australia, *Human Ecology*, Vol. 41 No. 6, pp. 841-857.

Fairhall, D. (2010), *Cold front: Conflict ahead in Arctic waters*, Tauris, London.

Feintuck, M. (2005), Precautionary maybe, but what's the principle? The precautionary principle, the regulation of risk, and the public domain, *Journal of Law and Society,* Vol. 32 No. 3, pp. 371-398.

Feldman, A. (2004), Securocratic wars of public safety: Globalized policing as scopic regime, *Interventions,* Vol. 6. No. 3, pp. 330–350.

Flemming, B. (2008), Canada-US relations in the Arctic: A neighbourly proposal, available at http://www.cdfai.org/PDF/Canada.

Florini, A. (2008), International NGOs, in A. Binder, R. Rhodes, R. and B. Rockman (eds.), *The Oxford handbook of political institutions,* Oxford University Press, Oxford.

Flynn, M., Ford, J., Pearce, T. Harper, S., and IHACC Research Team (2018), Participatory scenario planning and climate change impacts, adaptation and vulnerability research in the Arctic, *Environmental Science and Policy,* Vol. 79, pp. 45-53.

Ford, J., Bolton, K., Shirley, J., Pearce, T., Tremblay, M. and Westlake, M. (2012), Mapping human dimensions of climate change research in the Canadian Arctic, *AMBIO,* Vol. 41 No. 8, pp. 808-822.

Ford, J. and Clark, D., (2019), Preparing for the impacts of climate change along Canada's Arctic coast: The importance of search and rescue, *Marine Policy,* Vol 108, 103662.

Ford, J. and Pearce, T. (2010), What we know, do not know, and need to know about climate change vulnerability in the western Canadian Arctic: A systematic literature review, *Environmental Research Letters*, Vol. 5 No. 1, p. 9.

Ford, J. and Pearce, T. (2012), Climate change vulnerability and adaptation research focusing on the Inuit subsistence sector in Canada: Directions for future research, *Canadian Geographer / Le Géographe Canadien,* Vol. 56 No. 2, pp. 275-287.

Ford, J., Smit, B. and Wandel, J. (2006), Vulnerability to climate change in the Arctic; a case study from Arctic Bay, Canada, *Global Environmental Change*, Vol. 16 No. 2, pp. 145-160.

Ford, J. and Smit, B. (2004), A framework for assessing the vulnerability of communities in the Canadian Arctic to risks associated with climate change, *Arctic,* Vol. 57, pp. 150-166.

Foucault, M. (1970), *The order of things,* Pantheon Books, New York.

Fritze, J., Blashki, G., Burke, S. and Wiseman, J. (2008), Hope, despair and transformation: climate change and the promotion of mental health and wellbeing, *International Journal of Mental Health, Systems,* Vol. 2 No. 13.

Furgal, C. (2008), Climate change health vulnerabilities in the North, in J. Seguin (ed.), *Human health in a changing climate: A Canadian assessment of vulnerabilities and adaptive capacity*, Health Canada, Ottawa.

Gardner, B. (1996), *European agriculture – policies, production and trade*, Routledge, London.

Gaventa, J. (2004), Strengthening participatory approaches to local governance: Learning the lessons from abroad, *National Civic Review*, Vol. 93 No. 4, pp. 16-27.

Gearhead, S.,Holm, L, Huntington,H., Leavitt, J., Mahoney, A., Opie, M., Oshima, T and Sanguya, J., Eds. (2013), *The meaning of ice: people and sea ice in three Arctic communities*, International Polar Institute Press, Hanover, New Hampshire.

Gearheard, S., Pocernich, M., Stewart, R., Sanguya, J. and Huntington, H. (2010), Linking Inuit knowledge and meteorological station observations to understand changing wind patterns at Clyde River, Nunavut 2010, *Climatic Change*, Vol. 100 No. 2, pp. 267-294.

Gearheard, S. and Shirley, J. (2007), Challenges in community-research relationships: learning from natural science in Nunavut, *Arctic*, Vol. 60, pp. 62–74.

Gibson, C., Ostrom, E. and Ahn, T. (2000), The concept of scale and the human dimensions of global change: A survey. *Ecological Economics*, Vol. 32 No. 2, pp. 217-239.

Gillham, B. (2005), *Research Interviewing: The Range of Techniques*, McGraw-Hill Professional Publishing, Berkshire.

GN (2014), available at https://cgs.gov.nu.ca.

GOC (2009), *Controlling Canada's Arctic waters: Report of the Standing Senate Committee on Fisheries and Oceans*, available at https://sencanada.ca/content/sen/Committee.

GOC (2010), Standing Senate Committee on National Security and Defence. *Proceedings*, No. 10, December 13.

GOC (2015), Feds commit $5M to Canadian Coast Guard Auxiliary, available at www.ccg-gcc.gc.ca/eng/CCG (accessed 12 February 2016).

GOC (2017), Oceans Protection Plan, available at https://www.canada.ca/en/transport-canada/news/2017/10/the_oceans_protectionplan (accessed 29 November 2017).

GOC (2018), Parliamentary Secretary to the Minister of Fisheries, Oceans and the Canadian Coast Guard, Sean Casey, talks whale protection and ocean intelligence in Washington, available at https://www.canada.ca/en/fisheries-oceans/news/2018 (accessed 14 December 2018).

Goeminne, G. (2012), Lost in translation: Climate denial and the return of the political, *Global Environmental Politics,* Vol.12 No. 2, pp. 108.

Goncalves, L. (2014), The role of epistemic communities in the global governance of the oceans, Conference: IMBER-Integrated Marine Biogeochemistry and Ecosystems Research, Norway.

Graczyk, P. and Koivurova, T. (2014), A new era in the Arctic Council's external relations? Broader consequences of the Nuuk observer rules for Arctic governance, *The Polar Record,* Vol. 50 No. 3, pp. 225-236.

Grant, S. (2010), *Polar imperative,* Douglas & McIntyre, Vancouver.

Grattan, L., Roberts, S., Mahan, W., McLaughlin, P., Otwell, W. and Morris, J. (2011), The early psychological impacts of the Deepwater Horizon oil spill on Florida and Alabama communities, *Environmental Health Perspectives*, Vol. 119 No. 6, pp. 838-43.

Grey, S. (2007), From text to action: Negotiating and advancing indigenous peoples Rights through the Convention on Biological Diversity, in *Selected Works of Sam Grey*, University of Victoria, available at: http://works.bepress.com/samgrey/17.

Griffiths, F. (ed). (1987), *Politics of the Northwest Passage,* McGill-Queen's University Press, Halifax.

Griffiths, F. (2008), *Canada's Arctic interests and responsibilities*, Canadian International Council, Toronto.

Gross, M. (2018), Arctic shipping threatens wildlife, *Current Biology*, Vol. 28 No. 15, pp. 803-805.

Grossman, L. (1999). Review of Third World Political Ecology by Bryant, R. and Bailey, S., *Geographical Review*, Vol. 89, No. 1, pp. 151-153

Gruby, R. and Campbell, L. (2013), Scalar politics and the region: Strategies for transcending Pacific Island smallness on a global environmental governance stage, *Environment and Planning,* Vol. 45 No. 9, pp. 2046-2063.

Haas, P. (2016), *Epistemic communities, constructivist, and international environmental politics*, Routledge, New York.

Haas, P. (1989), Do regimes matter? Epistemic communities and Mediterranean pollution control, *International Organization,* Vol. 43 No. 3, pp. 377-403.

Haas, P. (1992), Introduction: Epistemic communities and international policy coordination, *International Organization,* Vol 46 No.1, pp. 1-35.

Hall, S. (1990), *Cultural identity and diaspora,* In J Rutherford, J., ed., Lawrence & Wishart, London, pp. 222-237.

Hansen, E., Ekeberg, O., Gerland, S.,Pavlova, O., Spreen, G. and Tschudi, M., (2014), Variability in categories of Arctic sea ice in Fram Strait, *J. Geophys. Res. Oceans*, Vol. 119, pp. 7175-7189.

Hargrove, E. (1989), *Foundations of environmental ethics*, Environmental Ethics Books, Denton.

Headland, R. (2010), Ten decades of transits of the Northwest Passage, *Polar Geography*, Vol. 33 No.1-2, pp. 1-13.

Hendersen, A. (2007), *Nunavut: Rethinking political culture*, Vancouver, British Columbia.

Henri, D. (2012), Managing nature, producing cultures: Inuit participation, science and policy in wildlife governance in the Nunavut territory Canada, PhD thesis. University of Oxford, ProQuest Dissertations Publishing, U634447.

Hicklin, A. (2009), Calming the storms: Collaborative public management, hurricanes Katrina, Rita, and disaster response, in *The collaborative public manager*, Georgetown University Press, Washington, D.C.

Higginbotham, J. (2016), CIGI environmental challenges for governments in the North Chris Burn, J. Higginbotham and J. Spence (eds.).

Higginbotham, J. and Spence, J. (2016), North of 60: Toward a renewed Canadian Arctic agenda. Special report that stemmed from Centre for International Governance round table, Revitalizing Canada's Arctic Policy, held on November 27, 2015 at Carlton University.

Higginbotham, J., and Spence, J., (2019), *Special report, Canada's arctic agenda: Into the vortex*, Centre for International Governance Innovation, Waterloo, Canada.

Hind, E., Hiponia., M. and Gray., T. (2010), From community-based to centralised national management – A wrong turning point for the governance of the marine protected area in Apo Island, Philippines?, *Marine Policy*, Vol. 34, pp. 54-62.

Hossain, D. (2013), Socio-economic situation of the Indigenous People in the Chittagong Hill Tracts (CHT) of Bangladesh, *Middle East Journal of Business*, Vol. 8 No. 2, pp. 22-30.

Hossain, D. (2013), How great can a greater say be? Exploring the aspirations of Arctic indigenous peoples for a stronger engagement in decision-making. *The Polar Journal*, 3:2, pp. 316-332.

.Hourdequin, M. (2015), *Environmental ethics: From theory to practice*, Bloomsbury Academic, London.

Howitt, R. (2003), Scale, in J. Agnew, K. Mitchell, K and G. Toal (eds), *A comparison to political geography* (pp. 138-157). Blackwell, Malden, MA.

Huebert, R. (1995), Polar vision or tunnel vision: The making of Canadian Arctic waters policy, *Marine Policy*, Vol.19 No. 4, pp. 343-363.

