

THE BEAUFORT SEA MARITIME BOUNDARY DISPUTE:
HIGH STAKES FOR CANADIAN ARCTIC SOVEREIGNTY AND RESOURCE
EXTRACTION IN A CHANGING CLIMATE

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Abstract

This paper analyzes the Beaufort Sea maritime boundary dispute and the risk it poses to Canadian Arctic sovereignty and resource extraction in the North as the effects of climate change become more apparent. The confluence of environmental change, national level policies, international governance regimes, and how they come together to govern the Beaufort Sea is, of utmost concern to Canada and relations with Arctic partners, including, most notably, the United States of America (US). Therefore, this paper integrates thinking from each of these fields to explore the history, status, role and future relevance of the Beaufort Sea maritime boundary dispute in Arctic governance debates to analyze the linkages between Arctic sovereignty and energy development. More fundamentally, this paper seeks to understand why the dispute has not been resolved, what a resolution may look like, and who stands to benefit, through an analysis of the role of international law as it relates to the seas to determine what this says about the current stakes and interests involved there.

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Foreword

Part of the purpose of academic scholarship is the identification of what is known and the pursuit of what is unknown so that it could be known. In this regard, the foundational research of what is known and not known about the Beaufort Sea maritime boundary dispute was first encountered in a study of the subject through two courses. The first, Readings in Environmental Studies, delved into the nature of Canadian Arctic sovereignty. It led to the determination that concern over the defense of Canadian Arctic sovereignty is more an anxiety over the determinable limits of Canadian maritime territory, and not an infringement of Canada's existing territorial sovereignty. This conclusion led to a study during a second course, an Individually Directed Study, exploring the role and scope of international law in fomenting an Arctic governance regime. Focus was placed on the historical development of international maritime law and its principles, and how these continue to reflect current state behaviour under the United Nations Convention on the Law of the Sea (UNCLOS). Specific attention was paid to areas beyond national jurisdiction, particularly as the effects of global climate change continue to alter the Arctic environment at an irreversible rate. These courses were important to the development of this paper because they provided necessary introductory bibliographic material that allowed for a more strategic methodological approach to develop, and thus, for this research to proceed further.

As such, this paper questions the structure, role, and the challenges the Beaufort Sea maritime boundary dispute poses to Canadian Arctic sovereignty and resource extraction with a particular focus on Arctic marine environmental changes, how the dispute arose, why it still exists, and its connection to potential for natural resource (namely oil and gas) development in the North. More generally however, it is linked to my Area of Concentration and its Components

through a focus on the difficulties associated with balancing social, political, economic and environmental governance in the Arctic Ocean. These linkages centre on Canadian oceans science and policy which considers the relevant scientific data addressing problems faced by Canada's oceans (Atlantic, Pacific, and Arctic), in terms of pollution and use, but also in terms of policy development, legal issues, and the political and economic stakes involved in pursuing such use. This has entailed delving into current debates about oceans governance globally, and how other nations are dealing with the legal, jurisdictional, political, and economic consequences associated with use of their adjacent ocean amidst acidification, pollution, and warming.

Among other issues are problems of regulation, administration, myths of abundance and scarcity, and the difficulty of balancing a variety of interests that range from economic development, strategic military positions, indigenous land claims and sensitive ecologies. International legal regimes attempt to bring these interests together based on an emerging scientific and ecological consensus behind specific oceanic changes, although the adequacy of these is debatable. A particular response is required that must be cooperative, interactive, interdisciplinary, and integrative. It must involve various groups ranging from government, private industry, and academia, to civil society, non-governmental organizations, Aboriginal nations, and more. This confluence of scientific challenges, national level policies, international legal regimes, and how they come together to govern the oceans, is of utmost concern. This paper attempts to integrate thinking from each of these domains to gain an integrated, interdisciplinary perspective from which to analyse contemporary problems impacting the world's ocean resources, and in this case, those of the Beaufort Sea.

Chapter One: An Introduction

Environmental changes in the Arctic Ocean are stimulating responses from bordering coastal states that have the potential to dramatically shape how questions of Arctic sovereignty are resolved, with implications for resource extraction across the North. One of these responses came from the federal government of Canada in 2009 in reaction to increased attention on the Canadian Arctic. Publishing under the authority of the Minister of Indian Affairs and Northern Development, the federal government released *Canada's Northern Strategy: Our North, Our Heritage, Our Future* (the Northern Strategy), describing the vision of the Government for the Canadian North in the present, geared toward future investment into the region and linked to a past celebrating the vastness of the North and its "rightful place within a strong and sovereign Canada".¹ Four priority areas were emphasized and focused around exercising Arctic sovereignty; promoting social and economic development; protecting the North's environmental heritage; and devolving northern governance "so that Northerners have a greater say in their own destiny".²

Similarly, the priorities espoused by the Northern Strategy have also been applied to foreign policy in the Arctic region, demonstrated in the *Statement on Canada's Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada's Northern Strategy Abroad* (the Foreign Policy Statement). Both policy documents share the same fundamental vision for a Canadian Arctic: the assurance that Canadian sovereignty in the Arctic is of utmost importance in the pursuit of social and economic development as attempts are made to safeguard the environment

¹ Department of Aboriginal Affairs and Northern Development Canada, *Canada's Northern Strategy: Our North, Our Heritage, Our Future*, published 2009, available from: <<http://www.northernstrategy.gc.ca/cns/cns.pdf>>, (accessed March 21, 2012), at introduction (c).

² Ibid., at introduction (d).

and promote good government by devolving governance to more local levels of government through the inclusion of Northern peoples in decision-making processes.³

The Northern Strategy addresses the concept of sovereignty very basically, asserting that “Canada’s Arctic sovereignty is longstanding, well-established and based on historic title, founded in part on the presence of Inuit and other Aboriginal peoples since time immemorial.”⁴ This assertion is tied to the notion that the exercise of such sovereignty includes the maintenance of a “strong presence in the North,”⁵ including the significant endorsement of military expenditures.

The Foreign Policy Statement addresses the exercise of sovereignty in a similar way, asserting that “the first and most important pillar towards recognizing the potential of Canada’s Arctic is the exercise of our sovereignty over the Far North.”⁶ In it, the Harper Government has signaled that it is committed to “a stable, rules-based region with clearly defined boundaries, dynamic economic growth and trade, vibrant Northern communities, and healthy and productive ecosystems”.⁷ It further delineates that sovereignty in the Arctic is exercised through domestic laws and regulations, indicating a lack of militarization and force in conducting Arctic matters, and more of a commitment to stewardship.⁸

However, the Foreign Policy Statement seeks to complement the exercise of sovereignty in the Canadian Arctic in three main ways, including the resolution of boundary issues according to international law, international recognition of the limits of an extended continental shelf that

³ Department of Foreign Affairs and International Trade Canada, *Statement on Canada’s Arctic Foreign Policy: Exercising Sovereignty and Promoting Canada’s Northern Strategy Abroad*, published August 20, 2010, available from: <http://www.international.gc.ca/polar-polaire/assets/pdfs/CAFP_booklet-PECA_livret-eng.pdf>, (accessed Nov. 9, 2010), at 2-3.

⁴ *Northern Strategy*, at 9.

⁵ *Ibid.*, at 9.

⁶ *Foreign Policy Statement*, at 4.

⁷ *Ibid.*, at 2.

⁸ *Ibid.*, at 5.

will see an exercise of sovereign rights over resources located there, and addressing Arctic governance issues, as well as issues around public safety.⁹ Between the documents, a mixed message is received: whether to exercise sovereignty through military expenditures, to pursue a program of stewardship on the basis of law and a commitment to healthy people and environments, or both?

Since 2007 the question of sovereignty has not been attributed to a particular disagreement or boundary dispute but to initiatives and strategies that increase the ability of Canada to “monitor, patrol, and protect land, sea, and sky,” particularly through the purchase of new icebreakers and patrol ships.¹⁰ This was supposed to include a \$7.4 billion price tag for the purchase, operation, and maintenance of up to eight new armed ships that would patrol Canadian Arctic waters,¹¹ although this has recently been reduced to six.¹² There is some doubt as to the utility of these ships in Arctic waters, however, as icebreakers would typically still be necessary.¹³

The expansion of the Canadian Rangers, from 4100 to 5000 costing \$12 million a year, and the establishment of a new Canadian Forces Arctic Training Centre in Resolute Bay were also supposed to be forthcoming.¹⁴ Due to budgetary constraints this facility will now be located in old government buildings.¹⁵ The Harper Government also promised \$100 million to upgrade the port at Nanisivik,¹⁶ but will now use abandoned wharves from former Nanisivik mines.¹⁷

⁹ Ibid., at 6.

¹⁰ Ibid., at 5.

¹¹ Bruce Campion-Smith, “PM’s vessels ‘aren’t what we need for the Arctic’,” *TheStar.com*, published July 10, 2007, available from: <<http://www.thestar.com/News/article/234198>>, (accessed July 28, 2011).

¹² Shelagh D. Grant, *Polar Imperative: A History of Arctic Sovereignty in North America* (Toronto: Douglas and McIntyre Publishers Inc., 2010), at 443.

¹³ Ibid., at 443.

¹⁴ Ken S. Coates, et.al., *Arctic Front: Defending Canada in the Far North* (Toronto: Thomas Allen Publishers, 2008), at 180.

¹⁵ Grant, at 443.

¹⁶ Coates, et.al., at 180.

Other initiatives include the final \$40 million toward scientific research grants associated with the International Polar Year, \$8 million in the upgrade of Port Churchill, as well as \$60 million in the improvement of the Hudson Bay Rail Line into Port Churchill.¹⁸ Military exercises have also already begun in 2010 involving a collaboration with the US and Denmark in Operation Nanook, an annual sovereignty exercise “demonstrating control over the air, land and sea within our jurisdiction”.¹⁹

The commitment to a preliminary militarization of the Canadian Arctic is intended to complement three priority areas at the international level, revealing more salient points behind the reasons for an exercise in the assertion of Canadian sovereignty amid uncertainty. These include: the resolution of boundary issues, international recognition of an extended continental shelf that would lead to sovereign rights over resources contained there, and Arctic governance issues.²⁰

Further, in a comment from proceedings of the Standing Senate Committee on National Security and Defense in March 2010, the phrase “Arctic sovereignty” was determined to be indicative of a lack of sovereignty, confusing the term sovereignty with security.²¹ Professor Whitney Lackenbauer distinguished between these two concepts and demonstrated that “sovereignty is actually a legal concept which entails ownership and the right to control over a specific area regulated by a clearly defined set of international laws”.²² Alan Kessel, a legal advisor to the Department of Foreign Affairs and International Trade, agreed with this

¹⁷ Grant, at 443.

¹⁸ Coates, et.al., at 180-181.

¹⁹ *Foreign Policy Statement*, at 6.

²⁰ *Ibid.*, at 6.

²¹ Senate of Canada, *Third Session, Fortieth Parliament, Proceedings of the Standing Senate Committee on National Security and Defense*, “Interim Report: Special Study on the National Security and Defense Policies of Canada,” published March 2011, available from: <<http://www.parl.gc.ca/Content/SEN/Committee/403/defe/rep/rep07mar11-e.pdf>>, (accessed Nov. 20, 2011), at 1.

²² *Ibid.*, at 1.

assessment, also suggesting that Canada does not claim sovereignty of the Arctic under the modern international law of the sea because this historic title is already well established.²³ As such, it is the exercise of this sovereignty, not the claiming of sovereignty, that has become part of Canada's current Arctic policy, that is, securing the portion that belongs to Canada becomes an exercise of sovereignty. Thus, states are not engaging in an enlargement of territory through conquest, or other means, but are rather "identifying the seabed area outside their 200 nautical mile (230 miles or 368 kilometers) economic zones where they have the exclusive right to exploit resources" as identified by international law.²⁴

Accordingly, the Northern Strategy and the Foreign Policy Statement espouse two different understandings of what sovereignty is. Under international law, sovereignty is defined as the "totality of different forms of exclusive jurisdiction exercised by the state within its boundaries,"²⁵ thus giving a people the right to "freely determine their political status,"²⁶ much like the objectives promoted by the Northern Strategy. The Foreign Policy Statement takes a different approach, advocating for the exercise of sovereignty including the ability of the state to "exercise recognized rights of exclusive jurisdiction within a territorially delimited space,"²⁷ as well as "a claim about the way power is or should be exercised."²⁸

The Foreign Policy Statement also makes very clear that Canada will attempt to resolve boundary issues in the region based on international law, and maintains that the sovereignty of these lands is largely undisputed. The limits of Arctic Ocean waters, like other oceanic coastal

²³ Ibid., at 1.

²⁴ Coates, et.al., at 139.

²⁵ Michael Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North* (Vancouver: Douglas & McIntyre Publishers Inc., 2010), at 5.

²⁶ Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 7.

²⁷ Franklyn Griffiths, "Canadian Arctic Sovereignty: Time to Take Yes for an Answer on the Northwest Passage," *Institute for Research on Public Policy*, presented to DFAIT October 2007, available from: <<http://www.irpp.org/books/archive/AOTS4/griffiths.pdf>>, (accessed Aug. 1, 2011), at 3.

²⁸ Monica Tennberg, *Arctic Environmental Cooperation: A Study in Governmentality* (England: Ashgate Publishing Ltd. 2000), at 13.

zones, are governed by an international legal framework under the United Nations Convention on the Law of the Sea (UNCLOS). There are two important features to this. The more evident one is that UNCLOS provides for an international legal framework, giving consistency, vision, and legitimacy to maritime laws globally. The other, less evident feature is that UNCLOS represents a continuum of maritime laws dating back millennia and culminating in legislation that fits current needs and circumstances. Whereas previous laws related to the legal climate of the period and were often dictated by ruling and imperial nations, today's laws are committed to voluntarily by nation states.²⁹

There are four boundary issues that Canada faces in the Arctic, though none of which pose a threat to sovereignty in any immediate way. Hans Island, for instance, is the only disputed land territory between Canada and Denmark but poses no threat to either nation as it is only 1.3 square kilometers long and is being used for scientific purposes.³⁰ The Lincoln Sea dispute also between Canada and Denmark concerns maritime delimitations along a particular coastline with small islands involved and it is in no threat of escalating.³¹ The Northwest Passage (NWP) dispute is neither a boundary nor border disagreement, but a dispute over definition and interpretation of historical legal precedent which may have an impact on the loss of some sovereign rights as the gateway between the Pacific Ocean and the Arctic Ocean. It is a disagreement with the US about whether the definition favours either Canada (NWP is an internal water subject to Canadian law and environmental standards) or the US (NWP is an international strait subject to international law and environmental standards) with the implication

²⁹ Patricia Birnie, Alan Boyle, and Catherine Redgwell, eds., "Chapter 7: The Law of the Sea and Protection of the Marine Environment," in *International Law and the Environment*, 3rd ed., (New York: Oxford University Press, 2009), at 14-15.

³⁰ Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 25.