Huebert, R. (2003), The shipping news Part II: How Canada's Arctic sovereignty is on thinning ice, *International Journal*, Vol. 58 No. 3, pp. 295–308.

Huebert, R. (2009), The need for an Arctic treaty: Growing from the United Nations Convention on the Law of the Sea, *Ocean Yearbook Online*, Vol. 23 No. 1, pp. 27-37.

Huebert, R. (2011), The future of Canadian airpower and the F-35, *Canadian Foreign Policy*, Vol. 17 No. 3, pp. 226-236.

Hughes, J. and Sharrock, W. (1997), *The Philosophy of social research*, 3rd edn, Pearson Longman, London,

Hulme, M. (2008), Geographical work at the boundaries of climate change, *Transactions of the Institute of British Geographers*, Vol. 33 No. 1, pp. 5-11.

Hulme, P. et al. (2008), Grasping at the routes of biological invasions: a framework for integrating pathways into policy, *Journal of Applied Ecology*, Vol. 45, pp. 403-414.

Hung, H. (2016), Temporal trends of persistent organic pollutants (POPs) in Arctic air: 20 years of monitoring under the Arctic Monitoring and Assessment Programme (AMAP), *Environmental Protection*, Vol. 217, pp. 52-61.

Huntington, H., Lynge, A., Stotts, J., Hartsig, A., Porta L. and Debicki C. (2012), Less ice, more talk: The benefits and burdens for Arctic communities of consultations concerning development activities, *Carbon & Climate Review: CCLR* (Berlin), Vol. 6 No. 1, pp. 33-46.

Inuit Tapiriit Kanatami (2018), National Inuit Strategy on Research, available at https://www.itk.ca/national-strategy-on-research (accessed 13 June 2018).

IPCC, 2019: Summary for Policymakers. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate [Pörtner, H., Roberts, D., Masson-Delmotte, V., Zhai, P., Tignor, M., Poloczanska, E., Mintenbeck, K., Alegría, A., Nicolai, M., Okem, A., Petzold, J., Rama, B. and Weyer, N. (eds.).

Irlbacher-Fox, S. (2014), Traditional knowledge, co-existence and co-resistance, *Decolonization: Indigeneity, Education & Society*, Vol. 3 No. 3, pp. 145-158.

ITK and NRI. (2007), *Negotiating research relationships with Inuit communities: A guide for researchers*. S. Nickels, J. Shirley and G Laidler (Eds). Inuit Tapiriit Kanatami and Nunavut Research Institute, Ottawa and Iqaluit.

ITOPF. Available at www.itopf.org (accessed 15 November 2016).

IUCN (2017), Canada's newest and largest Marine Protected Area: Tallurutiup Imanga – Lancaster Sound, available at https://www.iucn.org/search/canada (accessed 13 December 2017).

Israel, M. and Hay, I. (2006), *Research ethics for social scientists: Between ethical conduct and regulatory compliance*, Sage Publications, London.

Ivanova, M. (2011), Oil spill emergency preparedness in the Russian Arctic: A study of the Murmansk region, *Polar Research*, Vol. 30, p. 7285.

Jóhannsdóttir, L. and Cook, D. (2019), Systematic risk of maritime-related oil spills viewed from an Arctic and insurance perspective, *Ocean and Coastal Management*, Vol. 179, 104853.

Jóhannsdóttir, L., Cook, D. and Minelgaite, I. (2019), Economic, environmental and social sustainability perspectives on Iceland's expanded tourism sector, in Kinderis, R. (ed.) *Development and transformation processes in the tourism industry under the conditions of globalization*. Klaipeda State University of Applied Sciences, Lithuania.

Jones, K. (1998), Scale as epistemology, *Political Geography*, Vol 17 No.1, pp. 25-28.

Jones, J., Cunsolo, A. and Harper, S. (2018), Who is research serving? A systematic realist review of circumpolar environment-related Indigenous health literature, *PUNCLOS ONE*, Vol. 14 No. 5,

Jordon, A. (2002), The implementation of EU environmental policy: a policy problem without a political solution? In Environmental policy in the European Union: *Actors, institutions and processes*, Jordon, A. (ed.), London; 301-328.

Karkkainen, B. (2004), Post-sovereign environmental governance, *Global Environmental Politics*, Vol. 4 No. 1, pp. 72-96.

Karkkainen, B. (2006), Managing transboundary aquatic ecosystems: Lessons from the Great Lakes, *Pacific McGeorge Global Business & Development Law Journal*, Vol. 19, pp. 209-240.

Katz, C. (1992), All the world is staged: Intellectuals and the projects of ethnography, *Environment and Planning*: *Society and Space*, Vol. 10, pp. 495-510.

Katz-Rosene, R. and Paterson, M. (2018), *Thinking ecologically about the global political economy*, Routledge, London.

Keil, K. (2015), Spreading oil, spreading conflict? Institutions regulating Arctic oil and gas activities, *The International Spectator: Italian Journal of International Affairs*, Vol. 50 No. 1, pp. 85-110.

Kjaer, A. (2004), *Governance*, Polity Press, New York.

Knol, M. and Arbo, P. (2014), Oil spill response in the Arctic: Norwegian experiences and future perspectives, *Marine Policy*, Vol. 50, pp. 171-177.

Knol, M. (2011), The uncertainties of precaution: Zero discharges in the Barents Sea, *Marine Policy*, Vol. 35, pp. 399-404.

Koontz, T. (1999), Citizen participation: Conflicting interests in state and national agency policy making, *The Social Science Journal*, Vol. 36 No. 3, pp. 441–58.

Koivurova, T. (2019), *Is this the end of the Arctic Council and Arctic governance as we know it?* Polar Research & Policy Initiative (The Polar Connection), London.

Koivurova, T. (2011), The status and role of indigenous peoples in Arctic international governance, *The Yearbook of Polar Law Online*, Vol. 3 No.1, pp 169-192.

Koivurova, T., Kankaanpaa, P. and Stepien, A., (2015), Innovative environmental protection: Lessons from the Arctic, *Journal of Environmental Law*, Vol. 27 No. 2, pp. 285-311.

Koivurova, T. and Molenaar, E. (2010), International governance and regulation of the marine Arctic, World Wildlife Fund.

Kooiman, J. (1993), Social-Political Governance, in *Modem Governance: New Government—Society Interactions*, pp. 1–8. Sage, London.

Kraft, M. (2009), The Northwest Passage: Analysis of the legal status and implications of its potential use, *Journal of Maritime Law and Commerce*, No. 4.

Kraska, J. (2007), The Law of the Sea Convention and the Northwest Passage, *International Journal of Marine and Coastal Law*, Vol. 22 No. 2, p. 257.

Kulchyski, P. (1995), Aboriginal peoples and hegemony in Canada, *Journal of Canadian Studies*, Vol. 30 No.1, pp. 60-68.

Kutting, G. (2014), Consumption: Institutions and actors, in *Routledge handbook of global environmental politics*, Routledge, Oxford.

Kutting, G. (ed.) (2009), *Environmental governance: Power and knowledge in a local-global world*, Routledge, London.

Kutting, G. (2000), *Environment, society and international relations: Towards more effective international environmental agreements*, Routledge, New York.

Kutting, G. and Lipschutz, R. Eds. (2009), Environmental governance – Power and knowledge in a local-global world. Routledge (Taylor and Francis Group), London.

Lalonde, S. (2013), The Arctic exception and the IMO's PSSA mechanism: Assessing their value as sources of protection for the Northwest Passage, *The International Journal of Marine and Coastal Law*, Vol. 28, pp. 401-432.

Lalonde, S. and McDorman, T. (eds.) (2015), *International law and politics of the Arctic Ocean: Essays in honor of Donat Pharand*, Koninklijke, Leiden, The Netherlands.

Lasserre, F. and Pelletier, S. (2011), Polar super seaways? Maritime transport in the Arctic: and analysis of ship-owners intentions, *Journal of Transport Geography*, Vol. 19, pp. 1465-1473.

Leech, N. and Onwuegbuzie, A. (2008), Qualitative data analysis: A compendium of techniques and a framework for selection for school psychology research and beyond, *School Psychology Quarterly*, Vol. 23 No.4, pp. 587-604.

Leitner, H. and Miller, B. (2007), Scale and the limitations of ontological debate: A commentary on Marston, Jones and Woodward, *Transactions of the Institute of British Geographers*, Vol 32, pp. 116-125.

Lemos, M. and Agrawal, A. (2006), Environmental governance, *Annual Review of Environment and Resources,* Vol. 31, pp. 297-325.

Leopold, A. (1949), *A Sand County Almanac*, Oxford University Press, New York.

Leschine, T. (2002), Oil spills and the social amplification and attenuation of risk, *Spill Science & Technology Bulletin,* Vol. 7 No. 1–2, pp. 63-73.

Lievens, M. and Kenis, A. (2018), Social constructivist and beyond. On the bind between politics and science, *Ethics, Policy & Environment*, Vol.21:1, pp.81-95.

Light, A. and Katz, E. (eds.) (1996), *Environmental pragmatism environmental philosophies*, Routledge, New York.

Linyan, H., Lasserre, F. and Alexeev, A. (2015), Is China's interest for the Arctic driven by Arctic shipping Lopez potential?, *Asian Geographer,* Vol. 32 No. 1, pp. 59-71.

Lobel, O. (2012), New governance as regulatory governance, Legal studies research paper series: Research Paper No.12-101, University of San Diego, School of Law.

Loblova, O. (2018), Epistemic communities and experts in health-policy making, *European Journal of Public Health,* Vol. 28 No, 3, pp. 7-10.

Lockhart, A. (1982), The insider–outsider dialectic in native socio-economic development: A case study in process understanding, *Canadian Journal of Native Studies*, Vol. 2 No.1, pp. 159–68.

Lopez, B. (1986), *Arctic dreams,* Open Road, New York.

Loukacheva, N. (2007), *The Arctic promise: Legal and political autonomy of Greenland and Nunavut,* University of Toronto Press, Toronto.

Loukacheva, N. (2014), Inuit perspectives as Arctic Ocean governance: The case of Nunavut, *Ocean Yearbook Online*, Vol. 28 No. 1, pp. 348-379.

Lu ,D., Park, G-K., Choi, K. and Oh, S, (2014), An economic analysis of container shipping through the Canadian Northwest Passage, *International Journal of e-Navigation and Maritime Economy*, Vol. 1, pp. 60-72.

Lubell, M., Feiock, R. and Ramirez, E. (2005), Political institutions and conservation by local governments, *Urban Affairs Review*, Vol. 40 No.6, pp. 706-729.

MacKinnon, D. (2010) Reconstructing scale: Towards a new scalar politics, *Progress in Human Geography,* Vol. 35 No. 1, pp. 21-36.

Maggetti, M. and Trein, P. (2019), Multilevel governance and problem-solving: Towards a dynamic theory of multi-level policymaking?, *Public Administration*, Vol 97 No. 2, pp. 355-369.

Mahony, M. and Hulme, M. (2016), Epistemic geographies of climate change: science, space and politics, *Progress in Human Geography*, Vol. 42 No. 3, pp. 395-424.

Mak, J. (2008), Taxing cruise tourism: Alaska's head tax on cruise ship passengers, *Tourism Economics*, Vol. 14 No. 3, pp. 599-614.

Mabon, L., Shih, W., Kondo, K., Kanekiyo, H. and Hayabuchi, Y. (2019), What is the role of epistemic communities in shaping local environmental policy? Managing environmental change through planning and greenspace in Fukuoka City, Japan, *Geoforum*, Vol. 104, August, pp.158-169.

Manson, S. (2008), Does scale exist? An epistemological scale continuum for complex human–environment systems, *Geoforum*, Vol. 39 No. 2, pp. 776-788.

Marston, S., Jones, J. and Woodward, K. (2005), Human geography without scale, *Transactions of the Institute of British Geographers*, Vol. 30, pp. 416-432.

March, J., and Olsen, P. (1998), The institutional dynamics of international political orders, *International Organization,* Vol. 52 No. 4, pp. 943–969.

Marks, G. (1993), Structural policy and multilevel governance in the EC. In Cafruny, A. and Rosenthal, G., eds., *The State of the European Community* (vol. 2), Longman, Harlow.

Matilsky, B, (2013), *Vanishing ice: Alpine and polar landscapes*, University of Washington Press, Seattle.

Mattiuzzi, E. and Chappie, K. (2020), Epistemic Communities in Unlikely Regions: The Role of Multi-level Governance in Fostering Regionalism, *Journal of Planning Education and Research, Research Article,* https://doi.org/10.1177/0739456X20937287

Mayntz, R. (2006), From government to governance; political steering in modern societies. In D. Scheer and F. Rubik, eds., *Governance of integrated product policy: in search of sustainable production and consumption*. Greenleaf, Sheffield, pp. 18-25.

McElroy, A. (1994), *Animal rights, human rights: Ecology, economy and ideology in the Canadian Arctic*, George Wenzel (Book Review), *Reviews in Anthropology*, Vol. 23 No. 3, p. 167.

McMaster, R. and Sheppard, E. (2008), Introduction: Scale and geographic inquiry, in E. Sheppard and R. B. McMaster (eds), *Scale and Geographic Inquiry*, Blackwell Publishing Ltd, Oxford.

McNutt, M. (2013), Climate change impacts, *Science*, Vol. 341, pp. 435.

Meadowcroft, J. (2002), Politics and scale: Some implications for environmental governance, *Landscape and Urban Planning*, Vol 61 No. 2-4, pp. 169-179.

Meek, C. (2011), Adaptive governance and the human dimensions of marine mammal management: implications for policy in a changing North, *Marine Policy*, Vol. 35 No. 4, pp. 466-476.

Mendenhall, E, (2016), The discursive construction of the new Arctic in the social ecology of the Anthropocene: Continuity and change in global environmental politics, *The WSPC Reference on Natural Resources and Environmental Policy in the Era of Global Change*, pp. 61-76.

Meng, Q., Zhang, Y. and Xu, M. (2017), Viability of transarctic shipping routes: A literature review from the navigational and commercial perspectives, *Maritime Policy & Management*, Vol. 44, No. 1, pp. 16-41.

Mgonja, J., Backman, K., Sirima, A. and Backman, S. (2015), Cultural community-based tourism in Tanzania: Lessons learned and way forward, *Development Southern Africa*, Vol. 32 No.3, pp. 371-391.

Mittelstadt, B., Stahl, B. and Fairweather, N., (2015) How to shape a better future? Epistemic difficulties for ethical assessment and anticipatory governance of emerging technologies, *Ethical Theory and Moral Practice*, Vol. 18, pp. 1027-1047.

Mohan, G. (1999), Not so distant, not so strange: The personal and the political in participatory research, *Ethics, Place and Environment*, Vol. 2 No. 1, pp. 41-54.

Molenaar, E. (2014), Options for regional regulations of merchant shipping outside IMO, with particular reference to the Arctic region, *Ocean Development and International Law*, Vol. 45 No. 3, pp. 272-298.

Morgan, D. (1997), *Focus groups as qualitative research*, Sage, London.

Morrison, T. (2017), Evolving polycentric governance of the Great Barrier Reef, *Proceedings of National Academy of Science*, Vol. 114 No. 15, pp. E3013–E3021

Moynihan, D. (2009), The network governance of crisis response: Case studies of Incident Command Systems, *Journal of Public Administration Research and Theory*, Vol. 19 No. 4, pp. 895-915.

Müller-Mahn, D. and Everts, J. (eds.) (2013), *The spatial dimension of risk: How geography shapes the emergence of riskscapes*, Earthscan, Abingdon.

Nansen, F. (1897), *Farthest North*, George Newnes, London.

National Post (2018), Declaring itself a near-Arctic state, China to build a 'Polar silk Road' off Canada's north, 30 January, *National Post*, Toronto.

Neisser and Runkel. (2017), The future is now! Extrapolated riskscapes, anticipatory action and the management of potential emergencies, *Geoforum,* Vol. 82, pp. 170-179.

New World Encyclopedia <www.newworldencyclopedia.org/entry/Dialectic>

Newig, J. and Fritsch, O. (2009), Environmental G: Participatory, multi-Level – and effective?, *Environmental Policy and Governance,* Vol. 19, pp. 197-214.

Newman, D., Biddulph, M. and Binnion, L. (2014), Arctic energy development and best practices on consultation with indigenous peoples, *Boston University International Law Journal*, Vol. 32 No. 2, pp. 449-508.

Nickels, S., Shirkely, J. and Laidler, G. (2007), *Negotiating research relationships with Inuit communities: A guide for researchers*, Inuit Tapiriit Kanatami and Nunavut Research Institute: Ottawa and Iqaluit.

Nicol, H. (2018), Rescaling borders of investment: The Arctic Council and the economic development policies, *Journal of Borderlands Studies*, Vol 33 No. 2, pp. 225-238.

Nilsen, E. (2004), Emergent paradigms and experiential perspectives: Towards place-responsive planning in Nunavut, PhD thesis, ProQuest Dissertations Publishing ProQuest Dissertations and Theses.

Nilsson, A. and Koivurova, T. (2016), Transformational change and regime shifts in the circumpolar Arctic, *Arctic Review on Law and Politics,* Vol. 7 No. 2, pp. 1-17.

NOAA Activities in the Arctic, available at https://response.restoration.noaa.gov (accessed April 2018).

Nord, D. (2010), The shape of the table, the shape of the Arctic, *International Journal: Canada's Journal of Global Policy Analysis,* Vol. 65 No.4, pp. 825-836.

Nunavut Planning Commission (NPC). (2000), *North Baffin Regional land use plan*, NPC Publications, Nunavut.

Nunavut Marine Council. (2018), NMC Strategic Plan 2018-2023, Prepared by Stratos on behalf of the Nunavut Marine Council, available at www.stratos-sts.com.

Nunatsiaq News. (2017), Canada's unprepared for fuel oil spills from Arctic shipping, available at https://nunatsiaq.com/stories/article/65674canadas_unprepared_for_oil_spills_from_arctic_shipping (accessed January 2018).

O'Neil, J., Holland, A. and Light, A. (2008), *Environmental values*, Routledge, London.

Onwuegbuzie, A., Houston, S., Leech, N. and Collins., K (2012), Qualitative analysis techniques for the review of the literature, *The Qualitative Report*, Vol. 17 No. 56, pp. 1-28.

Organization for Economic Co-operation and Development (OECD). (2006). *Cost-Benefit Analysis and the Environment Recent Developments.* ISBN 92-64-01004-1

Osofsky, H., Osofsky, J. and Hansel, T. (2012), Mental health perspectives following the Gulf oil spill, *Psychiatry*, Vol. 75 No. 3, pp. 233-235.

Ostrom, E. (2010), Polycentric systems for coping with collective action and global environmental change, *Global Environmental Change*, Vol. 20 No. 4, pp. 550-557.

Ostreng, W., Eger, K., Floistad, B., Jogensen-Dahl, A., Lothe, L. and Mejlnder-Larsen, M. (2013), *Shipping in Arctic waters; A comparison of Northeast Passage, Northwest Passage and Trans-Polar Passages*, Springer Praxis Books, Heidelberg.

Oteros-Rozas, E., Martin-Lopez, B., Daw, T., Bohensky, E., Butler, J., Hill, R., Martin-Ortega, J., Quinlan,A., Ravera,F., Ruiz-Mallen, I.,Thyresson, M., Mistry, J., Palomo, I., Peterson, G., Plieninger, T., Waylen,K., Beach, D.,Bohnet, I., Hamann, M., Hanspach,J., Hubacek, K, Lavorel, S. and Vilardy, D. (2015), Participatory scenario planning in place-based social-ecological research: insights and experiences from 23 case studies, *Ecology and Society*, Vol. 20 No. 4,

Overland, J. (2010), Hot Arctic—cold continents: Global impacts of Arctic change, *International Polar Year Oslo Science Conference*, Oslo, Norway, 8–12 June.

Padt, F., & Arts, B. (2014), The concept of scale. In F. J. G. Padt, P. Opdam, N. Polman and C. Termeer, eds., *Scale-sensitive Governance of the Environment,* Oxford: John Wiley & Sons, pp. 1-16.

Page L. and Howard L. (2010), The impact of climate change on mental health (but will mental health be discussed at Copenhagen?), *Psychological Medicine*, Vol 40, pp. 177-180.

Palinkas L. (2012), A conceptual framework for understanding the mental health impacts of oil spills: Lessons from the Exxon Valdez oil spill, *Psychiatry*, Vol. 75 No. 3, pp. 203-222.