³¹ *Ibid.*, at 105-106.

that either Canadian or international shipping laws, taxes, and regulations would be applied, having environmental, security, and economic ramifications.³²

Though not directly threatening Canadian Arctic sovereignty, perhaps the most contentious dispute, and the one with the greatest potential effect on Canada from an environmental, economic, political, and social perspective is the Beaufort Sea maritime boundary dispute, which concerns an area of 6,250 square nautical miles of ocean and seafloor claimed by both Canada and the United States.³³ It is a shallow area of the Arctic Ocean between Alaska and the Canadian Arctic archipelago, north of the Mackenzie River delta, containing vast hydrocarbon resources.³⁴ The Foreign Policy Statement suggests that it is a disagreement regarding a maritime boundary, although its description in the document is located in a section dealing specifically with sovereignty issues. Consequently, this paper asks the question of whether broadly painting the entire Canadian Arctic region as an area to be defended under national sovereignty is a correct framing of the situation according to principles of international law given that an unresolved dispute, the Beaufort Sea dispute, has not been labeled as such.

Therefore, Arctic sovereignty claims actually concern “maritime delimitation” with boundaries and jurisdictional zones disputed,³⁵ and relate to contentions over boundaries “between areas subject to sovereign rights rather than full sovereignty” like that of continental shelves, as opposed to where territories on land meet (that is, borders).³⁶ It is thus my intention in this paper to explore the history, status, role and future relevance of the Beaufort Sea maritime boundary dispute in Arctic governance debates to analyze the linkages between Arctic

³² Donald McRae, *Behind the Headlines: Arctic Sovereignty? What is at Stake?* (Toronto: Canadian Institute of International Affairs, 2007), at 14-15.

³³ Standing Senate Committee on National Security and Defense, “Interim Report,” at 33.

³⁴ James S. Baker and Michael Byers, “Crossed Lines: The Curious Case of the Beaufort Sea Maritime Boundary Dispute,” *Ocean Development and International Law* 43:1 (2012), 71.

³⁵ Davor Vidas, *Protecting the Polar Marine Environment: Law and Policy for Pollution Prevention*, (New York: Cambridge University Press, 2000), at 10.

³⁶ Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 6.

sovereignty and energy development. More fundamentally, this paper will seek to understand why it has not been resolved, what a resolution may look like, and who stands to benefit through an analysis of the role of international law as it relates to the seas historically and in the present to determine what this says about current interests involved there.

Methodology

The purpose of this research is to identify what the Beaufort Sea maritime boundary dispute suggests about the politics and interests at play in contemporary Arctic sovereignty debates. Specifically, I seek to know whether maritime boundary issues are always questions of national sovereignty. Does this depend on international law? What is the significance of naming it a sovereignty dispute or a maritime boundary dispute? Does it matter that natural resources are located in the disputed area? Is sovereignty a catch-all phrase fitting a particular narrative the government is employing that seeks to set claims on state territory without regard to international law?

The evidence and data needed to answer this question are varied. This research includes an engagement with literature concerning international law, sovereignty, specific political and economic interests, as well as scientific studies. This examination will take place over the course of seven chapters.

Chapter one, “An Introduction,” discusses the effect of framing current Arctic sovereignty debates around a defense of this sovereignty by outlining the main parameters set by the current Canadian government through both the Foreign Policy Statement and the Northern Strategy. The first chapter then proceeds to describe the role of international maritime law as it relates to the Arctic sovereignty debate and its direct connection to the current status of the Beaufort Sea maritime boundary dispute, as well as the methodological approach to be taken throughout.

The second chapter, “The Arctic Environment and the Beaufort Sea,” explores the important role of a changing climate, its effect on Arctic coastlines, and more specifically, on sea ice floes pertaining to the Beaufort Sea. For an introductory assessment of Arctic environmental

changes, the seminal *Arctic Climate Impact Assessment*, edited by Hassol (2004), is utilized. However, for more specific effects around the Beaufort Sea, its sea ice floes, and weather patterns, reliance is placed predominantly on research conducted by a number of scientists working on the Canadian Arctic Shelf Exchange Study, working for Natural Resources Canada (Frugal and Prowse), and the National Oceanic and Atmospheric Administration's *Arctic Report Card, 2011*. These studies examine the effects a changing climate is having on questions of national jurisdiction by demonstrating that the limits of the continental shelf are changing as sea ice extent is altered. This includes work by Yang (2009) on downwelling variability in the Beaufort Sea, Asplin, Lukovich, and Barber (2009) on interannual sea ice and atmospheric forcing contributing to sea ice motion and diminishment, as well as other articles they also authored with Proshutinsky and Krishfield (2009) on environmental variability in the Beaufort Gyre and Galley (et.al. 2009) discussing pack ice in the southern Beaufort Sea.

As such, environmental impacts cannot be underestimated in the Arctic, and the Beaufort Sea is no exception, as melting sea ice prompts a redrawing of borders, particularly as it concerns coastal areas. These delineations are governed by laws, both domestic and international, under the UNCLOS. In this regard, chapter three, "The Development of Sea Law," examines the historical development of international maritime law, focusing on its universalizing effect, and its ability to create and sustain order among sovereign states competing for territory and resources. This is accomplished through a focus on the work of Antony Anghie's *Imperialism, Sovereignty, and the Making of International Law* (2005), *The International Law of the Sea* (2010) by Rothwell and Stephens, and the UNCLOS itself, to explain how law regarding the seas has evolved into its present form.

Chapter four, “The International Law of the Sea and the Canadian Arctic,” follows from this analysis, exploring international maritime law in the present context and emphasizing its role in the Canadian Arctic. Focus is placed on the development of Canada’s submission to the Commission on the Limits of the Continental Shelf (CLCS) as a tool for the recognition of Arctic territory as Canadian territory, including efforts to secure the disputed area of the Beaufort Sea. In turn, this chapter explores the role that new principles for oceans governance can have on international maritime law in guiding state behaviour and their potential influence on Canadian law and policy. The first part of the chapter relies on literature from Riddell-Dixon (“Meeting the Deadline: Canada’s Arctic Submission to the Commission on the Limits of the Continental Shelf,” 2011), Elferink and Rothwell (*The Law of the Sea and Polar Maritime Delimitation and Jurisdiction*, 2001), and Reichert (“Determination of the Outer Continental Shelf Limits and the Role of the Commission on the Limits of the Continental Shelf,” 2009) for information regarding the current application of international maritime law to the Arctic continental shelf. The latter part of the chapter focuses more on the adaptability of international law to current oceans governance dilemmas concerning the way space is used, entailing the utilization of primary material in the form of conventions (Aarhus, OSPAR), declarations (Rio, Stockholm), as well as other multilateral agreements such as *the Arctic Environmental Protection Strategy*.

The link between the evolution of international maritime law and sovereign jurisdiction over a specific territory is explored further in chapter five, “The Beaufort Sea Maritime Boundary Dispute,” to demonstrate a link between resource rights and sovereignty. This chapter conceives of this link through two conceptions: first, that international environmental and maritime law attempts to balance sovereign interests (Brunnée), and second, that Canada has espoused an Arctic policy instituting the defense of this sovereignty (Foreign Policy Statement

and Northern Strategy). The two can be mutually exclusive or can be complimentary, which is how the Beaufort Sea maritime boundary dispute arose in the first place; competing sovereign nations vying for resources of a territory while simultaneously abiding by, and supported by, international law.

Prominence is also given to an article by Baker and Byers outlining the Beaufort Sea maritime boundary dispute in detail called “Crossed Lines: The Curious Case of the Beaufort Sea Maritime Boundary Dispute,” from the journal *Ocean Development and International Law*. As well, this chapter includes a number of comments from influential policy leaders in the United States discussing the potential for Senate approval of the UNCLOS including Senate Foreign Relations Committee Chairman John Kerry, Senator Lisa Murkowski of Alaska, and Secretary of Defense Leon Panetta. American accession to the UNCLOS is important in this respect, signaling a commitment to the rules established by international law, and a commitment to cooperative action in the Arctic.

Consequently, the Beaufort Sea maritime boundary dispute uniquely symbolizes the evolution of the international law of the sea, driven by a changing Arctic environment, modifications to legal principles, and ultimately, the stakes involved; the subject of chapter six, “The High Stakes of Resource Development in the Beaufort Sea.” This chapter considers the potential for resource extraction in the Beaufort Sea, suggesting that motivation for the pursuit of the defense of Canadian Arctic sovereignty is guided by the economic potential of this area. For a determination of the amount of resources available, statistics from the US Geological Survey are used, as well as an article by Griffiths entitled “US-Canada Arctic border dispute key to maritime riches” describing the limits of these resources. Work by Emmerson (*The Future*

History of the Arctic) and Matthews (“Oil: How Canada is Dealing with its High North”) are utilized to describe historical exploration and production of oil and gas in the Canadian Arctic.

Also, a number of primary documents from the Auditor General of Canada (“1983 Report”), the National Energy Board (*Filing Requirements for Offshore Drilling in the Canadian Arctic*), and the Department of Aboriginal Affairs and Northern Development Canada (*Northern Oil and Gas Annual Report, 2011*) are referenced to discuss how Canada is dealing with the prospects of Arctic oil and gas exploration, discovery, and production. These are tied back to the role of international law by Ong and his book, *The Law of the Sea: Progress and Prospects*, to conclude chapter six.

Chapter seven, “Conclusions,” summarizes these thoughts and ties the examination together by offering a number of possible solutions to the dispute as demonstrated by Byers in *Who Owns the Arctic?*, by McRae in *Behind the Headlines: Arctic Sovereignty? What is at Stake?*, and Parks in *Canada’s Arctic Sovereignty: Resources, Climate and Conflict*. What is concluded, however, is that a distinct history has influenced the principles espoused today by international maritime law and that a new application for international maritime law concerning coastal states is emerging in the Canadian Arctic territory. Thus, Canada must adapt to these changing circumstances, precipitated by a changing Arctic environment. This changing Arctic environment, in turn, is guiding particular economic interests in the area, especially as it concerns natural resources that may be found in the disputed, and adjoining, territory of the Beaufort Sea. Canada and the US both seek sovereign jurisdiction over this area but these circumstances have been incorrectly labelled as threats to Canadian sovereignty and actually concern the proper delimitation of a maritime boundary, within which may be found immense natural resource reserves.

Chapter Two: The Arctic Environment and the Beaufort Sea

Limited sunlight, ice cover that inhibits energy penetration, low mean and extreme temperatures, low species diversity and biological productivity and long-lived organisms with high lipid levels all contribute to the sensitivity of the Arctic ecosystem and cause it to be easily damaged. This vulnerability of the Arctic to pollution requires that action be taken now, or degradation may become irreversible.³⁷

When the Arctic Environmental Protection Strategy was agreed to by eight Arctic countries in a series of meetings beginning in 1989 in Rovaniemi, Finland, and concluding in 1991, a joint action plan was conceived. It sought to limit resource development activities to those that are sustainably developed, required parties to commit to assessing potential environmental impacts from these activities, and involved protecting the Arctic marine environment cooperatively based on leading scientific evidence and the best practices.³⁸ While bringing a changing Arctic environment to the attention of the state in an international setting, a comprehensive understanding of those potential changes, and their magnitude, was undervalued, underappreciated, and underestimated.

About twenty years later, states have independently developed their own strategic initiatives to act on the adverse affects the Arctic environment is facing, based on some of the goals stated under the Arctic Environmental Protection Strategy. Canada's response is contained in the Northern Strategy, and the Foreign Policy Statement outlined in Chapter One. These documents suggest that interest in Canada's Arctic territory is growing and putting pressure on the government to develop a strategy to deal with this territory. Canada has chosen to do so by emphasizing its role as steward of the North amidst increasing domestic and international interest

³⁷ The Arctic Council, *Declaration on the Protection of Arctic Environment: The Arctic Environmental Protection Strategy*, Arctic Council Chairmanship Secretariat, updated 2007, available from: <http://library.arcticportal.org/1542/1/artic_environment.pdf>, (accessed April 7, 2012), at 6.

³⁸ *Ibid.*, at 7.

in the Arctic region, particularly from industry, as the impacts of climate change rapidly alter the landscape.

The Arctic and its environment cannot be easily defined, however, as it means many different things to many different people and has changed over time as well, directly correlating to what was known, or thought to have been known at the time, indicating a historical component in the interpretation of how to deal with and approach the area. According to one interpretation, the Arctic can be referred to “as comprising all areas lying north of 66°33’,” where the Arctic Circle begins.³⁹ While encompassing, this definition is useful in delineating geographic certainty but, as Grant points out, is somewhat inaccurate as it does not take into account “vast areas of treeless tundra located well south of the Arctic Circle, although having all the physical attributes of a polar landscape”.⁴⁰ Thus, a more appropriate definition, particularly favoured among scientists is to identify the area where the boundary is set by continuous permafrost or the area north of 10°C July isotherm, that is, “north of the region that has a mean July temperature of 10°C,” although as the climate continues to change as will be shown, such a boundary could still be altered.⁴¹

Yet another description focuses on the tree line instead of temperature. Thus, the Arctic would consist of “lands and waters lying north of the tree line- the boundary between the stunted coniferous forest and the northern tundra- to delineate the Arctic region from the Subarctic taiga that lies between the tree line and the closed canopy forests of the south”.⁴² In some instances, the Subarctic can be even colder than the more northern reaches of the region because it does not benefit from the warming effect of the Arctic Ocean as much, and typically has greater snowfall

³⁹ Rosemary Rayfuse, “Melting Moments: The Future of Polar Oceans Governance in a Warming World,” *Review of European Community and International Environmental Law* 16.2 (2007), at 197.

⁴⁰ Grant, at 6.

⁴¹ *Ibid.*, at 6.

⁴² *Ibid.*, at 6.

as opposed to the north where high winds prevail. The definition varies based on the subject matter discussed, so for the purposes of this paper, this area consists of the Arctic Ocean covered in ice and bound by land territory, in what is a massive area, spanning about 10 million square kilometers, in a semi-enclosed area with only two outlets: the Bering Strait leading into the northern Pacific Ocean and the Fram Strait leading into the northern Atlantic Ocean.⁴³

The Arctic's environment, its most distinguishable characteristic, serves to demonstrate that problems of definition occur not in simple ways, but in rather complex forms, whether environmental, legal, philosophical, social, political, economical, and historical. Thus, when changes occur, they are pronounced. In this regard, the ACIA provides the seminal assessment in identifying changes in the Arctic environment. Published in 2004, the ACIA revealed significant increases in temperature contributing to decreases in snow cover and melting of sea ice. Based on trends, the ACIA estimated that the Arctic will warm by between 4-7 degrees Celsius (and up to 10 degrees Celsius) over the next one hundred years.⁴⁴ Further increases in temperature and rises in sea-level are expected if an increase in carbon dioxide "continues unabated, with a 3°C increase in temperature for a 'business-as-usual' increase in greenhouse gases, and as much as a 6°C increase" should carbon dioxide levels double.⁴⁵ This would then contribute to a diminishment of snow cover which has already declined by 10% over the past thirty years and is estimated to decrease by a further 10-20% by 2070.⁴⁶ A similar decline has occurred in sea ice, decreasing by about 8% over the last thirty years, and as much as 15-20% during the summer

⁴³ Donald R. Rothwell, and Christopher C. Joyner, "Chapter 1: The Polar Oceans and the Law of the Sea," in *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction*, edited by Alex G. Oude Elferink and Donald R. Rothwell (New York: Martinus Nijhoff Publishers, 2001), at 5.

⁴⁴ Susan Joy Hassol, "Arctic Climate Impact Assessment: 2004," (New York: Cambridge University Press, 2004), at 28.

⁴⁵ D.G. Barber, J. V. Lukovich, J. Keogak, S. Baryluk, L. Fortier, and G.H.R. Henry, "The Changing Climate of the Arctic," *Arctic* 61.1 (2008): at 9.

⁴⁶ Hassol, at 12.

months, as Arctic-wide average sea ice thickness has experienced reductions of 10-15%, and as much as 40%.⁴⁷

Similarly, by these estimates, sea ice duration in Canada can be expected to be at least ten days shorter by 2020, increasing to potentially a month shorter by 2080, even though ice cover currently remains land-locked for ten months of the year.⁴⁸ The reasons for this are complex, as recent scientific evidence attests. The Arctic environment is strongly dictated by the earth-ocean-atmosphere system which is managed by the sun's radiation, and depends strongly on how much radiation reaches the Earth, where exactly, during which season, and the type of surface cover (water, land, ice).⁴⁹ About thirty percent of this radiation is transported back into space by clouds for instance, while seventy percent is absorbed by the atmosphere and the surface of the earth. This surface radiation is "returned to the atmosphere through convection and longwave radiation, which is absorbed by clouds and greenhouse gases," that is, a layer of gases (carbon dioxide, water vapour, methane to name a few) that trap heat and reflect some longwave radiation back down to the surface of the earth.⁵⁰ In turn, this layer reflects radiation back down from the atmosphere that should have been escaping into space, warming the surface of the Earth.

This process is essential to atmospheric and oceanic energy circulation, particularly from the mid-latitudes to the high latitudes because "atmospheric circulation in mid-latitudes transports energy poleward via transient disturbances (cyclones and anticyclones)...to zonal

⁴⁷ Ibid., at 25.

⁴⁸ C. Furgal and T.D. Prowse "Chapter Three: Northern Canada: From Impacts to Adaptation: Canada in a Changing Climate, 2007," edited by D. S. Lemmen, F.J. Warren, J. Lacroix and E. Bush. Ottawa: Government of Canada. Published online October 21, 2009, available from: <http://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/earth-sciences/files/pdf/assess/2007/pdf/ch3_e.pdf>. (accessed July 28, 2011), at 83.

⁴⁹ Barber, et al. "The Changing Climate of the Arctic," at 7.

⁵⁰ Ibid., at 7.

(east-west) flow, including storm systems”.⁵¹ The atmosphere “also influences the ocean through winds that alter surface currents, as well as through both evaporation and precipitation that alter temperature and salinity,” both important features in a changing Arctic climate.⁵² It is a significant region in this regard because, in combination with the Antarctic region, the Arctic sets up the “large-scale circulation patterns and teleconnections that make our planet habitable”.⁵³

The Arctic Report Card, 2011, issued by the National Oceanic and Atmospheric Administration similarly “considers a wide range of environmental observations throughout the Arctic” on an annual basis and recently concluded its 2011 study.⁵⁴ This report indicated that “there are now a significant number of years of data to indicate a shift in the Arctic Ocean system since 2006,” characterized most significantly by a decline in the extent of summer sea ice cover and thickness, increases in ocean temperature further north in the ocean, and tied to these, warmer land temperatures in coastal regions leading to increases in tundra vegetation.⁵⁵

In terms of Arctic temperatures, the report noted that 2011 exhibited “area-wide positive temperature anomalies” indicating continued increases in temperature, where the “past six years have been the warmest such period in the instrumental record for the region poleward of 60°N”.⁵⁶ However, an important indicator of change used in the report is called “Arctic Amplification” noting that “the Arctic is warming faster than more southerly latitudes and that temperature increases will be Arctic-wide” as “twelve-month average near-surface air

⁵¹ Ibid., at 8.

⁵² Ibid., at 8.

⁵³ Ibid., at 8.

⁵⁴ J. Richter-Menge, M.O. Jeffries, and J. E. Overland, eds. “Arctic Report Card 2011: Executive Summary,” in *Arctic Report Card, 2011*, (National Oceanic and Atmospheric Administration), published December 2011, available from: <http://www.arctic.noaa.gov/reportcard/ArcticReportCard_full_report.pdf>, (accessed April 10, 2012), at 7.

⁵⁵ Ibid., at 7.

⁵⁶ J. Overland, U. Bhatt, J. Key, Y. Liu, J. Walsh, and M. Wang, “Temperature and Clouds,” in *Arctic Report Card 2011*, edited by J. Richter-Menge, M.O. Jeffries, and J. E. Overland, (National Oceanic and Atmospheric Administration), published December 2011, available from: <http://www.arctic.noaa.gov/reportcard/ArcticReportCard_full_report.pdf>, (accessed April 10, 2012), at 11.

temperature anomalies for October 2010 through September 2011 are above 1.5°C for most of the Arctic Ocean area”.⁵⁷ The reasons for this are varied, and while local loss of sea ice and terrestrial snow cover is the primary cause for the increase, a less noted reason is the process of “poleward movement of heat and moisture from mid-latitudes as part of the required overall global heat transport from equatorial regions to the polar regions” which, combined with the other factors, lead to some warming.⁵⁸ This is a unique system where multiple interacting changes lead to dramatic results. Surface atmospheric temperatures alter the Arctic environment in a number of ways, leading to a decrease in multi-year sea ice and glacial mass, where it is then nearly impossible to return to previous conditions. Thus, a combination of “gradual global warming, warm anomalies in internal climate variability in individual years, and impacts from multiple feedback processes,” lead to change.⁵⁹

Some of these changes have been observed by three Inuvialuit communities in the Mackenzie Delta, including the Tuktoyaktuk, Aklavik, and Inuvik. In particular, the Tuktoyaktuk noticed considerable changes in the unpredictability of weather including thunderstorms, less snowfall in the winter, longer, warmer summers, and a considerable amount of erosion that the other two had not also seen, losing land near the ocean.⁶⁰ They also saw an increasing disappearance of permafrost, lower lakes and increasing algae, and a decrease in the quality of food including skinnier fish, new migration routes for birds and fish, and new wildlife and plant species they had not seen before.⁶¹ The Aklavik and the Inuvik saw many of the similar changes as the Tuktoyaktuk had. The Aklavik specifically saw much more of a change in water quality

⁵⁷ Ibid, at 12.

⁵⁸ Ibid., at 12.

⁵⁹ Ibid., at 16.

⁶⁰ Richard Vaughan, “Chapter Thirteen: Climate Change?” *The Arctic: A History* (UK: Sutton Publishing, 2007), at 302.

⁶¹ Ibid., at 302.

and water levels and in the changing of the seasons, while the Inuvik saw much more dramatic changes in the unpredictability of the weather and in the different condition of wildlife, plants, fish, and insects.⁶²

However, what all three had in common consistently was the observation that sea and lake ice were undergoing changes. They saw an increasing loss of ice earlier in the spring and along the shores of rivers, noticing that the ice breaking was not as loud as it usually was.⁶³ Sea ice, and its extent, plays a pivotal role in a number of ecological and biological processes in the Arctic, most notably as part of the mechanisms that reflect sunlight back into the ozone and for mammal feeding processes (polar bears for instance). However, during the decade from 2001 to 2011, the extent and thickness of sea ice has been decreasing as the upper ocean gets warmer and fresher.⁶⁴ Part of the reason is what is called an anticyclonic or clockwise wind-driven circulation regime that moves clouds and thus temperature in the region. For fourteen years up to 2011, this anticyclonic wind pattern system has been dominant, whereas the years from 1948-1996 saw a much more typical 5-8 year pattern of circulation shifting between cyclonic and anticyclonic systems.⁶⁵

As the pattern has been mostly anticyclonic recently, and combined with warm air temperatures, “the summer extent of the sea ice cover has been at least 15-20% below the 1979-2000 average”.⁶⁶ Sea ice extent and thickness are important markers in analyzing effects on the Arctic region, particularly at two times during the year: at the end of the summer season in September when ice is at its most minimal point and at the end of the winter season in March,

⁶² Ibid., at 302.

⁶³ Ibid., at 302.

⁶⁴ A. Proshutinsky, “Sea Ice and Ocean Summary,” in *Arctic Report Card 2011*, edited by J. Richter-Menge, M.O. Jeffries and J. E. Overland, (National Oceanic and Atmospheric Administration), published December 2011, available from: <http://www.arctic.noaa.gov/reportcard/ArcticReportCard_full_report.pdf>, (accessed April 10, 2012), at 34.

⁶⁵ Ibid., at 34.

⁶⁶ Ibid., at 34.

when ice is at its most maximal extent.⁶⁷ According to the NOAA, in September 2011, sea ice extent reached its second lowest minimum at 4.33 million square kilometers, just slightly greater (0.16 million square kilometers more) than the previously lowest minimum in 2007, and 31% smaller than the entire 1979-2000 average, or 2.08 million square kilometers smaller (see Figure 1).⁶⁸ Also notable is the fact that declines in sea ice extent are greatest from August to October with an increase in inter-annual variability during these months for the decade beginning in 2001 to 2011.⁶⁹ NOAA reports a similar trend concerning maximum ice extent was measured in March 2011. Moreover, maximum sea ice extent reached 14.64 million square kilometers in 2011; a roughly 7.7% decrease from the previous average of 15.86 million square kilometers (see Figure 1).⁷⁰

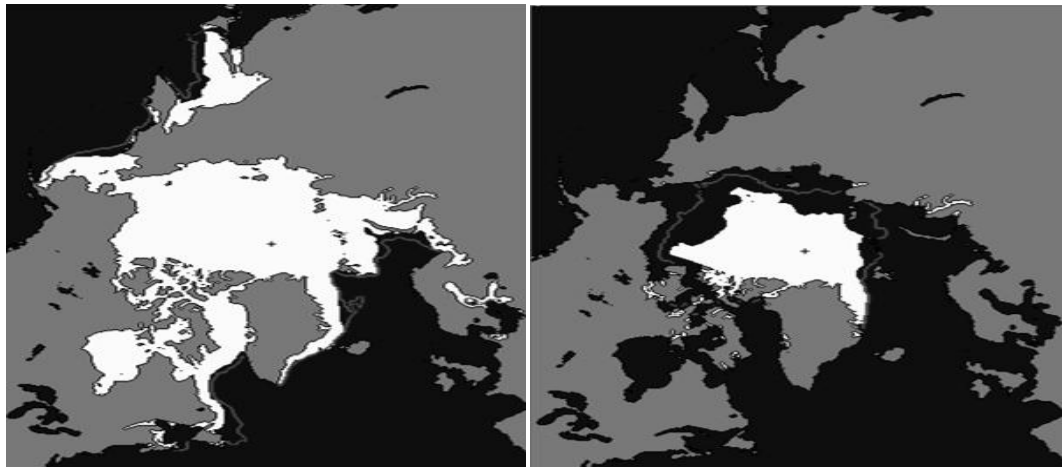


Figure 1: Left, Arctic sea ice extent in March 2011.⁷¹ Right, Arctic sea ice extent in September 2011.⁷²

⁶⁷ D. Perovich, W. Meier, J. Maslanik, and J. Richter-Menge, "Sea Ice," in *Arctic Report Card 2011*, edited by J. Richter-Menge, M.O. Jeffries, and J. E. Overland, National Oceanic and Atmospheric Administration, published December 2011, available from: <http://www.arctic.noaa.gov/reportcard/ArcticReportCard_full_report.pdf>, (accessed April 10, 2012), at 35.

⁶⁸ *Ibid.*, at 36.

⁶⁹ *Ibid.*, at 36.

⁷⁰ *Ibid.*, at 36.

⁷¹ National Snow and Ice Data Center, "Summer 2011: Arctic sea ice near record lows," updated Oct. 4, 2011, available from: <<http://nsidc.org/arcticseaicenews/2011/10/>>, (accessed July 24, 2012).

⁷² National Snow and Ice Data Center, "Ice extent low at start of melt season; ice age increases over last year," updated April 5, 2011, available from: <<http://nsidc.org/arcticseaicenews/2011/04/ice-extent-low-at-start-of-melt-season-ice-age-increases-over-last-year/>>, (accessed July 24, 2012).

These figures represent the declining trend of sea ice, which alters borders in the region, identified most cogently by the *Arctic Climate Impact Assessment (ACIA)* which isolated a number of key changes. Estimates by the *ACIA* suggest the area could experience an increase in temperature of up to 10 degrees Celsius over the next one hundred years.⁷³ Similarly, snow cover over the past thirty years has decreased by about 10%,⁷⁴ with declines in sea ice extent and Arctic-wide average sea ice thickness reduced by about 10-15%, and as much as 40% in some areas.⁷⁵

The comparison of such changes during the two measurement periods of 1979-2000 and 2001-2011 and the differences noted in sea ice extent between them indicate that a significant shift has occurred and this shift is indicative of a “new regime of reduced sea ice” in the Arctic region.⁷⁶ These decreases, with some local variability, are becoming much more common.⁷⁷ Ice extent is distributed differently around the Arctic however, with a “pronounced retreat of ice around the periphery of the Arctic Basin and ice loss in the Canadian Archipelago,” most notably since 1980. Although this is the case, the central Arctic (northeast Greenland and the northern edge of the Canadian Arctic Archipelago) still contains ice, while ice north of Alaska consists of “a mixture of dispersed floes of first-year and multiyear ice amid considerable amounts of open water”.⁷⁸

As such, there is some variation, though a regime of reduced sea ice is much more prevalent now compared to previous years where ice was still compact and consolidated by the end of the summer. The age of the ice plays a role too, since older ice is usually thicker and more

⁷³ Hassol, at 28.

⁷⁴ Ibid., at 12.

⁷⁵ Ibid., at 25.

⁷⁶ Perovich, et al., “Sea Ice,” at 36.

⁷⁷ Ibid., at 36.

⁷⁸ Ibid., at 37.

resilient to change than younger ice. This is observable through satellite observations and the NOAA has determined that older ice reached a record minimum in the summer of 2011, although there was an increase in younger ice, suggesting that the ice mass has increased slightly in size but not in thickness or gained a lasting quality.⁷⁹

Barber et. al., in analyzing perennial pack ice in the southern Beaufort Sea in the summer of 2009, had “observed a much different sea icescape in the southern Beaufort Sea than anticipated, based on remotely sensed products”.⁸⁰ Their testing of multi-year and thick first-year sea ice in the deeper waters of the Canadian Basin determined that “heavily decayed, very small remnant multi-year and first-year floes” were “interspersed with new ice between floes, in melt ponds, thaw holes and growing over...older ice,” and containing about 25 per cent open water, “predominantly distributed between floes or in thaw holes connected to the ocean below”.⁸¹ Such an observation was witnessed in the Beaufort Sea ice pack which spans about 100 km to the west of Banks Island, where an opening of a flaw lead was seen, implying a thinning, and more mobile ice pack over the Arctic Ocean.⁸²

Fortier and Cochran echo this sentiment as scientists part of the Canadian Arctic Shelf Exchange Study (CASES) which was conducted from September 2002 to September 2004 and documented “the potential impacts of a shift in sea ice regime on the ecosystem of the Mackenzie Shelf in the southeastern Beaufort Sea.”⁸³ They also demonstrate that “among the numerous consequences of a warmer Arctic, the ongoing reduction of Arctic sea ice will have

⁷⁹ Ibid., at 39.

⁸⁰ D.G. Barber, R. Galley, M.G. Asplin, R. De Abreu, K.-A. Warner, M. Pucko, M. Gupta, S. Prinsenberg, and S. Julien, “Perennial pack ice in the southern Beaufort Sea was not as it appeared in the summer of 2009,” *Geophysical Research Letters* 36 (2009): at 1.

⁸¹ Ibid., at 1.