Palinkas L., Petterson, J. and Russell, J. (1993), Community patterns of psychiatric disorders after the Exxon Valdez oil spill, *American Journal of Psychiatry*, Vol. 150 No. 10, pp. 1517-1523.

Parker, K. and Wiens, J. (2005), Assessing recovery following environmental accidents: Environmental variation, ecological assumptions, and strategies, *Ecological Applications*, Vol. 15 No. 6, pp. 2037-2051.

Parkey, J. (2012), Assessing institutional alternatives for future Northwest Passage governance, *American Review of Canadian Studies*, Vol. 42 No. 2, pp. 171-194.

Parks Canada. (2010), *Feasibility assessment for the proposed Tallurutiup Imanga/Lancaster Sound National Marine Conservation Area*, Parks Canada Publications, Ottawa.

Parks Canada. (2017), Tallurutiup Imanga/Lancaster Sound National Marine Conservation Area, available from https://www.pc.gc.ca (accessed 10 December 2017).

Patterson, J., Schulz, K., Vervoot, J., van Der Hel, S., Widerberg, O., Adler, C., Hurlbert, M., Anderton, K., Sethi, M. and Barau, A. (2017), Exploring the governance and politics of transformations towards sustainability, *Environmental Innovation and Societal Transitions*, Vol.24, pp. 1-16.

Pearce, T., Smit, B., Duerden, F., Ford, J., Goose, A. and Kataoyak, F. (2009), Inuit vulnerability and adaptive adaptive capacity to climate change in Ulukhaktok, Northwest Territories, Canada, *Polar Record*, Vol.45, pp.1-27.

Pedersen, T. (2012), Debates over the role of the Arctic Council, *Ocean Development & International Law*, Vol. 43, pp.146-156.

Pelaudeix, C. (2012), Inuit governance in a changing environment: A scientific or a political project?, in Pelaudeix C., Faure A., Griffiths R. What holds The Arctic Together?, L'Harmattan, pp.67-83, 2012, Logiques Politiques.

Pellizzoni, L. (2003), Uncertainty and participatory democracy, *Environmental Values*, Vol. 12 No.2, pp. 195-224.

Peterson, W. and Schwing, F. (2003), A new climate regime in northeast Pacific ecosystems, *Geophysical Research Letters*, Vol. 30 No. 17, pp. 6.1-6.4.

Petkov, M. and Kaoullas, L. (2015), Overcoming respondent resistance at elite interviews using an intermediary, *Qualitative Research*, Vol. 16 No. 4, pp. 411–429.

Pettigrew, A. (1997), What is a processual analysis?, *Scandinavian Journal of Management*, Vol. 13 No. 4, pp. 337-348.

Pew Charitable Trusts. (2011), From the North Water Polynya to Lancaster Sound, available at http://www.pewtrusts.org (accessed 12 October 2018).

Pharand, D. (1988), *Canada's Arctic waters in international law*, Cambridge University Press, Cambridge.

Pharand, D. (2007), The Arctic waters and the Northwest Passage: A final revisit, *Ocean Development & International Law*, Vol. 38 No. 1-2, pp. 3-69.

Pietri, D., Soule I. V, A., Kershner, J., Soles. P. and Sullivan, M. (2008), The Arctic Shipping and Environmental Management Agreement; A regime for marine pollution, *Coastal Management*, Vol. 36 No. 5, pp. 508-523.

Powell, R. (2007), The rigours of an Arctic experiment: The Precarious Authority of Field Practices in the Canadian High Arctic, 1958–1970, *Environment and Planning*, Vol. 39 No. 8, pp.1794-1811.

Powell, R. (2011), From the northern dimension to Arctic strategies? The European Union's envisioning of the high Latitudes, in L. Bialasiewicz (ed.), *Europe in the World: EU Geopolitics and the Making of European Space,* Ashgate, Farnham.

Powell, R. and Dodds, K. (2014), *Polar Geopolitics?*, Edward Elgar Publishing, Cheltenham.

Pressman, J. and Wildavsky, A. (1984), *Implementation*, University of California Press, Berkeley.

Prno, J., Bradshaw, B., Wandel, J., Pearce, T., Smit, B. and Tozer, L (2011), Community vulnerability to climate change in the context of other exposure-sensitivities in Kugluktuk, Nunavut, *Polar Research*, Vol. 30 No.1, pp. 7363.

Radaelli, C. (1996), Evaluation strategies and analysis of the policy process, *Evaluation*, Vol. 2 No.1, pp. 51–66.

Rakotoson, L. and Tanner, K. (2006), Community-based governance of coastal zone and marine resources in Madagascar, *Ocean & Coastal Management*, Vol. 49, pp. 855-872.

Ramirez, R., Mukherjee, M., Vezzoli, S. and Kramer, A. (2015), Scenarios as a scholarly methodology to produce interesting research, *Futures*, Vol. 71, pp. 70-87.

Ran, B. and Qi, H. (2018), Contingences of power sharing in collaborative governance, *American Review of Public Administration*, Vol. 48 No.8, pp. 836-851.

Rangan H., and Kull., C., (2009), What makes ecology 'political'? Rethinking 'scale' in political ecology. *Progress in Human Geography*, Vol. 33 No. 1, pp. 28-45.

Ravera, F., Hubacek, K., Reed, M. and Tarrason, D. (2011), Learning from experiences in adaptive action research: A critical comparison of two case studies applying participatory scenario development and modelling approaches, *Environmental Policy and Governance,* Vol. 21 No. 6, pp. 433-453.

Reed, M. and Bruyneel, S. (2010), Rescaling environmental governance, rethinking the state: A three-dimensional review, *Progress in Human Geography*, Vol. 34 No. 5, pp. 646-653.

Rhodes, R. (1996), The new governance: Governing without government, *Political Studies*, Vol. 44 No. 4, pp. 652-667.

Rijke, J., Brown, R., Zevenbergen, C., Ashley, R., Farrelly, M., Morison, P. and van Herk, S. (2012), Fit-for-purpose governance: A framework to make adaptive governance operational, *Environmental Science & Policy*, Vol. 22, pp. 73-84.

Rittell, H. and Webber, M. (1973), Dilemmas in a General Theory of Planning, *Policy Sciences*, Vol. 4, pp. 155-169.

Roach, A. and Smith, R. (2012), *Excessive maritime claims,* Martinus Nijhoff Publishers, Leiden.

Rodon, T., (2014), "Working together": The dynamics of multilevel governance in Nunavut, *Arctic Review on Law and Politics*, Vol. 5 No 2, pp. 250-270.

Roe, E., (2019), Licking the sharp edge of the sword, *Journal of Contingencies and Crisis Management,* Vol. 27, pp. 87-93.

Rolston, H. (1986), *Philosophy gone wild: (Essays in environmental ethics*), Prometheus Books, New York.

Rose, N. (1999), *Powers of freedom: Reframing political thought,* Cambridge University Press, Cambridge.

Ross, S. (2011), *Spill response gap study for the Canadian Beaufort Sea and the Canadian Davis Strait,* available at https://docs.neb-one.gc.ca

Rossi, C. (2015), The club within the club: The challenge of a soft law framework in a global Arctic context, *The Polar Journal,* Vol. 5 No. 1, pp. 8-34.

Rothwell, D. (1996), *The polar regions and the development of international law*, Cambridge University Press, Cambridge.

Rothwell, D. (2013), *Law of the Sea*, Edward Elgar, Cheltenham.

Rothwell, D. and Stephens, T. (2010), *The international law of the sea,* Hart Publishing, Oxford.

Routley, R. (1973), *Is there a need for a new, an environmental, ethic?* In Fifteenth World Congress of Philosopy, Varna, Bulgaria, Sofia: Publishing House of the Bulgarian Academy of Sciences.

Ruggie, J. (1998), What makes the world hang together? Neo-utilitarianism and the social constructivist challenge, International Organization at Fifty: Exploration and Contestation in the Study of World Politics, Vol. 52 No. 4, pp. 855-885.

Sarkki, S. (2017), Social equity in governance of ecosystem services: Synthesis from European treeline areas, *Climate Research,* Vol. 73 No. 1-2, pp. 31-44.

Schiffer, K. and Schatz, E. (2008) Marginalisation, social inclusion and health; experiences based on the work of Correlation - European Network Social Inclusion & Health. Amsterdam: Foundation Regenboog AMOC.

Shadian, J. (2010), From states to polities: Reconceptualizing sovereignty through Inuit governance, *European Journal of International Relations*, Vol. 16 No. 3, pp. 485-510.

Shahrokh, T. and Wheeler, J. (2014), Agency and citizenship in a context of gender-based violence, *IDS Evidence Report*, Vol. 73, Brighton: IDS.

Sheppard, E. and McMasters, R. (2004), *Scale and geographic inquiry: Nature, society and method*, Blackwell Publishing Ltd, Oxford.

Shipping Federation of Canada (SFO). (2014), *Panel review phase II: Arctic ship-source spills, submitted to Transport Canada Tanker Safety Expert Panel*, SFO Publications, Montreal.

Simmerl, G. (2011), *A critical constructivist perspective on global multi-level governance. Discursive struggles among multiple actors in a globalized political space*, Unpublished Manuscript, Berlin: Freie Universität Berlin.

Simon, M. (2009), Inuit and the Canadian Arctic: Sovereignty begins at home, *Journal of Canadian Studies*, Vol. 43 No. 3, pp. 250-260.

Simon, M. (2011), Canadian Inuit: Where we have been and where we are going, *International Journal*, Vol. 66 No. 4, pp. 879–891.

Singh., A., Asmath, H., Chee, C. and Darsan, J. (2015), Potential oil spill risk from shipping and the implications for management in the Caribbean Sea, *Marine Pollution Bulletin*, Vol. 93, pp. 217-227.

Smith, N. (2000), The restructuring of spatial scale and the new global geography of uneven development, *Japanese Journal of Human Geography*, Vol. 52 No.1, pp. 51-66.

Stefansson, V. (1921), *The friendly Arctic*, Macmillan, New York.

Steinberg, P. (2014), Steering between Scylla and Charybdis: The Northwest Passage as territorial sea, *Oceans Development & International Law*, Vol. 45 No.1, pp. 84-106.

Steinberg, P. and Dodds, K. (2015), The Arctic Council after Kiruna, *Polar Record*, Vol. 51 No. 1, pp. 108-110.

Stephenson, S., Wang, W., Zender, C., Wang, H., Davis, S. and Rasch, P. (2018), Climatic responses to future trans-Arctic shipping, *Geophysical Research Letters*, Vol. 45 No. 18, pp. 9898-9908.

Stokke, O. S. (2014), Asian stakes and Arctic governance, *Strategic Analysis*, Vol. 38 No.6, pp. 770-783.

Stokke, O. S. (2013), Regime interplay in Arctic shipping governance; explaining regional niche selection, *International Environmental Agreements, Politics, Law and Economics*, Vol. 13 No. 1, pp. 65-85.

Stokke, O. S. (2009), Protecting the Arctic environment: The interplay of global and regional regimes, *The Yearbook of Polar Law Online*, Vol.1 No.1, pp.349-369.

Stokke, O. S. (2004), Trade measures and climate compliance: Institutional interplay between WTO and the Marrakesh Accords, *International Environmental Agreements*, Vol. 4 No 4, pp. 339-357.

Stubbs, P. (2005), Stretching concepts too far? Multi-level governance policy transfer and the politics of scale in Southeast Europe, *Southeast European Politics*, Vol. 92, pp. 66-87.

Swyngedouw, E. (2000), Authoritarian governance, power and politics of rescaling, *Environmental Planning D: Society and Space*, Vol. 18, pp. 63-76.

Swim. J., Stern, P., Doherty, T., Clayton, S., Reser, J., Weber, E., Gifford, R. and Howard, G. (2011), Psychology's contributions to understanding and addressing global climate change, *American Psychology*, Vol. 66 No. 4, pp, 241–250.

Termeer, C. (2015), Governance capabilities for dealing wisely with wicked problems, *Administration & Society*, Vol 47 No. 6, pp. 680-710.

Thornton, T. and Comberti, C. (2017), Synergies and trade-offs between adaptation, mitigation and development, *Climate Change*, Vol. 140 No. 1, pp 5-18.

Tjosvold, D. and Field, R. (1983), Effects of social context on consensus and majority vote decision making, *Academy of Management Journal*, Vol. 26, pp. 500-506.

Toke, D. (1999), Epistemic communities and environmental groups, *Politics*, Vol. 19 No. 2, pp. 97–102.

Torfing, J., Peters, G., Pierre, J. and Sorensen, E. (2012), *Interactive governance advancing the paradigm*, Oxford University Press, Oxford.

Transport Canada. (2014), *Transport Canada panel's phase II report: A review of Canada's ship-source spill preparedness and response: Setting the course for the future, Phase II – Requirements for the Arctic and for Hazardous and Noxious Substances Nationally*, available at https://www.tc.gc.ca/eng/tankersafetyexpertpanel.

UK Essays. (2018), The ontology and epistemology psychology essay, available from https://www.ukessays.com/essays/psychology/the-ontology-and-epistemology-psychology.

University of Guelph. (2005), Vulnerability in the Canadian Arctic: ArcticNet 4.2, University of Guelph, Ryerson University, University of Toronto.

Van Lieshout, M., Dewulf, A., Aarts, N. and Termeer, K. (2014a), The power to frame the scale? Analysing scalar politics over, in and of a deliberative governance process, *Journal of Environmental Policy & Planning*, Vol. 19, pp. 550-573.

Van Lieshout, M., Termeer, K., Aarts, N. and Dewulf A. (2014b), Framing scales and scaling frames: The politics of scale and its implications for the governance of

the Dutch intensive agriculture, Wageningen University, Public Administration and Policy Strategic Communication.

Vermaire, J., Pisaric, M., Thienpont, J., Courtney, M., Colin, J., Kokelj, S. and Smol, J. (2013), Arctic climate warming and sea ice declines lead to increased storm surge activity, *Geophysical Research Letters*, Vol. 40 No. 7, pp. 1386-1390.

Wapner, P. (1996), *Environmental activism and world civic politics*, State University of New York Press, Albany.

Waters, E. and Barnett, J. (2018), Spatial imaginaries of adaptive governance: A public perspective, *Environment and Planning C: Politics and Space*, Vol. 36 No. 4, pp. 708-725.

Washington State Department of Ecology (WDOE). Available at www.ecy.wa.gov/contact.

Weick, K. (1984), Small wins: Redefining the scale of social problems, *American Psychologist*, Vol. 39 No. 1, pp. 44-49.

Wendt, A. (1999), *Social theory of international politics*, Cambridge University Press, Cambridge.

Westley, F. and Antadze, N. (2010), Making a difference: strategies for scaling social innovation for greater impact, *Innovation Journal*, Vol. 15 No. 2, pp. 2-18.

Wexler, L. and Gone, J. (2012), Examining cultural incongruities in Western and Indigenous suicide prevention to develop responsive programming, *American Journal of Public Health*, Vol. 102 No. 5, pp. 800–806.

Wexler, L. and Graves, K. (2008), The importance of culturally-responsive training for building a behavioral health workforce in Alaska Native villages: a case study from Northwest Alaska, *Journal of Rural Mental Health*, Vol. 32 No. 3, pp. 22-33.

White, G. (2009), Governance in Nunavut: Capacity vs culture?, *Journal of Canadian Studies*, Vol. 43 No. 2, pp. 57-81.

Whiteside K. (2006), *Precautionary politics: principle and practice in confronting environmental risk*, MIT Press, Cambridge.

Wingrove, J. (2000), Lancaster Sound: A seismic victory for the Inuit, *Globe and Mail* 13 August, available at http://www.theglobeandmail/com/politics/lancaster-sound-a seismic-victory-for-the-inuit (accessed 14 August 2018).

Witter, R. (2015), Moments of influence in global environmental governance, *Environmental Politics*, Vol 24 No. 6, pp. 894-912.

WWF-Canada. (2014), Modeling oil spills in the Beaufort Sea: Exploring the risk: What would happen if oil spills in the Beaufort Sea?, available at

http://awsassets.wwf.ca/downloads/wwf_beaufort_sea_oil_spill_modelling_summary_report (accessed 8 July 2016).

World Wildlife Fund – Canada. (2016), Oil spill modeling report, June 2016, available https://arcticwwf.org/site/assets/files/2002/baffinbay_lancsound_modeling_report accessed 8 July 2016)

World Wildlife Fund – Canada. (2017), Oil spill response capacity in Nunavut and the Beaufort Sea, available at http://awsassets.wwf.ca/oilspillresponsecapacitynunavut (accessed December 2017).

Young, O. (1987), Arctic waters; The politics of regime formation, *Ocean Development & International Law*, Vol. 18 No. 1, pp. 101-110.

Young, O. (2000), The behavioral effects of environmental regimes: Collective-action vs. social-practice models, *International Environmental Agreements,* Vol. 1 No.1, pp. 9-29

Young, O. (2002), *The institutional dimensions of environmental change: Fit, interplay, and scale*, MIT Press, Cambridge, MA.

Young, O. (2009), Whither the Arctic? Conflict or cooperation in the circumpolar north, *Polar Record,* Vol. 45 No. 323, pp.73-82.

Young, O. (2010), *Institutional dynamics: Emergent patterns in international environmental governance*, MIT Press, Cambridge, MA.

Young, O. (2011), If an Arctic Ocean treaty is not the solution, what is the alternative?, *Polar Record,* Vol. 47 No. 4, pp.327-334.

Young, O. (2012), Arctic tipping points: Governance in turbulent times, *AMBIO*, Vol 41, pp. 75-84.

Young, O. (2017), *Governing complex systems, social capital for the anthropocene*, MIT Press, Cambridge, MA.

Young, O. and Underdal, A. (1997), *Institutional dimensions of global change*. IHDP Scoping Report, International Human Dimensions Programme of Global Environmental Change (IHDP), Bonn, Germany.

APPENDIX 1

RESEARCH SUMMARY IN INUKTITUT

Prepared in July 2016 by Kevin G. Rattue (University of Oxford – School of Geography and the Environment). This document is provided as part of a Scientific Research Licence Application with Nunavut Research Institute.

ᐊᓐᑭᑐᑎ ᑕᑕᑎᓇᐊᓕᓂᑐ ᐃᓕᐅᓂᐊᕐᓗᓂ ᐊᐱᖅᓯᑕᐅᔪᓂᑦ ᐊᓗᒪ ᐅᖅᓴᒪᑕᑯᑐᑐᓂᑦ

ᐱᓕᓇᐊᖏᑎᐅᑦ ᐊᑎᖓᒐ:

ᐋᖁᑯᓯᐃᓭᓕᓂᐊᕐᕕᒃ ᓴᓐᓂᖅᓴᒪᔨᑎᓂᒃ ᐋᓗᒪ ᑐᐊᕕᖅᑐᑐᓂᖅᓴᓂᒃ ᖃᓄᖅ ᓯᓕᒻᒥᐅᑦ ᐊᐅᓚᑦᑎᓂᒃ ᐊᑐᖅᑐᖅᑕᐅᓂᒃ ᐊᑐᖅᑐᖅᑕᐅᓂᒃ ᐊᑐᖅᑐᖅᑕᐅ

ᖃᐅᔨᓴᖅᑎ:

ᐊᑎᖓ: ᑭᐊᕕᓵ ᔨ. ᕿᑐ **ᐃᓄᐃᕕᖓ:** ᐋᓵ 27, 1959

ᑕᑦᑭᑎᖓ: St Edmund Hall, Queens Lane, Oxford, England, UK OX1 4AR.

ᐊᖏᑦᕿᖓ: 10 Circus Street, Oxford. ᐅᖃᓕᐅᑎ: 07341 776334

ᐃᓕᓴᓂᐊᕕᓚᐅᑦ ᐱᓕᓇᕕᖓ: ᐋᓂᒃᓴᓕᒋᑦ - ᐃᓕᓴᓂᐊᕐᕕᒃ ᓄᓇᓕᓇᓂᕐᒧᑦ ᐊᒻᒪ ᐊᕿᑎᓕᓇᓂᕐᒧᑦ.