⁸² Barber, et al., “The Changing Climate of the Arctic,” at 10.

⁸³ L. Fortier and J.K. Cochran, “Introduction to special section on Annual Cycles on the Arctic Ocean Shelf,” *Journal of Geophysical Research* 113 (2008): at 1.

major environmental impacts” particularly because of its changing nature.⁸⁴ They refer to this sea ice as a “highly dynamic and thermodynamic skin of ice” that effectively “dictates air-sea exchanges, biological productivity and carbon fluxes over 15 million square kilometers of ocean”.⁸⁵ Thus, its reduction along the Mackenzie Shelf, and other Arctic shelves, can potentially alter “biogeochemical fluxes on Arctic shelves, therefore affecting the export of carbon...to the food webs, and to the deep basins where it can be sequestered”.⁸⁶ Additionally, they note that this is still not completely understood and further assessment of the processes “linking sea ice to freshwater, biological productivity, and carbon cycling” is necessary so that the “role of a seasonally ice-free Arctic Ocean as a future sink or source of atmospheric carbon dioxide”.⁸⁷

Similarly, the anticyclonic wind-driven circulation regime mentioned earlier has an effect on ocean temperature and salinity as much as increases in atmospheric temperature do.⁸⁸ In particular, in August 2011 sea surface temperatures in the western Arctic Ocean just northwest of Canada and Alaska were unusually warm, and such “interannual variations in sea surface temperature anomalies reflect differences in the pace of sea ice retreat...as well as changing advection of warm ocean currents from the south”.⁸⁹ Solar radiation also plays a role in this, as it “has penetrated more easily into the upper ocean under thinning and retreating ice cover to create warm near-surface temperature maxima,” which has had a strong effect in the Canadian Basin, with warmer temperatures reaching 30 meters in depth “because of increased downwelling in the

⁸⁴ Ibid., at 1.

⁸⁵ Ibid., at 1.

⁸⁶ Ibid., at 1.

⁸⁷ Ibid., at 1.

⁸⁸ A. Proshutinsky, M.-L. Timmermans, and I. Ashik, et. al. “Ocean,” in *Arctic Report Card 2011*, edited by J. Richter-Menge, M.O. Jeffries, and J. E. Overland, National Oceanic and Atmospheric Administration, published December 2011, available from: <http://www.arctic.noaa.gov/reportcard/ArcticReportCard_full_report.pdf>, (accessed April 10, 2012), at 42.

⁸⁹ Ibid., at 45.

convergent Beaufort Gyre during recent strongly-anticyclonic years...while surface mixing is decreasing as stratification increases”.⁹⁰

In this regard, the Beaufort Gyre, a rotating ocean current driven by wind systems, “is a large ocean circulation feature that plays a significant role in regulating variability in the Arctic climate”.⁹¹ As such, its anticyclonic (clockwise) rotation “promotes sea ice convergence, higher ice concentrations, and increased ice ridging,” although during the summer this can reverse to a cyclonic rotation due to lower sea level pressure around the Beaufort Sea.⁹² Consequently, its influence on sea ice motion depends on sea ice extent and strength of circulation. This is weakest in April when sea ice extent is predominantly at its maximum extent, and strongest in the late summer when ice extent is at its minimum.⁹³ It is also an important area for measurement because it “is the largest reservoir of freshwater in the Arctic Ocean,” which gained freshwater from 2003-2010, adding approximately 25% or more than 5000 km³.⁹⁴ It is an area that had never been explored until the late 1920s due to its harsh climate, darkness, and thick drifting sea ice at the time, while simultaneously “comprising a set of specific atmospheric, sea ice, and oceanic conditions that have significant influence on the Arctic climate”.⁹⁵

The first scientific observations of the Gyre were made in April and May of 1941 by Soviet scientists, landing on sea ice, making meteorological calculations and measuring ocean depth.⁹⁶ These early results “showed the presence of warm waters of Atlantic origin at 500 meters depth, with temperatures at least two times lower than the Makarov and Nansen basins of

⁹⁰ Ibid., at 45.

⁹¹ M.G. Asplin, J.V. Lukovich, and D.G. Barber, “Atmospheric forcing of the Beaufort Sea ice gyre: Surface pressure climatology and sea ice motion,” *Journal of Geophysical Research* 114 (2009): at 1.

⁹² Ibid., at 1.

⁹³ Ibid., at 1.

⁹⁴ Proshutinsky, M.-L. Timmermans, and I. Ashik, et. al., “Ocean,” at 46.

⁹⁵ A. Proshutinsky, R. Krishfield, and D.G. Barber, “Preface to special section on Beaufort Gyre Climate System Exploration Studies: Documenting key parameters to understand environmental variability,” *Journal of Geophysical Research* 114 (2009): at 1.

⁹⁶ Ibid., at 1.

the Arctic Ocean”.⁹⁷ In expeditions in 1953, scientists found that the deep water in the Beaufort Sea was warmer by 0.35°C than in the ocean north of Siberia.⁹⁸ The original explanation for this was a submarine ridge separating the deepest water of the sea from the basin, but this temperature difference was actually caused by the anticyclonic motion of the gyre.

Numerous expeditions have been held since. Namely, some of the most recent and comprehensive work was done in 2003 as the Beaufort Gyre Exploration Project. It was begun to test salinity minimums at the centre of the gyre specifically, indicating that salinity levels, which extend from the surface to about 400 meters depth, show that the Canada Basin contains about 45,000 km³ of freshwater.⁹⁹ Studies continued as part of this research indicated that the sea ice and its movement “as an intermediate link between the atmosphere and ocean and a product of interactions between the two is responsible for regulating momentum and heat transfer between the atmosphere and ocean”.¹⁰⁰ It does this by “accumulating and releasing freshwater or salt during the melting-freezing cycle” and moving the freshwater elsewhere “by incorporating first-year ice from the marginal seas into the convergent Beaufort Gyre circulation”.¹⁰¹ In turn, this process of combining different types of water, and different states of water, transforms it into ridged and thick multiyear ice.¹⁰² This helps to keep the previous year’s conditions available as a record for scientific analysis, but more importantly, it protects “the ocean from overcooling or overheating, both of which are extremely important for nutrient dynamics”.¹⁰³

Freshwater is also an important determinant in contemplating the effects a changing climate is having on a particular region. Freshwater in the Beaufort Gyre increased from 2004 to

⁹⁷ Ibid., at 1.

⁹⁸ Ibid., at 1.

⁹⁹ Ibid., at 2.

¹⁰⁰ Ibid., at 4.

¹⁰¹ Ibid., at 4.

¹⁰² Ibid., at 4.

¹⁰³ Ibid., at 4.

2008, and has remained at a higher than previous level ever since.¹⁰⁴ In scientific terms, this has created a deeper nutricline and subsurface chlorophyll maximum, increasing the depth of the upper halocline in the interior Canadian basin.¹⁰⁵ This creates the conditions necessary for changes to biological production due to stresses on the environment that were not previously there.

In turn, this leads to “a reduction of overall nitrate fluxes into the mixed layer, a condition that limits new biological production and favours smaller organisms at the base of the food web,” while a much “deeper halocline further removes the nutricline and chlorophyll maximum from sunlight increasing the importance of light limitation”.¹⁰⁶ As such, water currents which carry certain nutrients to the area and from the area are also affected, as is the transport of such nutrients. One such current, an eddy, or water current which rotates in the opposite direction of the pervasive current, becomes more prevalent. These are important because they carry “ammonium from the shelf to the (Canadian) basin to sustain a higher biomass of picophytoplankton within the eddy,” which serves the needs at the base of the food web but is potentially harmful to others above them in the food web.¹⁰⁷ This transport is central “to biological production as the nutricline is now deeper and those nutrients less available”.¹⁰⁸

Also notable is the fact that biological productivity could be increased further in the Arctic Ocean outside the Beaufort Gyre due to the “nutrient supply from the shelves and greater light penetration for photosynthesis caused by sea ice loss,” especially along the Canadian and

¹⁰⁴ M. Yamamoto-Kawai, W. Williams, S. Nishino, and F. McLaughlin, “Ocean Biogeophysical Conditions,” in *Arctic Report Card 2011*, edited by J. Richter-Menge, M.O. Jeffries, and J. E. Overland, National Oceanic and Atmospheric Administration, published December 2011, available from: <http://www.arctic.noaa.gov/reportcard/ArcticReportCard_full_report.pdf>, (accessed April 10, 2012), at 65.

¹⁰⁵ *Ibid.*, at 65.

¹⁰⁶ *Ibid.*, at 66.

¹⁰⁷ *Ibid.*, at 66.

¹⁰⁸ *Ibid.*, at 66.

Alaskan Beaufort shelves.¹⁰⁹ The waters along these continental shelves can be “expected to become more productive because of increased exposure to upwelling favourable wind enhanced by reduced ice extent and a more mobile ice pack that is more responsive to wind forcing,” creating more open water and necessary conditions for phytoplankton production, for instance, although this phenomena is more pervasive in the Kara Sea.¹¹⁰

Continental shelves are very sensitive to environmental changes because this is where river discharges and decay during melting periods occur and affect water and nutrient circulation.¹¹¹ Upwelling and downwelling are important phenomena in this regard, particularly in the Arctic environment of the Beaufort Sea because these oceanic motions help sustain the ecosystem. During longer ice-free seasons, a greater opportunity for upwelling exists, especially with increasing warming and salinity from Pacific waters along the surface, “resulting in enhanced melt and nutrient supply for production along the continental shelves”.¹¹² Upwelling occurs when a wind current called the Ekman transport gathers surface water along the coast, moves it away from the coast, and replaces it with deeper water, cycling nutrients and carbon dioxide found in the deep water.¹¹³ Downwelling is a similar process, although the Ekman transport drives surface water toward the coast where it gathers and sinks.¹¹⁴ It is an important process in an Arctic marine ecosystem dependent on seasonal sea ice accumulation along the Beaufort Sea and its adjoining coastline. Downwelling ensures that oxygen does not sustain decomposition on the surface while upwelling allows for nutrients deeper in the ocean to be fed throughout the Arctic ecosystem.

¹⁰⁹ Ibid., at 66.

¹¹⁰ Ibid., at 66-67.

¹¹¹ Barber, et al. “The Changing Climate of the Arctic,” at 9.

¹¹² Ibid., at 9.

¹¹³ Eric J. Lindsrom, NASA, “Wind driven surface currents: upwelling and downwelling: background,” available from: <<http://oceanmotion.org/html/background/upwelling-and-downwelling.htm>>, (accessed April 20, 2012).

¹¹⁴ Ibid.

In a study of these currents, Yang examined the “seasonal and interannual to decadal variability of oceanic downwelling in the Beaufort Sea,” and determined that surface winds are the “primary driver for (downwelling) variability in the upper Arctic Ocean and sea ice”.¹¹⁵ This is influenced by “a high sea level pressure centre that emerges in the fall and diminishes in the summer” as the most downwelling occurs from fall to spring in the interior Beaufort Sea, and upwelling along the Alaskan and Canadian coasts, due to the anticyclonic nature of winds which force sea ice.¹¹⁶

Yang notes however that these currents and their motions intensified from 1979 to 2006, hypothesizing that a “change in ice dynamics (thinner and less areal coverage) was responsible for the change in ice velocity” and thus an intensification in downwelling.¹¹⁷ Yang examined these variations in the Beaufort Sea during three periods: from 1979-1986, 1988-1994, and 1996-2004. The study area demonstrated that “the downwelling was weak in both spring (April-June) and summer (July-September) in all three periods” while during winter (January-March) downwelling “was stronger than that in summer and spring in all periods”.¹¹⁸ While these conclusions were not entirely different than previous findings “it is noted that the downwelling in the Beaufort Sea had strengthened considerably over these three periods” as “the maximum downwelling rate in the Beaufort Sea increased from about 5cm/d in 1979-1986 to more than 10cm/d in 1996-2004,” also strengthening the upwelling current along both the Alaskan and Canadian coastlines.¹¹⁹

¹¹⁵ J. Yang, “Seasonal and interannual variability of downwelling in the Beaufort Sea,” *Journal of Geophysical Research* 114 (2009): at 1.

¹¹⁶ *Ibid.*, at 1.

¹¹⁷ *Ibid.*, at 1.

¹¹⁸ *Ibid.*, at 8.

¹¹⁹ *Ibid.*, at 8.

This meant that the “strongest downwelling and largest interannual changes occurred in the fall between October and December” which was different than previously observed.¹²⁰ Yang determined that this strengthening and variability was actually dictated by winter variability. Tests were conducted that sought to determine whether sea ice was responsible for the difference. The seasonal variability of the sea ice was plotted over the three periods and the results were consistent with previous results, with “a steady decline of summer sea ice coverage over the Arctic basin” in the summer months (June to August).¹²¹ During this time surface winds and ice velocity are usually weaker than other months and thus downwelling is at its minimum in the Beaufort Sea as ice coverage is also at its minimum.

Conversely, from October to December the Beaufort Sea is mostly covered by sea ice with little difference in downwelling. This led Yang to conclude that while “the variability of sea ice concentration was not directly responsible for the large change of oceanic downwelling in the Beaufort Sea,” the “ice concentration, however, does affect the response of the ice velocity to wind stress forcing”.¹²² Thus, the movement of the ice contributes to increased downwelling in the Beaufort Sea and upwelling along the Alaskan and Canadian coasts. Sea ice only moves when unfrozen, and so it can be concluded that such an alteration is part of the effect of climate change, as ice melts and contributes to further movement.

These studies reflect the changing nature of the Arctic environment but only make brief reference to the causes of such change. Perhaps one of the most dangerous to the Arctic environment and more generally as well are POPs (persistent organic pollutants), which include pesticides like dieldrin and toxaphene, industrial compounds like polychlorinated biphenyls

¹²⁰ Ibid., at 8.

¹²¹ Ibid., at 8.

¹²² Ibid., at 9.

(PCBs), and combustion by-products like dioxins and furans.¹²³ Problematically, most of these are not even used in the Arctic, travelling from more southern locales, through some of the atmospheric and ocean circulation patterns already mentioned. Further, these chemicals accrue in the fatty tissue of animals and passing from the bottom of the food chain to the top through predation, affecting immune function, reproduction, and development.¹²⁴

A similar pattern is observed with heavy metals, with the most potentially toxic being mercury, cadmium and lead, posing a risk not only to animals, but humans as well. Uses of these heavy metals are still high, with 2000 tons of mercury emitted annually on a global level through coal-burning plants, waste incineration, and refining operations mainly, with another 4000 tons released naturally.¹²⁵ Cadmium is also still prevalent, reaching 7600 tons a year from very similar sources to mercury, with lead reaching over 300,000 tons annually from leaded gasoline mostly.¹²⁶

Consequently, the Arctic environment is changing in ways that have not been previously witnessed. A significant amount of research has been conducted in the area to this point, especially in the Beaufort Sea area, as specific weather patterns and morphological conditions render the sea somewhat unique in the Arctic Ocean. This research has led to increased attention on the Beaufort Sea, contributing toward a much more comprehensive consideration of the potential effects a changing climate is having on the area. Sea ice reductions, decreases in sea ice thickness of multi-year ice, increases in temperature, permafrost instability, affects on biological

¹²³ David VanderZwaag, Rob Huebert, and Stacey Ferrara, "Chapter 12: The Arctic Environmental Protection Strategy, Arctic Council and Multilateral Environmental Initiatives: Tinkering While the Arctic Marine Environment Totters," in *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction*, edited by Alex G. Oude Elferink and Donald R. Rothwell, (New York: Martinus Nijhoff Publishers, 2001), at 228.