ᐊᓯᖏᑦ ᐅᕙᒍᐋᓴᓐᖑᑦ: ᐱᑕᖃᖏᑦᑕᑐ

ᑕᓵᒃᓴᑦ:

ᖁᓕᓴᓇᒥᒃ ᐃᓕᐅᔪᒪᑲᓪᓚᑦ ᖃᐅᔨᓴᑕᑎᑦᓴᓴᓂᓄᑦ. ᐃᓕᒪᓇᕐᓗᐊᖅᓄᓂᑦ ᑕᐊᕕᓴᓇᖅᑕᓕᕆᓂᖅᑕᖃᖅᑲᓐᖁᓕᓄᑕᐅᓂᓗᓂᑦ ᑕᓇᐅᖅᓱᐃᑦ, ᑭᓯᐊᓂᓕ ᐅᓴᐱᓴᑕᑎᐅᓴᖅ ᐅᓇ ᖃᐅᔨᓴᕐᓂᐅᔪᖅ <ᖁᓇᓴᒪᓂᒧᑦᔨᖏᓇᓯᓂᖏᓂᑦ.

- ᑕᑯᔪᓇᑎᑦ ᐅᐸᔪᑎᓯᒪᑎᐊᖁᓪᓚᖏᓚ ᐊᐱᖁᓯᑕᒪᓪᓚᖏᓚ ᐊᐱᖁᑯᑎᓴᖏᓂᑦ. ᖃᐅᔨᒪᓂᐊᖅᐳᑎᑦ ᐅᓇ ᐃᓕᐅᓂᓚᕆᐃᑦ ᐱᓕᓐᓂᖁᖏᓚᑦ ᐊᑎᒪ/ᐅᖃᓇᓴᓐᓂᑦ ᐱᓕᓚᖅᑎᐃᑦ ᖁᖅᑭᖅᑎᑕᐅᓇᕐᖓᑕᑐᑦ. ᐅᖃᐅᔨᓯᓚᖅᑎᑦ ᐊᒻᒪ ᐅᖃᐅᔨᓯᓚᐅᑕᐅᓂᑦ ᓄᐊᑕᐅᔨᒪᓂᐊᖅᑐᓂᑦ ᒪᑐᐅᖃᓚᖅᑐᑦ ᐃᓕᓴᓂᓂᖅᑐᑦ ᐃᓕᓴᕐᓂᐊᕐᓂᑦ ᑎᑎᕋᖅᑕᐅᓇᓕᓴᓂᓕᒻᒥᓂᑦ ᐊᒻᒪ ᐊᑐᐃᓇᐅᑎᑕᐅᑐᐊᓂᑦ ᐃᓕᓴᕐᓂᐊᕐᓂᑦ ᑐᓂᔨᑦᑎᐊᕐᓂᑦ ᐊᒻᒪ ᐊᑐᐃᓇᐅᑎᖅᑲᓂ ᐅᖃᓕᓴᐅᓂᑦ ᑭᓯᐊᓂᕐᒥᓂᑦ ᐅᖃᓕᓴᐅᓂᑦ ᐅᓇ ᖃᐅᔨᓴᖅᑎᓂᑦ ᐅᖃᓕᓴᐅᓂᑦ (Philosopy) ᐅᕙᓂ ᐋᓂᒃᓴᓕᒋᑦ ᐊᐱᖁᑯᑎᓴᖏᓂᑦ, ᐱᐊᓂᒃᑕᐅᕙᓚᐅᓕᓴᓂᓕᒻᒥᓂᑦ ᐱᓕᓐᓂᖁᖏᓚᑦ ᐊᑐᐃᓇᐅᑎᖅᑲᓂ ᐊᐱᖁᑯᑎᓴᖏᓂᑦ ᐊᒻᒪ ᐊᑐᐃᓇᐅᑎᖅᑲᓂ ᐊᐱᖁᑯᑎᓴᖏᓂᑦ

□ ᐊᖏᕐᓂᖅ ᐊᐱᖅᓯᖅᑕᐅᓕᓪᓚᖅ ᓂᐱᓕᐅᖅᑕᑕᐅᔨᓐᓇᕐᓂᕆᑦ. ᐊᖏᕐᕉᕕᑦ ᐅᓇ ᐅᖃᐅᓯᐱᓕᕆᔨᑕᕐᓂᒃ ᓂᐱᓕᐅᖅᑕᐅᓂᖅᓂᑦ ᑕᐃᒪᓕ ᑭᓇᑐᐃᓐᓇᓐᓚᑦ ᑐᓂᔨᐅᔪᓐᓇᖅᑐᑦ ᐊᑐᖅᑕᐅᔨᕆᐊᖃᖅᑐᒃᖃᑦ ᐊᐅᔨᓴᓂᐅᕐᑦ ᐊᓯᐊᓂᑦ.

ᐃᓯᒪᓕᑎᖃᕈᒪᑦ ᐊᐅᖏᓂᖃᕈᒪᓕᒫᓂᓕᕆᑦ ᓇᐅᔨᓯᑐᐃᓚᐅᓇᖅ ᖃᐅᔨᓴᖏᓐᓂᖏᑦ, ᐅᓪᓗᓂ ᖃᐅᔨᐸᐅᑕᓇᖅᐳᑎᑦ ᐅᓄᖅᓱ kevin.rattu@seh.ox.ac.uk. ᐊᐱᖏᓂᑎᑕᐃᑦ ᖃᐅᔨᐊᓂᔪᓇᖅᖁᔨᓂᐅᕕᐅᒃ ᐃᓯᒪᓕᑎᖃᖃᓂᕈᒪᑦᓕᒫᓂᓕᕆᑦ ᐊᐱᖏᓂᖃᖃᓂᕈᒪᑦᓕᒫᓂᓕᕆᑦ ᑲᒪᒋᓱᓂ ᓄᑦᑕᖅ <ᐅᓄᓪᓕᐊ ᐅᖃᖅᓴᐸᓇᓇᖅᑕᑦ richard.powell@ouce.ox.ac.uk.

ᖃᐅᔨᓴᖏᓐᓂᕐᒧᑦ ᐊᐱᖏᓂᖃᖅᑐᑦ:

- ᖃᓄᖏᓪᓗ ᐃᓯᒪᓕᑎᖃᖅᐱᑦ ᐅᖅᓯᐊᓚᖅᑎᑦ ᑯᓴᐸᖃᑉᓪᓕᖅᓯᓄᑕᓄ ᑕᓪᓚᑕᑎᐅᑦ ᑕᓇᐅᖅᓄᓂᖅ?
- ᑭᓇᓪᓗ ᐊᐅᓪᓕᑎᑎᐅᓇᓴᖅᐸ ᑐᐊᓴᖏᓇᖅᑐᓪᓗᕆᑦᑕ? ᑕᑦᑯᐊᓪᓗ ᐱᓕᓇᐅᓪᓕᓐᓄᑯᑦ ᐱᓪᓚᓂᖏᓪᓗᕆᑦᑕ?
- ᖃᐅᔨᓕᓴᖅᑯᓪᓗ ᐊᐸᑭᓐᓂᖏᓂᖅᑕᖃᖅᑕᖅᑕᖅᐸᑦ? ᑕᐃᒪᐃᖅᑯᑎ, ᐃᑲᔪᑎᖃᖅᐸᑦ?
- ᑐᐊᓴᖏᓇᖅᑐᑕᓇᓂᓕᒍᓴᓂᓂᑦ ᐊᐟᖃᖅᑕᐅᓂᓕᒫᓴᓂ ᑕᓪᓚᑕᑎᐅᑦ ᑕᓇᐅᖅᓄᓂᓄᑦ ᓄᓕᒪᖅᐸᑦ?
- ᑭᓂᓕᒫᓴᓂ ᐊᐱᖅᓯᐊᓚᖅᑐᑦ? ᐊᐱᖅᓯᐊᓚᖅᑐᑦ ᐊᐱᖅᓯᐊᓚᖅᑐᑦ ᐊᐱᖅᓯᐊᓚᖅᑐᑦ

APPENDIX 2

INTERVIEW CONSENT FORM

Prepared in July 2016 by Kevin G. Rattue (University of Oxford – School of Geography and the Environment). This document is provided as part of a Scientific Research Licence Application with Nunavut Research Institute.

CONSENT FORM TO PARTICIPATE IN INTERVIEWS AND GROUP DISCUSSION

Project Title:

Structuring a preparedness and emergency response regime? The environmental protection of Lancaster Sound, Nunavut, Canada.

Project Description:

Commercial shipping through the Northwest Passage (NWP) is likely to increase in coming years as the Northwest Passage becomes an increasingly attractive alternative to the Panama Canal and Suez Canal for transit between the Atlantic and Pacific Oceans. Commercial shipping activity in Lancaster Sound could include oil tankers, freight vessels, cruise liners and equipment owned and operated by governments used for defence, security and safety

If a shipping accident occurred in Lancaster Sound then the physical environment could be disastrously impaired and the lifestyles of coastal communities adversely impacted. Within this context, my research will examine the adequacy of existing contingency planning and emergency measures available to respond to an oil or fuel in Lancaster Sound. I believe that this research is important because Arctic environmental governance has been built upon federal regulations suited for ice-covered waters and on the basis that commercial shipping through the NWP would be minimal, if it happened at all. Many of these regulations were developed when the impact of global warming was not fully recognised and the attractiveness of the NWP as a navigable shipping lane was much less than what it is today.

The research methodology would include interviewing a wide range of participants in the Government of Nunavut and the communities and associations in the Qikiqtaaluk region, the Government of Canada, the international maritime organization, environmental NGOs and the Arctic Council. The research will also include a scenario discussion group in which 6 to 10 participants from Qikiqtaaluk will consider how a response to an oil spill in Lancaster Sound would be coordinated. These perspectives will be important to develop a form of environmental protection that incorporates regional interests in the shaping and implementation of oil spill preparedness and emergency response measures. I will share my recommendations with the Government of Nunavut and will seek the support of Nunavut Research Institute (NRI) to determine to whom research findings should be directed.

Researcher's Details:

Name: Kevin G. Rattue **Date of Birth**: 27 June, 1959

Address: 24715 NE 126th STREET, Duvall, WA 98019

Home Location: Home: Seattle, United States. Telephone: 1 425 788 6601. Fax:

Academic Affiliation: University of Oxford – School of Geography and the Environment.

Others in Attendance: NONE

General Information:

I appreciate your interest in participating in my research project. Hopefully, no response will ever be needed to an oil spill in Lancaster Sound, but I believe that this research is needed as a precautionary measure.

I would like to meet with you in person (face-to-face) to conduct an interview using a number of questions. Please note that your participation is voluntary, and your name and/or affiliation can remain anonymous. The information that you provide, and the nature of our discussions will be stored in a password-protected file. It may also be used in academic publications and could thereby be made available in the public domain. This research is for a Doctor in Philosopy (DPhil) degree from the University of Oxford, being completed under the supervision of Dr. Richard C. Powell. This research has been approved by the University of Oxford's Central University Research Ethics Committee (CUREC).

STATEMENT OF INFORMATION 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."

PRINTED NAME OF PARTICIPANT WITNESS NAME

SIGNATURE OF PARTICIPANT WITNESS SIGNATURE

AFFILIATION Telephone: Email Address (if available)

DATE

If you agree, or do not agree, to participate, can you please check the relevant boxes.

☐ Yes, I agree to take part. ☐ No, I do not wish to take part

☐ I agree to have the interview audio recorded. If you agree to have our discussion recording it will be not be given to anyone else or used for any purpose other than this research.

If you have any concerns or questions about any aspect of this project, please contact myself (kevin.rattue@seh.ox.ac.uk). If I am unable to resolve your query, or if you have any further concerns or questions, please contact my supervisor, Dr. Powell (richard.powell@ouce.ox.ac.uk).

APPENDIX 3

INTERVIEW QUESTIONS

RESEARCH QUESTION SHEET

Kevin G. Rattue
(kevin.rattue@seh.ox.ac.uk)

MEETING LOCATION: ----------
PARTICIPANTS: ----------
DATE/TIME: ----------

SECTION 1: OIL SPILL PREPAREDNESS AND RESPONSE

1.1 How concerned are you that an oil spill could occur in Lancaster Sound?

1.2 Who would manage an emergency response? Are they the most important actor?

1.3 To your knowledge are training exercises performed? If so, are they useful?

1.4 Are response measures in-place for Lancaster Sound region adequate?

1.5 What resources are available and where are they located?

1.6 How is the interaction between the respective Canadian and Nunavut government departments in terms of oil spill response preparedness and response planning?

1.7 Do you think the nature of your responses would be similar to those of other entities that are responsible for the protection of this part of the Northwest Passage or those that consider Lancaster Sound important for its commercial development potential?

1.8 How does government engage with industry (shipping and natural resource developers), special interest groups and other non-government organizations?

1.9 Have Lancaster Sound communities been requested by government to participate in oil spill response preparedness?

1.10 What aspect(s) of preparedness and response do you believe need to be addressed given the impact of climate change? Who should address these aspects?

1.11 Investment in infrastructure projects could create employment and provide broader benefits for the local communities. Several questions follow about infrastructure development.

How do you regard such development in consideration of potential environmental risk?

What is your opinion on how risk should be managed?

How do we measure the costs of such development?

How should we regard environmental risk?

OTHER DISCUSSION POINTS

INTERPLAY BETWEEN NUNAVUT LAND CLAIMS AGREEMENT (Article 15 [Oceans] and 23 [Job Creation]) and THE GOVERNMENT OF CANADA

NUNAVUT MARINE COUNCIL

QIA

NTI

INTERPLAY BETWEEN NUNAVUT LAND CLAIMS AGREEMENT (Article 15 [Oceans] and 23 [Job Creation]), THE GOVERNMENT OF CANADA and OTHER ENTITIES (Arctic Council, IMO, NGOs, etc.).

NGOs

IMO

ARCTIC COUNCIL

OTHER

APPENDIX 4

DESRIPTION OF RESEARCH IN INUKTITUT TO ACCOMPANY CONSENT FORM

DESCRIPTION OF RESEARCH

ᖃᐅᔨᓴᖅᓯᒪᓕᕆᓂᖅ

- **ᐱᓕᕆᔨᖅᑕᐅᑦ ᐊᑎᖓ**

ᐊᖏᕐᓂᐊᓚᐅᓕᕆᓂᖅ ᓯᖅᓴᓂᒪᓂᑦ ᐊᒻᒪ ᑐᐊᐃᖅᓇᖅᑐᓕᕆᓂᑦ ᖃᓄᐊᓕᕆᔨᑦ?

ᐊᓚᑎᑎᕐᔨᐅᕐᒥᑦ ᓴᓗᐳᓂᒪᓂᖅ ᑕᓪᓕᐊᑎᐅᑦ ᑕᕆᐅᖓᓂᑦ, ᓄᓇᕗᑦ, ᑲᓇᑕ

- **ᖃᐅᔨᓴᖅᑎᐅᑦ ᐊᑎᖓ ᐊᒻᒪ ᐱᓕᕆᖃᖅᓂᖓ**

ᑭᐊᐃᓐ ᔪᓂ. ᕿᑐ, ᓱᓕᓂᔪᓂ ᐊᐅᓵᔨᐊᒥᑦ

ᐃᓕᓴᓕᕆᔨᐃᖅ ᓄᓇᐅᑦ ᖃᖅᖓ ᖃᓄᐃᓕᖓᓂᖓᓕᓂᖅ ᐊᒻᒪ ᐊᓚᑎᑎᕐᔨᒥᓪᓗ

- **ᐱᓕᕆᔨᓴᖅ ᓀᓂᓴᓂᖓ**

ᑕᓪᓗᑐᑎᐅᑦ ᑕᕆᐅᖓᖓ, ᓄᓇᕗᑦ.

- **ᐊᑯᓂᐅᓂᕆᔨᓂᖓ**

ᐊᐃᖏᑦ 2016-ᒥᑦ ᔪᓪᓚᐃ 2016-ᒧᑦ

- **ᐱᓕᕆᔨᓴᖅ ᖃᓄᐃᓕᖓᓂᖓ**

ᐅᑭᐅᖅᑕᖅᑐᑦ ᑕᕆᐅᖓᑕ ᓱᑯᓂᖓ ᒥᔅᓂᓚᓕᕆᑎᓪᓗᒍᑦ, ᐅᒥᐊᕐᔪᐊᓄᑦ ᐊᖅᑯᑎ ᐅᓇ ᓱᓪᓗᐊᓗᓕ ᐅᐊᓕᓂᕐᒥᑦ ᖁᑭᖅᑕᓗᓖᑦ ᑕᕆᐅᓴᑯᑦ ᐊᖅᑯᑎᖓ (Northwest Passage (NWP)) ᐊᑐᐃᓇᓕᐅᓂᕐᓴᐅᓕᑐᐃᓇᓕᐊᖅᑎᖓᓕᑦ ᐅᒥᐊᕐᔪᐊᓄᑦ ᑭᓇᐅᔨᓕᐅᕐᕋᓱᓂᕐᓴᑦ ᑕᒪᐅᓛᕐᔪᖅᑐᓄᑦ. ᑕᒪᐅᓛᖅᑐᓂᑦ ᐅᖅᓱᐊᓗᖓᒥ ᑯᐃᔪᖅᑐᐃᓇᓕᐊᖅᑎᖓᓕᑦ ᐊᒻᒪᓗ ᑕᓪᓗᑐᑎᐅᑦ ᑕᕆᐅᖓᑕ ᐊᐅᐅᓇᔭᖏᓐᓂᓗᓂ ᑐᐊᐃᓇᓕᖅᑕᖅᑐᓂᖅᓴᖅᑐᑦ ᐊᒻᒪᓗ ᐊᓚᑎᑎᕐᔨᒥᓪᓗ. ᐊᓚᑎᑎᕐᔨᖓᑕ ᐱᐅᔪᓂᓪᓕᓕᐅᑐᐃᓇᓕᐊᖅᑎᖓᓕᑦ ᐊᒻᒪᓗ ᓱᓴᓯᑦᑐᑦ ᓄᓇᓕᐅᔪᑦ ᐃᓄᓱᓕᔭᖏᑦ ᐊᐅᑐᖅᑕᐅᓕᓚᐅᖅᑎᖓᓕᖅᓱᑎᑉ. ᑕᒪᐅᓇ ᐃᓱᒪᓪᓗᒍ, ᐅᓇ ᖃᐅᔨᓴᖅᓂᖅ ᖃᐅᔨᓴᖅᑭᑎᐅᓂᕐᒥᑐᖅ ᒪᓰᓇ ᕿᖏᐅᑎᖏᓐᓂᐅᔪᑦ ᑕᒪᐅᓂᖓ ᐊᒻᒪ ᑐᐅᐃᓕᖅᑐᓂᕐᒪᓂᑦ ᐱᑐᕐᓗᐊᔪᖃᖅᓂᖅᓯᑦ ᑕᓪᓗᑐᑎᐅᑦ ᑕᕆᐅᖓᓂᑦ, ᓄᓇᕗᒻᒥᑦ.

ᐅᐱᐸᓯᖅᑲᒪ ᐅᓇ ᖃᐅᔨᓴᕐᓂᖅ ᑕᒪᑐᒧᐊᖅ ᐱᕐᓂᖅᑕᐅᓂᒃ ᓯᖃᐃᓴᒪ ᐅᑭᐅᕐᑕᖅᑐᑐᑦ ᐊᐅᓪᑕᐅᓂᖅᓄᑦ ᐋᖏᖅᑕᐅᕙᓪᓕᐊᓯᒪᓐᓕᑦ ᓴᕙᒪᑐᖃᖅᑯᑦ ᐱᕐᓂᓯᓕᕆᓂᑦ ᐋᖏᖅᓯᓯᒪᓂᕋᓴᐅᓪᓚᐅᑎᒃ ᓯᑯᓕᓂᑦ ᐃᒪᓐᓇ ᐃᓯᒪᒋᔭᖅᖃᓯᒪᓪᓗᑎᒃ ᑭᓇᐅᔨᓕᐅᕋᓯᔪᓂᖅᓕᒃ ᐅᒥᐊᕐᕕᑦ ᑕᒪᐅᐱᖓᑕᑦ ᐅᓄᖅᓴᖏᑦᑎᐊᓂᖅᓄᑦ, ᐱᑕᖃᓂᑦ ᐊᐱᕐᓂᐊᕐᓇᖅ. ᐊᒥᓯᑦ ᐱᕐᑯᐃᐃᑦ ᐋᖏᖅᑕᐅᓯᒪᓕᑕ ᓯᓚᐅᑦ ᐅᕐᑯᓯᓂᓪᓕᐊᓂᖅᓄᑦ ᖃᐅᔨᓴᕐᓂᖅᑕᐅᓯᐊᕐᓗᒃᑐᖅᓄᑦ ᓴᐅᔨᓴᕐᓂᖅᑕᐅᓯᐊᕐᓗᒃᑐᖅᓄᑦ ᐃᓕ

ᑕᓪᓗᑭᑎᐅᑉ ᑕᓚᐅᖏᓂᑦ, ᐅᖅᓯᐊᓗᖓᒥ ᐊᐃᔪᖅᑲᓪᓕᖅᓂᕐᓂᑭᓂᒃ ᐸᖁᓚᐅᑎᐅᓚᕐᖏᑐᑦ ᐊᓕᒪᓗ ᐊᓂᑎᑉᕼᒧᑦ ᖁᐊᖁᖅᓴᖁᑭᑎᐅᔪᓚᖅᑐᑦ ᓯᓚᑦ ᑕᒪᓐᓇᖅᑐᑦ ᐊᓯᖏᕐᕕᓪᓕᐊᓂᖏᓐᓄᑦ ᐊᓕᒪ ᑕᒪᓐᓇ ᐅᒥᐊᖁᐊᓄᑦ ᐊᑐᖅᑕᐅᓂᓪᓕᐊᓂᖏᓐᓄᑦ.