¹²⁴ Ibid., at 229; also Eric DeWailly and Christopher Furgal, "Chapter One: POPs, the Environment, and Public Health," in *Northern Lights against POPs: Combatting Toxic Threats in the Arctic*, edited by T. Fenge and D. Downie, (Montreal: McGill-Queen's University Press, 2003), at 4.

¹²⁵ Kate Ravilious, et.al., "Arctic Monitoring and Assessment Programme: Arctic Pollution 2011," published May 2011, available from: <<http://www.amap.no/>>, (accessed Sept. 6, 2011), at iv.

¹²⁶ VanderZwaag, et. al., "Chapter 12," at 231.

productivity, and alterations to ocean currents in the area are specific changes occurring in the Beaufort Sea. Given these recent transformations, alterations to the Arctic environment will continue and have an effect on the relationships of coastal nations, with implications for sovereignty and for resource development.

Chapter Three: The Development of Sea Law

International law is universal. It is a body of law which applies to all states regardless of their specific and distinctive cultures, belief systems and political organizations. It is a common set of doctrines which all states, whether Europe or Latin America, Africa or Asia, use to regulate relations with each other...it is today hard to conceive of an international law which is not universal. And yet, the universality of international law is a relatively recent development.¹²⁷

If the Beaufort Sea is not immune to the effects of climate change, it is similarly not immune to the effects of changes in international law. As melting sea ice in particular prompts a redrawing of borders, law has to change to adapt to these circumstances. However, the law of the sea has a rich history and particularly so more recently concerning the Beaufort Sea, containing the origins of the dispute within its changing legal norms, principles, and laws. This chapter will detail the development of the international law of the sea to provide an analysis of past legal norms and concepts that have had an effect on current legal norms and concepts around the law of the sea. These changes have had, and continue to have, an impact on Arctic governance and the Beaufort Sea maritime boundary dispute, fomenting a governance regime of the circumpolar north while developing international maritime law that reflects current state behaviour.

The Beaufort Sea maritime boundary dispute is the product of two nations interpreting legal documents in conflicting ways and according to different principles because of a particular historical record. The laws both nations have used to interpret their claims have been changed over time and so each nation's view on the subject differs. Today, international law concerning the oceans is primarily governed by the United Nations Convention on the Law of the Sea (the UNCLOS) which seeks to codify maritime delimitations, among other things. The UNCLOS represents the culmination of a long history of international law relating to the oceans, whose basis is guided by an evolution of principles that govern activity in this area. When finalized in

¹²⁷ Antony Anghie, *Imperialism, Sovereignty and the Making of International Law* (New York: Cambridge University Press, 2007), at 32.

1982, the UNCLOS contained 320 articles and 9 annexes, and thus became a modern legal order for the oceans, codifying borders from land out to sea.¹²⁸ It consists of “the international legal regime governing the division of ocean space, sovereign rights over ocean resources, protection of the marine environment and the conduct of activities in and under the Arctic Ocean.”¹²⁹ In effect, it seeks to guarantee “the peaceful uses of the seas and oceans, the equitable and efficient utilization of their resources, the conservation of their living resources, and the study, protection, and preservation of the marine environment”.¹³⁰

However, it was a long process to get to this point, with each change in laws reflected in succeeding laws. In this regard, international law relating to the seas can be dated back to Roman law and the Laws of the Twelve Tables in 415 BCE.¹³¹ Maritime navigation in this period revolved around a number of guiding principles: *mare liberum*, which referred to “high seas open to all nations,” and *mare clausum*, referring to a “closed sea under the authority of adjacent nations”.¹³² A comparable provision was developed in ancient Norway in taking the median distance between marine boundaries and declaring this area a *mare nostrum* or “our seas” so that sea routes between Greenland, Norway, and Russia, could be protected.¹³³ As such, international law was fairly simplistic at the time, with clear delineations enforced by naval means, for the purposes of war.¹³⁴ Moreover, similar processes continued to be undertaken into the Age of Exploration in efforts to legitimize European expansion. In particular, the Treaty of Tordesillas, 1494, after Columbus sailed across the Atlantic and a Papal Bull issued by Pope Alexander VI,

¹²⁸ Rothwell and Joyner, “Chapter 1: The Polar Oceans and the Law of the Sea,” at 12.

¹²⁹ Louise Angélique De la Fayette, “Oceans Governance in the Arctic,” (2008) 23 *The International Journal of Marine and Coastal Law*, at 532.

¹³⁰ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, “The United Nations Convention on the Law of the Sea: Preamble,” updated January 8, 2010, available from:

<http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf> , (accessed Aug.1, 2011), at 25.

¹³¹ Grant, *Polar Imperative*, at 17-18.

¹³² *Ibid.*, at 18.

¹³³ *Ibid.*, at 18.

¹³⁴ *Ibid.*, at 18.

set forth European expansion into the West by drawing a line “on a meridian of longitude through Brazil effectively allocating the then world into an area of Portuguese expansion to the east and Spanish expansion to the west”.¹³⁵

Anghie explains that the primitive origins of modern international law can be found in the work of Francisco de Vitoria, a sixteenth-century Spanish theologian and jurist focusing on the social and cultural practices of his native Spain and its interaction with the Indians they colonized.¹³⁶ Vitoria’s jurisprudence took existing doctrines of the time and invented new ones to “deal with the novel problem of the Indians”.¹³⁷ For Anghie, “international law such as it existed in Vitoria’s time did not precede and thereby effortlessly resolve the problem of Spanish-Indian relations,” but was rather “created out of the unique issues generated by the encounter between the Spanish and the Indians”.¹³⁸

While Anghie’s examination concerns the origins of international law and the colonial experience, and thus the interaction between international law and colonialism, he raises an important problem in international law, that is, how order is created between sovereign states.¹³⁹ During Vitoria’s time, this was not a problem of order among sovereign states but rather of identifying who is sovereign and what powers they possess by identifying their customs and practices. The problem was not of order but of “creating a system of law to account for relations between societies which he understood to belong to two very different cultural orders, each with its own ideas of propriety and governance”.¹⁴⁰ Sovereignty, or “the complex of rules deciding what entities are sovereign, and the powers and limits of sovereignty,” emerged as a doctrine

¹³⁵ Donald R. Rothwell and Tim Stephens, *The International Law of the Sea* (Portland: Hart Publishing, 2010), at 2.

¹³⁶ Anghie, *Imperialism*, at 15.

¹³⁷ *Ibid.*, at 15.

¹³⁸ *Ibid.*, at 15.

¹³⁹ *Ibid.*, at 15.

¹⁴⁰ *Ibid.*, at 16.

through Vitoria's account of how to address cultural differences.¹⁴¹ This negated the older version of medieval law focused on the Pope's universal authority and his exercise of such authority in favour of a more secularized version of international law and notions of natural law which formed the basis of succeeding laws of the sea when applied to maritime matters.

As such, Papal authority was the determinant of the rule of the sovereign under the traditional framework that relied on divine law. In this way Pope Alexander VI was able to issue the Papal Bull mentioned earlier that divided the entire world among Spain and Portugal, both strong maritime nations at the time. Conversely, Vitoria's system of international law replaced divine law with natural law and secular sovereign rule. This allowed Vitoria to separate ownership and property from divine law and so the "Indians cannot be deprived of their lands merely by virtue of their status as unbelievers or heretics".¹⁴² He suggested that such issues should be decided under secular law for this reason, as "whatever the punishments awaiting them in their after-life, unbelievers such as Indians were not deprived of their property in the mundane realm merely by virtue of that status".¹⁴³ Ironically, Vitoria studied Biblical incidents where this might be the case to come to this conclusion, effectively undermining Papal authority with the same instrument that ruled it.

For Anghie, Vitoria rejects universal Papal authority empowering sovereigns to "pursue military action against heathens and infidels" because they belong to two different worldviews, thus neither has jurisdiction over the other.¹⁴⁴ Both the Spanish and the Indians have their own political systems and governance structures. This meant they possessed reason that gave them the ability to create institutions and determine moral questions, and could thus be subject to *jus*

¹⁴¹ Ibid., at 16.

¹⁴² Ibid., at 18.

¹⁴³ Ibid., at 18.

¹⁴⁴ Ibid., at 19.

gentium. It is an application of universal natural law ascertained by the use of reason, solving the problem of jurisdiction for the Spanish, naturalizing and legitimating Spanish incursion because both parties are created as equal sovereigns under law, sanctioning their activity as rational action amongst equally rational partners.¹⁴⁵ Natural law is thus an agglomeration of transcendental principles identified through the use of reason.¹⁴⁶ Here, “all human activity was bound by an overarching morality” binding sovereign states.¹⁴⁷ In a sense, it comes from a “divine authority or from basic human characteristics”.¹⁴⁸

Effectively, natural law was a pragmatic attempt to agglomerate transcendental principles identified through the use of reason.¹⁴⁹ It sought to legitimize certain actions beneficial to the law-making party by creating a common framework for them to construct a subject within the reach of law but simultaneously outside its protection, justifying any action deemed necessary. It was a development that sought to co-opt resistance by defining rules within a framework that did not allow for opposing views. In effect, the rules were created for the benefit of the rulers on the basis that this was how it was to be, as evidenced by the Papal Bull above.

Consequently, the benefit of instituting natural law is a resolution of the problem of jurisdiction because the “gap between the two cultures now ceases to exist in that a common framework by which both Spanish and Indian behavior may be assessed is established”.¹⁵⁰ This framework idealized Spanish culture and practice while universalizing the two, naturalizing the practice as if it were existent in a secular state of nature.¹⁵¹

¹⁴⁵ Antony Anghie, “Francisco de Vitoria and the Colonial Origins of International Law,” *Social and Legal Studies* 5.3 (1996): at 324.

¹⁴⁶ Anghie, *Imperialism*, at 41.

¹⁴⁷ *Ibid.*, 41-42.

¹⁴⁸ Val Napoleon, “Thinking About Indigenous Legal Orders,” *National Centre for First Nations Governance* (June 2007), at 5.

¹⁴⁹ Anghie, *Imperialism*, at 41-42.

¹⁵⁰ *Ibid.*, at 21.

¹⁵¹ *Ibid.*, at 21.

Both parties were able to participate in such a system as equals, particularly in trade and exchange, as they would attempt to meet “the other’s material lack and possessing, implicitly, the autonomy to decide what is of value to them”.¹⁵² Both can thus be portrayed as independent actors in what appears to be an equal, fair, and reciprocal process. However, it was also a system that legitimated Spanish influence in the Indian society by authorizing a specific economic and political dependency by creating a common framework for them to operate in void of cultural difference, constructing the Indian within the reach of law and yet outside its protection, justifying violence leading to conversion. Any “Indian attempt to resist Spanish penetration would amount to an act of war which would justify Spanish retaliation”.¹⁵³ As such, a very specific change occurred in the thinking and practice of international law. A secularized version of international law substituted divine law in the relationship between the Spanish and the Indians, under the principle of *jus gentium*. Any attempt to resist was not seen as violation of universal Papal authority under the auspices of a divine law but rather a universalized natural law administered by a sovereign authority. Anghie surmises here that the question of who the sovereign is and what constitutes sovereign power in the “complex political systems of Renaissance Europe” are difficult questions to answer.¹⁵⁴

However, clear distinctions are made between the Spanish and the Indians and their roles under *jus gentium*, particularly noting that the sovereign cannot be an Indian, and that they “exist within the Vitorian framework only as violators of the law”.¹⁵⁵ In this sense, sovereignty under *jus gentium* exists as a dividing mechanism amongst equal partners to establish a framework that consolidates a relationship of power thus rendering them unequal. The Indian or conquered

¹⁵² Ibid., at 21.

¹⁵³ Ibid., at 22.

¹⁵⁴ Ibid., at 26.

¹⁵⁵ Ibid., at 26.

people, are devoid of sovereignty once having gained it and should resistance exist, it can be quelled because they have been subscribed to universal natural law. A violation of universal natural law must be controlled; otherwise this structure cannot be sustained.

Anghie makes a very important conclusion suggesting that “the conventional view that sovereignty doctrine was developed in the West and then transferred to the non-European world is, in important respects, misleading”.¹⁵⁶ Astutely, he suggests that the “sovereignty doctrine acquired its character through the colonial encounter,” originating most cogently in a set of jurisprudence emanating from Spanish practices that became universally binding in an idealized form.¹⁵⁷

Inevitably, how order is created and maintained amongst sovereign states rests in the colonial world, and not just the version espousing the imperial tendencies of European nations at the time. Anghie demonstrates this by focusing on the sovereign Spanish encounter with the non-sovereign Indian, and how it was determined that the Indian was non-sovereign. He notes that this was accomplished by accepting that the colonial world was not sovereign, which allowed the framework to “create for itself, and present as inevitable and natural, the grand redeeming project of bringing the marginalized into the realm of sovereignty, civilizing the uncivilized, and developing the juridical techniques and institutions necessary for this great mission”.¹⁵⁸ It became a manipulation of a particular set of circumstances and prevailing attitudes to fit a specific necessity at the time, facilitating economic exploitation of a non-European territory while circumventing rules of state responsibility. It is a behavior paralleled today during the Beaufort Sea maritime boundary dispute.

¹⁵⁶ Ibid., at 29.

¹⁵⁷ Ibid., at 29-30.

¹⁵⁸ Ibid., at 30.

The basis for international law in its recent incarnation thus resides in a colonial history. It was not until the nineteenth century reconstruction of the system through a focus on positivism that the modern system took its more recognizable, and universalized form. Positive law has as its locus the sovereign state, which is the foundation of the legal system.¹⁵⁹ This meant that there was no overarching natural law or some higher morality governing legal function, but that the state was the highest authority, bound to that which it agreed to, emphasizing the behavior of states and institutions in the laws they create.¹⁶⁰ As such, law comes from a central authority and through a formal process.¹⁶¹ Thus, something like a treaty for instance was an expression of sovereign will, suggesting consent to be bound, and these, in combination with customary law, governed international behavior.¹⁶² By this logic only European law of the nineteenth century could create international law, and thus non-Europeans were excluded from the law-making process, being instead the “exclusive preserve of European states, as a result of which the former (non-Europeans) were deprived of membership and the ability to assert any rights cognizable as legal”.¹⁶³

The precipitating impetus toward positive law was the push of imperial nations organizing themselves in their colonial empires, consisting of rules “which had been agreed upon by sovereign states, either explicitly or implicitly, as regulating relations between them”.¹⁶⁴ Where naturalist jurists like Grotius argued that “reason revealed a set of rules which governed relations between nations,” having elements of a foundation for legal positivism, it still relied on transcendental principles founded while in the state of nature in a distant past. Positive law

¹⁵⁹ Ibid., at 43.

¹⁶⁰ Ibid., at 43.

¹⁶¹ Napoleon, “Thinking About Indigenous Legal Orders,” at 5.

¹⁶² Anghie, *Imperialism*, at 44.

¹⁶³ Ibid., at 54.

¹⁶⁴ Ibid., at 43.

changed this entirely and represented an evolution in the law rejecting previous divine law and natural law where state activity was governed by a higher morality. Instead, “rules of international law were to be discovered not by speculative inquiries into the nature of justice or teleology, but by a careful study of the actual behavior of states and institutions and laws which they created”.¹⁶⁵

A contradiction exists in this positive law because international law, as a scientific discipline by this time, only existed as such by affirming customary law, which governs primitive societies in the first place.¹⁶⁶ International law disassociates from the primitive version by becoming authoritative, and in this period was a “far more anxiety-driven process of naming the unfamiliar, asserting its alien nature, and attempting to reduce and subordinate it”.¹⁶⁷ Thus, much like the natural law of Vitoria, positive law demarcated the “exclusive sphere occupied by European states,” relying on the premise of positivist sovereignty that civilized states were sovereign and uncivilized were not, though relying more on formal process than transcendentalism.¹⁶⁸ It reaffirms that unequal relations are reinforced through political structures like the law, especially with Europeans dealing with non-European societies that were beyond the scope of law, except when the expansion of territory or trade was concerned.¹⁶⁹ Sovereignty for the European world represented an assertion of power and authority while for the non-European world it was a mechanism of suppression.¹⁷⁰ Such a legacy is important because of the lasting effect it has had on the legal system today. The contemporary system is characterized by

¹⁶⁵ Ibid., at 43.

¹⁶⁶ Ibid., at 62.

¹⁶⁷ Ibid., at 63.

¹⁶⁸ Ibid., at 63.

¹⁶⁹ Ibid., at 71.

¹⁷⁰ Ibid., at 104.

the United Nations, formerly the League of Nations, and its legal mechanisms including the UNCLOS and international environmental law.

Due to these colonial origins, the regime originally established by the League of Nations first after the annexation of German and Ottoman territories after World War I (called the Mandate System), sought to be neither positivist nor naturalist. Conquest and exploration were no longer effective for international law, so this system was devised to promote self-government and independent states, involving “nothing less than the creation of the social, political, and economic conditions thought necessary to support a functioning nation-state”.¹⁷¹ As a forerunner to the United Nations, the League of Nations and the Mandate System provided for the evolution in the role, place, and scope of international law. It required codification of international law and the creation of an institution with the capacity to address this need.

The League of Nations and the Mandate System created the basis for organizing a community of states seeking a common goal and the maintenance of such cooperative action in the attempt to restrain aggressive activity. While imperfect, and lacking enforcement even today, it did provide for the evolution of international law not through coercive means, but through the persuasion of the advantages of the pursuit of common goals through cooperative means.

Conversely, the Mandate System, Anghie suggests, “transferred only sovereignty to mandate peoples, not the powers associated with ‘government’ in the form of control over the political economy”.¹⁷² In this sense, economic power is still prone to external force and this type of system indeed enhanced the network of economic relationships connecting the mandated territory to the international economy, undermining to a degree the interests of the people. However, it is also a system that enabled a flexible and comprehensive legal system supported by

¹⁷¹ Ibid., at 116-117.

¹⁷² Ibid., at 180.

an administrative network comprising norms, standards, and treaty provisions. Sovereignty under international law provides the necessary tool to protect and further a nation's interests in this way, particularly given shared economic interests, though it does have a historicity rooted in unequal relations.

In a similar way to Vitoria's creation of a framework that defended Spanish colonial interests, Hugo Grotius, building on similar natural law principles, wrote the *de Mare Liberum*, 1609. This was a preliminary treatise on maritime navigation suggesting that the ocean cannot be delineated by any particular nations, that it is "an ocean unbridled by national claims, in which the mercantile nations had unrestricted rights of navigation and passage".¹⁷³ In defending Dutch trade amidst Portuguese competition, Grotius reasoned that the oceans were common to all, void of ownership or property relations and this became the dominant doctrine at the time.¹⁷⁴

The Grotian view of freedom of the seas, based on natural law, remained until the nineteenth century, when legal positivism arose, and when the increased militarization of naval capacities and their subsequent entrance into the coastal waters of warring states revealed a necessity to develop an amendment to the original rule. This led to a distinct right to control coastal waters in what was called the territorial sea, later adopted into the UNCLOS.¹⁷⁵

Accordingly, constitutive of the time period and the need for the development of a flexible system that could respond to modernization and new demands on ocean and sea space, the territorial sea became the area "over which the adjacent coastal state exercised jurisdiction and control, principally for the purposes of security, but also in relation to resources that may

¹⁷³ David Freestone and Salman M. A. Salman, "Ocean and Freshwater Resources," in *The Oxford Handbook of International Environmental Law*, edited by Jutta Brunneé, Daniel Bodansky, and Ellen Hey (New York: Oxford University Press, 2007), at 339.

¹⁷⁴ Hugo Grotius, *The Freedom of the Seas, or the Right Which Belongs to the Dutch to Take Part in the East Indian Trade (Original 1609)*, translated by Ralph Van Deman Magoffin (New York: Oxford University Press, 1916), published Jan. 22, 2010, available from the Online Library of Liberty: The Freedom of the Seas at <<http://oll.libertyfund.org/title/552>>, (accessed Sept. 1, 2011), at 53.

¹⁷⁵ Rothwell and Stephens, *The International Law of the Sea*, at 4.

have been found close to the coast such as fisheries”.¹⁷⁶ This was an important development toward a modern law of the sea (though difficult to enforce unless a naval power), as the necessity developed for an accommodation of “emerging state practice within the dominant paradigm of the law of the sea which remained the freedom of the seas”.¹⁷⁷ Much like the development of international law and its concern with sovereignty, the international law of the sea developed in stages, culminating in the UNCLOS, respecting both the law of the sea and the doctrine of state sovereignty. It has grown simultaneously with other mechanisms of governance, including treaties, practices and policies, to develop a governance regime that intersects with scientific research, environmental protection, and other areas of international law.

The UNCLOS attempts to delineate a structure by which maritime nations are able to equitably and peacefully manage resources, industry, and the environment and it does so by providing an international legal framework for delimiting a coastal state’s boundaries. This framework is based on a series of different parameters for delimiting a coastal state’s waters. Conversely, this framework also prescribes the limits of navigability and other actions outside nations may take in a coastal state’s waters. For example, the immediate part of the Arctic Ocean in this case that is closest to Canada and out to 12 nautical miles (nm) is Canada’s territorial sea over which it has complete sovereign status, enabling Canada to enforce most laws.¹⁷⁸

Similarly, the next boundary is what is referred to as a contiguous zone. This is a boundary extending up to 24 nm from the coastline and allows for Canada, as the coastal state, to continue to enforce laws in pollution, taxation, custom, and immigration.¹⁷⁹ Extending from this

¹⁷⁶ Ibid., at 4.

¹⁷⁷ Ibid., at 4.

¹⁷⁸ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, “the United Nations Convention on the Law of the Sea: Article 3,” at 23; also De la Fayette, at 537.

¹⁷⁹ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, “the United Nations Convention on the Law of the Sea: Article 33,” at 35.

boundary is what is called the exclusive economic zone that extends 200 nm from the coast, and gives the coastal state expropriation rights over natural resources.¹⁸⁰ However, the same clauses that provide the framework for these boundaries also suggest that the exclusive economic zone can be extended to 350 nm from the coastline should the geomorphology of the seafloor meet specific conditions set out by the Commission on the Limits of the Continental Shelf (CLCS), including the condition that the continental shelf must be part of the natural prolongation of the land territory.¹⁸¹

The process to come to these more modern standards began following the establishment of the League of Nations and the pursuit of common agreement amongst states through the codification of international legal mechanisms as positive law replaced natural law as the dominant legal framework. In terms of the sea, priority was given to the territorial sea and “the treatment of foreign vessels” which led to The Hague Codification Conference in 1930 at the behest of the League of Nations with 44 nations present.¹⁸² Although this conference did not lead to any binding commitment in the form of hard law, with states divided on the limits of the territorial sea and “especially its breadth and relationship with an adjacent contiguous zone,” in the proceeding years progress was made in the Convention Regarding the Regime of Straits in 1936 concerning the regulation of navigation in the Black Sea straits.¹⁸³

This was the last significant discussion around an international law of the sea until 1945 and the Truman Proclamation in which the United States declared that it would, by Presidential Proclamation No. 2667, “exercise jurisdiction and control over the natural resources of the

¹⁸⁰ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, “the United Nations Convention on the Law of the Sea: Article 57,” at 40.

¹⁸¹ Christian Reichert, “Determination of the Outer Continental Shelf Limits and the Role of the Commission on the Limits of the Continental Shelf,” *The International Journal of Marine and Coastal Law* 24 (2009), at 388; also Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, “the United Nations Convention on the Law of the Sea: Article 76,” at 53.

¹⁸² Rothwell and Stephens, *The International Law of the Sea*, at 4.

¹⁸³ *Ibid.*, at 5.

subsoil and sea bed of the contiguous continental shelf,” an area of the seabed along the coastline that “extended out to the ocean as an effective undersea extension of the landmass”.¹⁸⁴ This would allow the US to lay claim to natural resources located there without competition because the continental shelf would be seen as a natural extension of the coast. Rothwell and Stephens note that this was the “first substantive claim by a coastal state to a distinctive offshore resources zone, which was completely separate from the territorial sea”.¹⁸⁵ This would be the precedent for further developments concerning the continental shelf later, and relevant presently to the Arctic.

Following this unilateral action was a body of jurisprudence relating to territorial waters. These quickly led to the establishment of the International Law Commission by the United Nations in 1949, which sought to codify and develop international law concerning the seas. In turn, discussions concluded with an agreement on draft articles and commentary in 1956, with the commentary in particular offering a foundation for the interpretation of certain articles by legal scholars and governments.

This would then lead to the first United Nations Conference on the Law of the Sea in 1958 in Geneva and the introduction of four conventions addressing novel delimitations at the time. These included the Convention on the Territorial Sea and Contiguous Zone, the Convention on the Continental Shelf, the Convention on the High Seas, and the Convention on Fishing and Conservation of the Living Resources of the High Seas, as well as a preliminary agreement on dispute resolution, nuclear tests, radioactive pollution, fisheries, and historic waters.¹⁸⁶ It was a significant meeting in that 86 states were in attendance in a post-war climate essentially documenting efforts at peace-making through international legal mechanisms.

¹⁸⁴ Truman Proclamation, “Proclamation 2667 of September 28, 1945: Policy of the United States with Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf,” published 1945, available from: <http://www.oceancommission.gov/documents/gov_oceans/truman.pdf>, (accessed Sept. 1, 2011), at 2.

¹⁸⁵ Rothwell and Stephens, *The International Law of the Sea*, at 5.

¹⁸⁶ *Ibid.*, at 6-7.

However, Cold War tensions brought to light important security questions surrounding military uses of the seas, navigation, and the right of landlocked states to ocean access.

This first UNCLOS was indeed a substantial agreement in addressing international concerns regarding maritime jurisdiction. The Convention on the Territorial Sea and Contiguous Zone effectively brought the territorial sea discussion into treaty form.¹⁸⁷ Little was accomplished as to exact limits of the territorial sea at this time, though this Convention did discuss the contiguous zone as a limit up to 12 nm that exists for the enforcement of domestic laws (pollution, immigration).¹⁸⁸

Perhaps more importantly to Arctic developments later, as well as the developing nature and logic of international law, was the Convention on the Continental Shelf and the Convention on the High Seas, reflective of the changing nature of technological development and state practice. Namely, in limiting continental shelf boundaries, a lack of definition regarding specificities gave developed states “a potentially greater capacity than other states to exploit the continental shelf seabed because of technological superiority” to a 200 nm limit and beyond, but with no real limit except to where boundaries with other nations meet.¹⁸⁹ Rights to the shelf were classified as sovereign rights and included natural resources of the shelf, including non-living resources of the seabed. Rights to the high seas were similarly dealt with and included the seas excluding the territorial sea, which meant parts of the contiguous zone and continental shelf. As such, a basis was established in UNCLOS I as a “multilateral treaty framework” representing a “contemporary international law of the sea”.¹⁹⁰

¹⁸⁷ Ibid., at 7.

¹⁸⁸ Ibid., at 7.

¹⁸⁹ Ibid., at 8.

¹⁹⁰ Ibid., at 8.

Some unresolved matters, chiefly those about the limits of the territorial sea and limits of a fishery, were further discussed two years later in a second conference, UNCLOS II. Under discussion was the limit of the territorial sea being 6 nm, favoured by some, and 12 nm, favoured by the rest. A solution was proposed by Canada and the United States where the territorial sea would be set at 6 nm, with the last six being a fishing zone.¹⁹¹ To proceed, a two-thirds support vote was necessary, and fell short by one vote, thus making no contribution to the previous conference or the international legal regime established by the first UNCLOS agreements. As state concerns revolve around jurisdiction of maritime limits, the basis was provided for the next conference held in 1973.

Importantly, the beginnings of a regime for the deep seabed that carried over into the third UNCLOS conference were established. Technological developments were making it easier to explore the resource potential of the seabed and developing states, relying on their natural resources for their national incomes were “particularly concerned that the free exploitation of the deep seabed would not only lead to industrial state dominance of this new resource frontier, but would also lead to a glut of minerals on commodity markets and falling resource prices”.¹⁹² In turn, the United Nations General Assembly in 1970 adopted Resolution 2749 (XXV), or the Declaration of Principles governing the Sea-Bed and Ocean Floor, and the Subsoil Thereof, Beyond the Limits of National Jurisdiction, which stated that the seabed and ocean floor are part of the common heritage of mankind, putting a moratorium on resource extraction in areas beyond national jurisdiction for the time.¹⁹³

¹⁹¹ Ibid., at 9.

¹⁹² Ibid., at 11.

¹⁹³ United Nations General Assembly Resolution 2749 (XXV), “Declaration of Principles governing the Sea-Bed and Ocean Floor, and the Subsoil Thereof, Beyond the Limits of National Jurisdiction,” published Dec. 17, 1970, available from: <<http://www.un-documents.net/a25r2749.htm>>, (accessed Sept. 1, 2011), at 1.

The third UNCLOS conference beginning in 1973 and ending in 1982, was held in three countries, and included states, national liberation movements, non-governmental organizations, and other parties in what was a substantial meeting that led to substantial results.¹⁹⁴ Again, there was significant debate about the territorial sea and the deep seabed and its resources. The 12 nm territorial sea was eventually agreed to, as well as a recognition of a coastal states' right to resources offshore up to a distance of 200 nm as the basis for an Exclusive Economic Zone (EEZ), with a 24 nm contiguous zone (where a coastal state can has control over customs, fiscal, immigration and sanitary regulations) in between them under Article 33.¹⁹⁵

The UNCLOS today is the most current instantiation of the international law of the sea. It is a comprehensive, consensus-based, internationally-recognized legal mechanism (though not signed by Turkey, Venezuela, Israel, and the United States) representative of a great variety of voices (130 states signed), and is reflective of changes in the practices of states and non-state actors.¹⁹⁶ Each version of the international law of the sea has been informed by a particular set of motivations (and namely economic) that directed a specific set of circumstances according to the will of the more dominant imperial power or nation-state. This is suggested by Anghie and his interpretation of the colonial origins of the law. The modern UNCLOS builds upon this foundation, suggesting possible challenges in delimiting Arctic territory among coastal states.

¹⁹⁴ Rothwell and Stephens, *The International Law of the Sea*, at 12.

¹⁹⁵ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, "the United Nations Convention on the Law of the Sea: Article 33," at 35; also Rothwell and Joyner, "Chapter 1: The Polar Oceans and the Law of the Sea," at 12.