ᖃᓄᐃᓐᓇᕆᓂᖁᒧᑦ ᐅᖃᐅᓯᖃᑲᓪᓗᑎᑦ ᐃᓄᑎᐊᑦᕿᔪᓗᑎᑦ

ᐊᔪᖁᓇᖅᑎᑦᑕᑦ, ᐊᑦᑭᐅᓯᔪᒪᓐᓇ ᑲᒪᑎᕆᖃᖁᓪᓚᓐᓚᓗ ᐃᓄᑎᐊᑦᕿᔪᓐᓂ ᐅᖃᐅᓯᖃᕆᕃᖅᑐᑦ ᐅᖅᓯᐊᓗᖓᒥ ᐊᓯᖏᓐᓂᖅᖁᖁᓂᒃ ᐅᖅᓯᐊᓗᖓᒥ ᐊᓯᖏᓐᓂᖅᖁᖁᓂᒃ. ᐃᓯᒪᓇᖅᑐᖁᓪᓕ, ᐃᓄᐃᑦ

6-ᓗ 10-ᓗ ᐊᑯᓂᖓᓂᓪᓚᑎᑦ. ᖃᐅᔨᑎᐊᑭᒪᔪᖓ ᓄᓇᕗᑎᒥ ᖃᐅᔨᓴᖅᑐᑕᓕᕆᔨᑯᓂᑦ ᖃᓄᖅ ᐱᐅᓂᖅᓴᕐᓄᓴᖅᓂᖓᓂᑦ ᐊᑭᑭᐹᓂᐊᕐᓗᓂ ᐅᖃᓪᓚᖃᖅᑎᑦᓂᐊᖅᑐᑦ ᐊᓕᒪᓗ ᑭᐹᑦ ᐃᓚᐅᓇᓴᐅᓴᖅᑎᖅᑐᓂᑦ. ᐸᖁᓇᓪᓚᕆᔨᖁᓪᓕᐊᓂᖅ, ᖃᓄᐃᑕᐅᓂᖅᑎᑐᖅᖢᖅᓴᐅᑎᖅᑐᑦ ᐃᓄᖅ 2017-ᒥᑦ ᐊᓕᒪᓗ ᐅᓂᓂ (ᐃᓂᓴᓇᖅᑐᑦ ᖃᐅᔨᑎᑕᐅᓂᐊᖅᑐᑦ) ᐃᖃᓗᓐᓂᑦ. ᖃᓄᐃᑕᐅᓕᖅᓂᐅᔨᓕᖅᑕ ᐃᒪᓐᓇᐅᓇᖅᑐᖅᖃᖅ ᓱᓕᓗ ᐅᒥᐊᖁᐊᖅ ᓇᓗᒥᓂᕆᔨᐅᔨᖅ ᐊᐅᓚᑕᐅᓗᓂᓗ ᐋᓕᓚᓄᑦ ᐅᒥᐊᖁᐊᑦᑕᓇᓂᕐᔨᓄ ᐊᐅᓚᐅᑎᖅᑎᑦ ᐊᓯᓚᓕᓗᑎᑦ ᐊᓕᒪᓗ ᐊᔪᖁᓕᓗᓂ ᐸᐃᓚᑦ ᖵᑭᖅᑕᐅᑦ ᐅᐊᖓᓇᖁᓕᕐᓂᓗ ᐋᓕᓚᓄᑦ ᓴᓇᖅᑐᓂᑦ. ᑕᐃᒪᐃᖓᖅᑐᐅᓂᖅᑎᐅᑉᐸᖁᓇᖅᑐᖅᖢᖅᓴᐅᑎᖅᑐᑦ ᐃᓕᓴᐅᑎᑦ ᐅᒥᐊᖁᐊᑦᑕᓇᓂᕐᔨᓄ ᐊᐅᓚᐅᑎᖅᑎᑦ ᐊᔪᖁᓕᓗᓂ ᐸᐃᓚᑦ ᐊᔪᖁᓕᓗᓂ ᐸᐃᓚᓗ ᖵᑭᖅᑕᐅᑦ ᐅᐊᖓᓇᖁᓕᕐᓂᓗ ᐋᓕᓚᓄᑦ ᐅᒥᐊᖁᐊᑦᑕᓇᓂᕐᔨᓄ ᐊᐅᓚᐅᑎᖅᑎᑦ ᐊᓯᓚᓕᓗᑎᑦ ᐃᓕᓴᐅᑎᑦ ᐊᐅᓚᐅᑎᖅᑎᑦ ᐊᓕᒪᓗ ᐊᔪᖁᓕᓗᓂ ᐸᐃᓚᑦ

ᐅᖃᐅᓯᐅᓂᓪᓕᐊᔪᑦ ᐊᐱᖃᓯᑕᐅᔪᓂᑦ ᐊᓕᒪᓗ ᖃᓄᐃᓕᓴᐅᑎᖓᐃᐊᖅᓯᑦ ᐅᖃᐅᓯᕐᓴᑦ ᑎᑎᕋᖅᑕᐅᓂᓪᓕᐊᓂᖅᓱᑦ ᐅᐸᓂᔪᓂᓪᓂ, ᐱᔪᓐᓇᖅᑎᑕᐅᔪᓂ, ᓂᐱᓪᓕᐅᓴᑎᓂᑦ (SONY ICDBX140 Digital ᓂᐱᓪᓕᐅᓴᑎᒋᔭᓂᓪᓂ ᐊᐳᔨᖏᓂᒋᔭᓂᓪᓂ). ᑕᒪᐃᓐᓂ ᓂᐱᓪᓕᐅᓴᑎᐅᓴᖏᓪᓕᔪᑦ ᐊᓕᒪ ᑎᑎᕋᖅᑕᐅᓯᓪᓕᔪᑦ ᖃᕆᓴᐅᓴᐳᓂᑦ ᑎᑎᕋᖅᑕᐅᓂᓪᓂᕐᓂᓂᐊᖅᓱᑦ ᐊᑐᖓᔭᑎᑦ ᐱᖏᓯᓂ ᐅᔨᓂᖏᓱ: ᖃᕆᓴᐅᓴᒪᒍ ᐊᑦᑕᑕᓴᓐᓇᖅᑐᖅ ᓂᐱᓪᓕᐅᓐᔪᐊᑎ, ᖃᕆᓴᐅᓴᐳᓂᔨ ᑎᒍᒥᐊᖏᓂᔨᓂ ᐊᓕᒪᓗ ICloud-ᑎᒍᑦ. ᖃᐅᔨᒪᓴᐅᖏᒪ ᑕᓐᓕᖏᓪᖠᑦᑐᑦ ᐊᓕᒪ ᓴᖅᑎᖏᓴᕐᑐᑦ ᐱᓕᓐᓇᐅᖃᑕᐅᓂᖏᓪᖠᓂᑦ ᖃᐅᔨᓴᖏᓂᓪᓕᒍᑦ. ᖃᐅᔨᓴᖅᑕᐅᓂᐅᔪᑦ ᓄᐊᑕᐅᓂᓪᓕᐊᔪᑦ ᐊᓕᒪ ᓂᐱᓪᓕᐅᖏᑕᐅᓯᒪᔪᑦ <<ᑕᐅᖏᑎᐊᖏᓂᐊᖏᖅᑐᑦ ᐊᓕᒪᓗ ᒪᓕᒍᑎᐅᖃᓄᐃᓕᐅᓂᖅ ᐱᓕᓐᓇᐅᓗᒍᓐᓇᖅᓯᓂᑦ ᒪᓕᑎᐅᑕᐅᓐᓇᐊᖅᓯᓂᑦ ᐊᑐᐊᓐ

APPENDIX 5

NUNAVUT RESEARCH INSTITUTE

SCIENTIFIC RESEARCH LICENSE

Nunavummi Qaujisaqtulirijikkut / Nunavut Research Institute
Box 1720, Iqaluit, NU X0A 0H0 phone:(867) 979-7279 fax: (867) 979-7109 e-mail:
mosha.cote@arcticcollege.ca

SCIENTIFIC RESEARCH LICENSE

LICENSE # 02 046 16N-M

ISSUED TO: Kevin Rattue
Geography and the Environment
Oxford University
Queens Lane
Oxford,
0X1 4AR England

TEAM MEMBERS: R. Powell

AFFILIATION: Oxford University

TITLE: STRUCTURING A PREPAREDNESS AND EMERGENCY RESPONSE REGIME? THE ENVIRONMENTAL PROTECTION OF LANCASTER SOUND, NUNAVUT, CANADA

OBJECTIVES OF RESEARCH:
As Arctic sea ice cover decreases, shipping lanes through the Northwest Passage (NWP) may become increasingly accessible to commercial traffic. The possibility of an oil or fuel spill exists and the location of Lancaster Sound would make emergency response difficult. The physical environment could be disastrously impaired and the lifestyles of coastal communities adversely impacted. Within this context, this research will examine the adequacy of existing contingency planning and emergency measures available to respond to an accident in Lancaster Sound, Nunavut.

TERMS & CONDITIONS:

DATA COLLECTION IN NU:
DATES: August 12, 2016-April 30, 2017
LOCATION: Pond Inlet, Resolute, Arctic Bay, Iqaluit

Scientific Research License 02 046 16N-M expires on December 31, 2016
Issued at Iqaluit, NU on August 15, 2016

for
Mary Ellen Thomas
Science Advisor

SCIENTIFIC RESEARCH LICENCE