¹⁹⁶ Ibid., Rothwell and Joyner, "Chapter 1: The Polar Oceans and the Law of the Sea," at 12.

Chapter Four: The International Law of the Sea and the Canadian Arctic

Just as it applies to other oceans, the UNCLOS applies to the Arctic Ocean as well, albeit slightly differently. This is because delimitations above water are subject to one set of rules. However, another set apply below the water, particularly in reference to the continental shelf. This is the area of the seafloor “adjacent to the coast where what is known as the continental margin slopes down gradually from the landmass into the sea until it begins to drop more sharply towards the deep ocean floor”.¹⁹⁷

The continental shelf, or margin, consists of the seabed and subsoil of the shelf itself (connecting to the coast), the slope (steepness is greater here), and rise (less steep) which extends into the deep seabed of the ocean floor, also called the “Area” under the UNCLOS (see Figure 2).

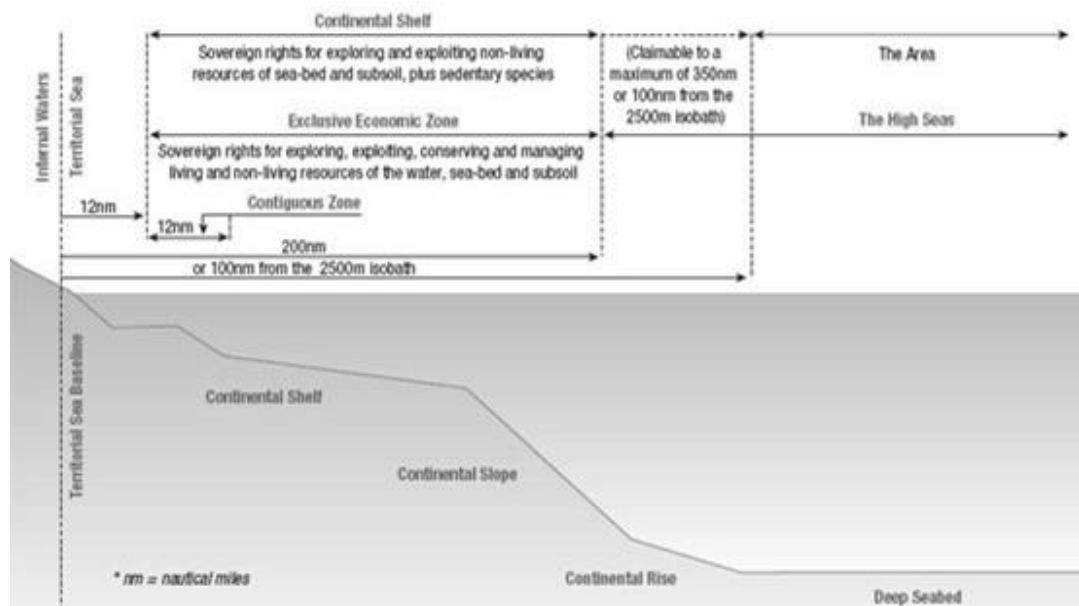


Figure 2: Canada's maritime delimitations according to the UNCLOS.¹⁹⁸

¹⁹⁷ Rothwell and Stephens, *The International Law of the Sea*, at 98.

¹⁹⁸ Department of Fisheries and Oceans Canada, “Canada’s Ocean Estate: A Description of Canada’s Maritime Zones,” updated July 9, 2010, available from: <<http://www.dfo-mpo.gc.ca/oceans/canadasoceans-oceansducanda/marinezones-zonesmarines-eng.htm>>, (accessed July 18, 2012), at paragraph 4.

The UNCLOS grants a coastal state the rights to 200 nm of continental shelf and out to the limit of the continental margin, that is, where the rise meets the deep ocean floor, where the edge extends beyond 200 nm.¹⁹⁹ In order for this to be extended further, a coastal state has to submit scientific data to the CLCS, an institution established by the UNCLOS that makes recommendations concerning the extent of this seafloor increase. Article 76 of the UNCLOS provides for these definitions and the specificities regarding the continental shelf and its outer reaches beyond what was originally conceived of in the 1958 Convention on the Continental Shelf which was then itself placed into the UNCLOS.²⁰⁰

Effectively Article 76 established the rules that grant consistent limits to the continental shelf.²⁰¹ It discusses the 200 nm limit, with two options for establishing an outer limit. The first consists of fixing the outer limit line by “straight lines not exceeding 60 nautical miles between points at each of which the thickness of sedimentary rocks is at least one per cent of the shortest distance from the foot of the continental slope”.²⁰² The second requires fixing the outer limit by “straight lines not exceeding 60 nm between points not more than 60 nm from the foot of the slope”.²⁰³ However, this extension is not unlimited, but rather can be increased to 350 nautical miles from the baselines or beyond that and up to 100 nm from the 2500-meter depth. That is, under specific conditions, a coastal state’s continental shelf can be extended to 350 nm “if the

¹⁹⁹ Ibid., at 99.

²⁰⁰ Alex G. Oude Elferink, “Article 76 of the LOSC on the Definition of the Continental Shelf: Questions concerning its Interpretation from a Legal Perspective,” *The International Journal of Marine and Coastal Law* 21.3 (2006), at 270.

²⁰¹ Ibid., at 270.

²⁰² Alex G. Oude Elferink, “Chapter 8: The Outer Continental Shelf in the Arctic: The Application of Article 76 of the LOS Convention in a Regional Context,” in *The Law of the Sea and Polar Maritime Delimitation and Jurisdiction*, edited by Alex G. Oude Elferink and Donald R. Rothwell, (New York: Martinus Nijhoff Publishers, 2001), at 141.

²⁰³ Ibid., at 141.

features of the seafloor in question strictly fulfill certain morphological and geological conditions”.²⁰⁴

As such, a coastal state’s underwater territory is constitutive of the continental shelf, or, the extension of its land territory under the sea toward the outer limit of that extension.²⁰⁵ This coastal state has sovereign authority over the continental shelf. It does not have authority over what is called “the Area,” a juncture where the seabed and ocean floor meet, as well as places beyond the continental shelf, all of which are under the jurisdiction of the International Seabed Authority (ISA).²⁰⁶ In order to claim more of the seafloor, the coastal state must demonstrate that the continental shelf extends as a natural prolongation beyond the original 200nm limit, and submit this to the CLCS who can only make recommendations based on the scientific data given by the coastal state. If these are accepted, the claim is accepted.

This is accomplished only by geological and geomorphological analysis. Article 76 of the UNCLOS defines the type of seafloor highs that have the potential to be considered natural prolongations of a state’s land territory: oceanic ridges, submarine ridges, and submarine elevations that are natural components of the continental margin.²⁰⁷ However, the definitions provided are vague. In reference to oceanic ridges paragraph 3 states that the continental margin must consist of “the submerged prolongation of the land mass of the coastal state,” as well as “the seabed and subsoil of the shelf, the slope and the rise”.²⁰⁸ Similarly, paragraph 6 states that

²⁰⁴ Reichert, at 388.

²⁰⁵ Brent Carpenter, “Warm is the New Cold: Global Warming, Oil, UNCLOS Article 76, and How an Arctic Treaty Might Stop a New Cold War,” *Environmental Law* 39 (2009), at 223.

²⁰⁶ *Ibid.*, 223.

²⁰⁷ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, “the United Nations Convention on the Law of the Sea: Article 76-77,” at 53-54.

²⁰⁸ *Ibid.*, at 53-54.

“the outer limit of the continental shelf shall not exceed 350 nautical miles” from the start, or baseline, of the territorial sea.²⁰⁹

Based on these delineations, it is a geological possibility then that oceanic ridges share geological characteristics with the deep sea floor but not the continental margin which ends at the deep sea floor. Therefore, an oceanic ridge would not be included with the continental margin though a submarine ridge could because although it is not naturally part of the shelf, geological processes merged the two and while they are geologically different to a degree, they are fused, and so the outer limit cannot exceed 350 nm from the baseline as stated in paragraph 6.²¹⁰ Submarine elevations have the potential to extend the continental shelf of a coastal state since they are considered to be a natural prolongation of the continental margin. Thus, it could be extended beyond the 350nm limit if determined to be connected to the continental margin to the second constraint line of 100 nm beyond the 2500-metre depth.²¹¹

All submissions must be made to the CLCS to secure “international recognition for the full extent of its continental shelf.”²¹² As a signatory to UNCLOS (the US has not signed as of April 2012), Canada’s submission in fulfillment of their obligations to map the seafloor is due in December 2013. This is significant for the Beaufort Sea maritime boundary dispute because some of the natural resources it contains may actually be found beyond the 200 nautical mile limit from the Canadian coast. These rights could even be extended to 400 or 500 nautical miles according to the Standing Senate Committee on National Defense’s interpretation of the CLCS

²⁰⁹ Ibid., at 53-54.

²¹⁰ Ibid., at 53-54; also Carpenter, “Warm is the New Cold,” at 230.

²¹¹ Elizabeth Riddell-Dixon, “Meeting the Deadline: Canada’s Arctic Submission to the Commission on the Limits of the Continental Shelf,” *Ocean Development and International Law* 42.4 (2011), at 369; also Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, “the United Nations Convention on the Law of the Sea: Article 76-77,” at 53-54.

²¹² Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 9.

rules.²¹³ In this respect, Riddell-Dixon notes that the Convention ensures the “coastal state does not have to exercise sovereignty over the continental shelf in order to enjoy its rights,”²¹⁴ as under international maritime law the state has exclusivity over such an area, and should a coastal state not explore these resources, another state cannot do so without express consent from the coastal state it is intruding on.²¹⁵

A coastal state must submit its proposal of the limit of their continental shelf within 10 years of entry into the UNCLOS based on the distance from the coast or natural prolongation of the land territory to the outer edge of the continental margin. Once the data is compiled, and a submission made to the CLCS, these outer limits will be binding and not subject to change later, so it is integral to the process that best scientific research is conducted according to the principles identified under provisions of international law.²¹⁶

Canada’s submission to the CLCS involves a number of important federal agencies and tasks. The Department of Foreign Affairs and International Trade (DFAIT) is involved because it is responsible for coordinating the submission and presenting it to the CLCS. Natural Resources Canada and the Department of Fisheries and Oceans are essential to providing the scientific research necessary for a successful submission, as is the Canadian Hydrographic Service, particularly with bathymetric surveys that map the ocean floor. The Geological Survey of Canada is conducting seismic surveys as well, measuring the thickness of sediment “and the sound velocity of the rock structures to determine if the rocks are of the same composition as the continental shelf adjacent to Canada’s coastline,” in an effort to maximize Canada’s claim.²¹⁷

²¹³ Standing Senate Committee on National Security and Defense. “Interim Report,” at 34.

²¹⁴ Riddell-Dixon, “Meeting the Deadline,” at 370.

²¹⁵ Ibid., at 370.

²¹⁶ Rothwell and Stephens, *The International Law of the Sea*, at 111.

²¹⁷ Riddell-Dixon, “Meeting the Deadline,” at 371.

The research is being or has been conducted in two periods of approximately two months each, one in the eastern and one in the western Arctic. Most of the research is completed and is being compiled as of June 2012 for a submission in 2013. The Beaufort Sea is located in the western Arctic, and efforts were initially problematic, particularly because travel was unsustainable due to ice floes.²¹⁸ This research, conducted beginning in 2009, was very expensive because the ships needed could not carry enough fuel over long distances. It is something to consider should the route become navigable for longer parts of the year, and particularly for resource exploration and development. Relevant data was collected though, and it is likely that enough data was collected for a strong submission to the CLCS.

However, the UNCLOS is not the only type of legal mechanism applicable to the law of the seas. Rather, the continuum upon which law has evolved as seen earlier, from divine, and natural law, to positive law, extends beyond treaty rights and into customary law as well. In this regard international law has undergone numerous revisions, reflecting changes in jurisdiction and state practice. Accordingly, the growth of international environmental law today is reflective of the necessity accompanying environmental change and the capacity of states to adapt to these changes in a more coordinated, equitable and effective way, in much the same way that natural law evolved to adapt to the needs of the time. As such, new principles for oceans governance that guided state behaviour were devised that altered activity on the oceans as priorities changed.

Similarly, concepts today have evolved that reflect modern challenges concerning international law and its relationship to the oceans. They do not necessarily modify legal doctrines like the UNCLOS, but rather their ability to refocus legal interpretation under the UNCLOS has a legitimate affect on the implementation of the provisions and of the articles under the UNCLOS. For instance, obligations are made toward the protection of the marine

²¹⁸ Ibid., at 373.

environment in Article 192 of the UNCLOS²¹⁹ which represents a “reorientation of the law of the sea away from a purely instrumental attitude to ocean space, to one which recognized the need to protect the marine environment for the benefit of humanity as a whole both within and beyond limits of national jurisdiction”.²²⁰

The principle of preventing transboundary harm, though found in customary law, is also found under Article 194, but has not been applied toward maritime issues as articulated in the UNCLOS.²²¹ However, it implies a duty to cooperate which has become integral to pollution prevention in Part XII of the UNCLOS, particularly as it applies to the common heritage of humankind principle which states that the oceans belong to everyone (much like the Grotian view).²²² In application, though, under the UNCLOS it only refers to mineral resources in the Area (places beyond national jurisdiction) “and is not a general principle for redistributing oceanic open access resources”.²²³ Rothwell and Stephens suggest that because the principle does not apply to the high seas in general, the principle should be referred to as the common concern of humankind when discussing areas beyond national jurisdiction.²²⁴

These places are significant in the Arctic for a number of reasons, entertaining another precept of oceans governance: use of best scientific knowledge. Especially when determining boundaries of continental shelves as is currently the case or in terms of pollution for instance, the use of best scientific knowledge is a standard increasingly imposed in environmental assessments and decision-making, and it includes the requirement to use the best available techniques and practices. This prominent role given to various specialized areas of expertise in international

²¹⁹ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, “the United Nations Convention on the Law of the Sea: Article 192,” at 100.

²²⁰ Rothwell and Stephens, *The International Law of the Sea*, at 475.

²²¹ Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, “the United Nations Convention on the Law of the Sea: Article 194,” at 100.

²²² Rothwell and Stephens, *The International Law of the Sea*, at 475.

²²³ *Ibid.*, at 475.

²²⁴ *Ibid.*, at 475.

environmental law and policy-making has given rise to what Haas has called the building of “epistemic communities”.²²⁵ These are associated networks of “knowledge-based experts with an authoritative claim to policy relevant knowledge within their domain of expertise.”²²⁶ Members of these epistemic communities consist of “experts with professional training who enjoy social authority based on their reputation for impartial expertise,” who give advice based on this expertise, and usually include scientists and engineers when discussing environmental matters.²²⁷

In turn, a few more principles associated with oceans governance and with application to the UNCLOS, but also more generally in international environmental law, are significant as potential deterrents to deleterious action in the Arctic environment. For example, the term ecosystem is mentioned in the UNCLOS as something necessary to protect, but the ecosystem approach has gained greater emphasis through Chapter 17 of Agenda 21 and has become integral to oceans governance, especially as it concerns the impact of human activities on an ecosystem.²²⁸

Other principles include the precautionary principle stating that “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.²²⁹ It evaluates the “likely environmental effects of a proposed activity,”²³⁰ so that decisions are made to proceed with effects understood, echoed in Article 191 of the Treaty on the Functioning of the European

²²⁵ Peter Haas, “Epistemic Communities,” in *The Oxford Handbook of International Environmental Law*, edited by Jutta Brunnée, Daniel Bodansky, and Ellen Hey (New York: Oxford University Press, 2007), at 793.

²²⁶ *Ibid.*, at 793.

²²⁷ *Ibid.*, at 793.

²²⁸ Rothwell and Stephens, *The International Law of the Sea*, at 476; also, United Nations Department of Economic and Social Affairs, Division for Sustainable Development, “Agenda 21: Chapter 17,” published 2009, available from: <http://www.un.org/esa/dsd/agenda21/res_agenda21_17.shtml>, (accessed Sept. 1, 2011).

²²⁹ United Nations Environment Programme, “Rio Declaration on Environment and Development,” updated 2010, available from: <<http://www.unep.org/Documents.Multilingual/Default.asp?documentid=78&articleid=1163>>, (accessed Sept., 1, 2011), at Principle 15.

²³⁰ Rothwell and Stephens, *The International Law of the Sea*, at 477; also United Nations Environment Programme, “Rio Declaration,” at principle 15.

Union which states that this principle can be employed in response to possible danger to human, animal, or environmental health.²³¹ It is intended to advance mitigation measures in advance of danger so that risk and uncertainty do not become reasons for inaction. These changes reflect the changing nature of international law according to modern demands.

Other measures include the polluter-pays principle for instance, or principle 16 of the Rio Declaration, insisting that pollution costs are to be paid by the polluter, and the principle of sustainable development.²³² The former is intended to be a reactive mechanism and is important in an Arctic marine environment given the difficulty in cleaning oil, for instance, from ice-cold waters should navigability be an option, or perhaps if offshore deep-seabed drilling. It is an assurance in some ways that preparations are made should something like a spill occur. This latter concerns the notion that “the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations,” very different than the previous principles advocating *mare clausum* or *jus gentium*.²³³

Current Application

These more modern retellings of historic legal principles have been maturing throughout the history of maritime travel and the origins of law relating to sea travel, reflective of the changing nature of state behaviour. As such, they set the basis for how current international law provides for the governance of the oceans in its adaptation to the changing Arctic environment and especially as it concerns areas beyond national jurisdiction, as identified by the UNCLOS.

²³¹ “Consolidated Version of the Treaty on the Functioning of the European Union: Chapter Twenty, Subsection 2,” *Official Journal of the European Union*, published 2008, available from: <<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:115:0047:0199:en:PDF>>, (accessed June 7, 2012), at 132.

²³² United Nations Environment Programme, “Rio Declaration on Environment and Development,” at Principle 16.

²³³ *Ibid.*, at Principle 3.

Traditionally, as has been noted, oceans governance has involved ocean space being “divided into a multitude of areas within national jurisdiction, where individual states have exclusive or primary rights, and the areas beyond national jurisdiction where states enjoy unencumbered freedoms;” a *mare liberum* as it were.²³⁴ However, with the UNCLOS this is changing to focus on providing a legal framework that enables “a shift from a sovereign-rights and issue-specific perspective to an integrated approach to oceans management,” with the aim of fostering cooperation between states, with the goal of achieving common objectives.²³⁵ In this regard, governance has a specific purpose different from the “making and enforcement of decisions by a centralised formal authority” that government entails.²³⁶ Thus, oceans governance relates to formal and informal rules, institutions, concepts, adjudicative mechanisms and other activity occurring in the oceans and the way that space is used.²³⁷

As such, oceans governance is a flexible objective and part of this has to do with a reliance on soft law and the development of a legitimate process that is both effective and current in the regulation of ocean use. This also has to do with transparency in participation and decision-making involving all stakeholders “including not only all interested states but also non-state actors including civil society”.²³⁸ For instance, the Convention on Access to Information, Public Participation and Decision-Making and Access to Justice in Environmental Matters (the Aarhus Convention, 1998), geared toward more domestic environmental issues, seeks the disclosure of environmental information, public participation in environmental decision-making, and access to justice.²³⁹ It could be applied internationally however, as articulated in article 3 (7)

²³⁴ Rothwell and Stephens, *The International Law of the Sea*, at 461.

²³⁵ *Ibid.*, at 461-462.

²³⁶ *Ibid.*, at 462.

²³⁷ *Ibid.*, at 462.

²³⁸ *Ibid.*, at 467.

²³⁹ *Ibid.*, at 467-468; also at United Nations Economic Commission for Europe, “the Convention on Access to Information, Public Participation and Decision-Making and Access to Justice in Environmental Matters (Aarhus

of the Convention which requires signatories to apply the principles stated therein throughout international environmental decision-making processes.²⁴⁰

Rothwell and Stephens advocate that this is relevant to oceans governance due to the OSPAR Arbitration case.²⁴¹ The dispute, between Ireland the United Kingdom, “concerned access to information about a mixed oxide (“MOX”) fuel plant located at the Sellafield nuclear facility”.²⁴² Here, Ireland was requesting access to deleted information from reports approving the plant about the potential environmental risks associated with a nuclear reprocessing plant under Article 9 of the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention).²⁴³ The United Kingdom declined to provide this information to Ireland on the basis that the information was not given due to commercial confidentiality. An arbitral tribunal “found that the information sought was not environmental information within the meaning of Article 9 of the OSPAR Convention,” leaving Ireland without this information and with only the negative environmental effects.²⁴⁴

Consequently, while oceans governance remains malleable and flexible, the facilitation of oceans governance has increased with the global legal framework provided by the UNCLOS. Rothwell and Stephens identify three periods in its growth which will be discussed further later. Preliminarily however, in its initial phase, up until 1958, the focus was on state rights within a specifically delineated space, namely the territorial sea, with little discussion concerning more

Convention),” published June 25, 1998, available from:

<<http://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf>>, (accessed Sept. 1, 2011), at Article 1.

²⁴⁰ Ibid., at 468; also at United Nations Economic Commission for Europe, “Aarhus Convention,” at Article 3 (7).

²⁴¹ Ibid., at 468; also at Permanent Court of Arbitration, “Ireland v. United Kingdom 2003 (“OSPAR Arbitration”),” published 2009, available from: <http://www.pca-cpa.org/showpage.asp?pag_id=1158>, (accessed May 24, 2012), at Press Release p. 1-2.

²⁴² “OSPAR Arbitration,” at Press Release p. 1.

²⁴³ Rothwell and Stephens, *The International Law of the Sea*, at 468; also, “OSPAR Arbitration,” at Press Release p. 1-2; and also at OSPAR Commission, “Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention): Article 9,” updated 2007, available from: <http://www.ospar.org/html_documents/ospar/html/ospar_convention_e_updated_text_2007.pdf>, (accessed Sept. 1, 2011), at 10.

²⁴⁴ Ibid., at 468; also at “OSPAR Commission,” at 10.

transboundary issues like marine pollution.²⁴⁵ This was followed by a second phase from 1959 to 1982 involving a more cooperative approach in combating marine environmental threats. This second phase was elucidated most notably under Principle 7 of the 1972 Stockholm Declaration on the Human Environment which sought to influence states in the shared objective of not only minimizing, but preventing sea pollution.²⁴⁶ Similarly, regional agreements were also devised alongside this more initial global framework, including the Regional Seas Programme of the United Nations Environmental Programme in an effort to continue a more cooperative approach to common environmental problems, particularly as they relate to Arctic marine resource exploitation, the monitoring of regional seas, and creating standards that could be used domestically, in national legislation.²⁴⁷

This basis led to the development of a more comprehensive and constitutional UNCLOS in 1982, marking the beginning of the third phase, which seeks “the development of a holistic approach to managing ocean issues,” and thus “developed on the basis that all uses of the oceans are interrelated and therefore need to be addressed comprehensively”.²⁴⁸ Rothwell and Stephens see this change, especially from the first phase to the third, as one where the governance of ocean space shifts “from being concerned solely with sovereignty and jurisdictional rights and freedoms to being concerned also with a shared responsibility to protect and preserve all aspects of the marine environment”.²⁴⁹

²⁴⁵ Ibid, at 470.

²⁴⁶ Ibid., at 470; also at United Nations Environment Programme, “Declaration of the United Nations Conference on the Human Environment: Stockholm Declaration,” updated 2010, available from: <<http://www.unep.org/Documents/Multilingual/Default.asp?documentid=97&articleid=1503>>, (accessed Sept. 1, 2011), at Principle 7.

²⁴⁷ Ibid., at 470; also at United Nations Environment Programme, “Regional Seas Programme,” updated 2010, available from: <<http://www.unep.org/regionalseas/programmes/independent/arctic/default.asp/>>, (accessed Sept. 1, 2011), at Regional Seas Programme: Arctic Region.

²⁴⁸ Ibid., at 470.

²⁴⁹ Ibid., at 471.

In ordering ocean space in this way, a fundamental shift occurs where the logic of state sovereignty over a specific jurisdiction, as dictated by law, is complemented by the necessity to protect that same space from undue harm. Namely in relation to the Arctic environment, Part XII of the UNCLOS seeks to establish a governance framework for the protection and preservation of the marine environment, especially from vessel-source, land-based and atmospheric pollution, and from intentional dumping.²⁵⁰

Additional policy frameworks related to oceans governance have also been developed, but address more global environmental challenges rather than ocean space directly. The 1992 Rio Declaration does this through 27 principles which have direct impacts on oceans management, as does Agenda 21 which was developed through the Rio conference.²⁵¹ Namely, Chapter 17 of Agenda 21, which seeks to address maritime issues “is regarded as the main international blueprint for sustainable oceans governance,” as it provides ways to “achieve sustainable development of the oceans, coastal areas, and seas through the programme areas of integrated management and sustainable development of coastal areas”.²⁵²

In a similar way, in 2002, the Johannesburg Plan of Implementation which was developed during the World Summit on Sustainable Development included similar desirable ideals aimed at achieving an effective governance regime. These ideals consisted of states assuming the dominant position in governance affairs and called for, among other things, the ratification of the UNCLOS, the implementation of Agenda 21, the application of the ecosystem

²⁵⁰ Ibid., at 471; also at Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, “the United Nations Convention on the Law of the Sea: Article 194,” at 100-101.

²⁵¹ Rothwell and Stephens, *The International Law of the Sea*, at 473.

²⁵² Ibid., at 473; also at United Nations Department of Economic and Social Affairs, Division for Sustainable Development, “Agenda 21: Chapter 17,” at introduction.

approach under the United Nations, and stronger coordination amongst all states with the goal of achieving more sustainable development practices (particularly as they relate to fish stocks).²⁵³

These principles and ideals apply to the Arctic environment just as they apply to any other environment. Moreover, a number of developments seek to protect the Arctic marine environment through legal mechanisms. The Declaration on the Protection of the Arctic Environment, and the accompanying Strategy (AEPS), were signed in 1991 between the eight Arctic states consisting of objectives designed to identify major pollutants more concretely and implement strategies to reduce them.²⁵⁴ Three northern indigenous groups were also included: the Inuit Circumpolar Conference (ICC), the Saami Council, and the Association of Indigenous Minorities of the North, Siberia, and the Far East of the Russian Federation, and given equal voice in discussion (though not entirely in practice), and made Permanent Participants.²⁵⁵

However, the AEPS was not an international treaty, but a voluntary agreement intending for parties to meet regularly to “determine the nature and extent of the specific environmental problems and to examine options to remedy them through cooperative action,” particularly through four working groups including the Arctic Monitoring Assessment Programme (AMAP), the Protection of the Arctic Marine Environment (PAME), Emergency Prevention, Preparedness and Response (EPPR), and the Conservation of Arctic Flora and Fauna (CAFF).²⁵⁶

The function of AMAP is to “determine the levels of anthropogenic pollutants in the Arctic,” and to study the effects of these pollutants in an effort to reduce them, much like PAME which seeks to analyze environmental threats against the Arctic marine environment (especially

²⁵³ Ibid., at 473; also at United Nations Department of Economic and Social Affairs, Division for Sustainable Development, “Johannesburg Plan of Implementation: Chapter 7,” published 2004, available from: <http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/POIChapter7.htm>, (accessed Sept. 7, 2011).

²⁵⁴ VanderZwaag, et. al., “Chapter 12,” at 234; also at *The Arctic Environmental Protection Strategy*, at 6.

²⁵⁵ Ibid., at 234; also at *The Arctic Environmental Protection Strategy*, at 42.

²⁵⁶ Ibid., at 235; also at *The Arctic Environmental Protection Strategy*, at 30.

land-based activities, offshore oil and gas activities, and shipping) and the ability of international mechanisms to deal with them.²⁵⁷ The EPPR has been relatively inactive in its role in coordinating emergency responses to environmental disasters, but rather only focused on risk assessment and guidelines for response while the CAFF, in enhancing monitoring of biological diversity and the conservation of ecological integrity, has been very effective in information sharing activities with states involved.²⁵⁸ As such, soft legal measures concerning the protection of the Arctic environment are effective when implemented and followed (though not binding). Thus, the objectives of environmental protection must compete with conflicting objectives, including industrial development.

²⁵⁷ Ibid., at 235-236; also at *The Arctic Environmental Protection Strategy*, at 30-31.

²⁵⁸ Ibid., at 236 and 238; also at *The Arctic Environmental Protection Strategy*, at 38-39.

Chapter Five: The Beaufort Sea Maritime Boundary Dispute

In 1962, with a number of maritime legal principles in place, though not yet codified in its modern form, the United Nations General Assembly passed Resolution 1803. On a push by a number of newly independent states, and particularly in the Third World, this resolution sought to protect resource rights in those countries, giving these nations permanent sovereignty over these resources.²⁵⁹ Demonstrating a definite link between resource rights and sovereignty, the Resolution declared that “the right of peoples and nations to permanent sovereignty over their natural wealth and resources must be exercised in the interest of their national development and of the well-being of the people of the State concerned”.²⁶⁰

As such, “contemporary international environmental law is rooted in concepts that aim to balance competing sovereign interests”.²⁶¹ This is true anywhere then, including the Arctic environment, which it attempts to secure as a space of mutual cooperation between states, mediated by a common understanding under evolving international law, toward the potential sustainable development and use of the area.

The national response in Canada for the defense and protection of its Arctic territory has thus far been framed as a defense of Canada’s “status as a sovereign state”.²⁶² Framing the national policy response this way ignores regional variation and specific issues. Rather, when discussing the issue of defending sovereign territory, attention shifts to matters dealing with the military within the scope of, and with the impetus of, Arctic environmental change. Endorsing

²⁵⁹ Anghie, *Imperialism*, at 216.

²⁶⁰ United Nations, General Assembly resolution 1803 (XVII) of 14 December 1962, “Permanent sovereignty over natural resources,” updated 2007, available from: <<http://www2.ohchr.org/english/law/pdf/resources.pdf>>, (accessed May 13, 2012), at Declaration 1.

²⁶¹ Jutta Brunnée, “Common Areas, Common Heritage, and Common Concern,” in *The Oxford Handbook of International Environmental Law*, edited by Jutta Brunnée, Daniel Bodansky, and Ellen Hey (New York: Oxford University Press, 2007), at 552.

²⁶² Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 5.

the discussion this way ignores other aspects of Arctic environmental change without acknowledging the nature or significance of these issues which include disturbances in traditional ways of life, dramatic increases in temperature, salinity and acidification, rising sea-levels, disruptions in wind-driven ocean currents, permafrost instability and decreasing thickness of sea ice in northern climates.

Similarly, such a framing overlooks the history of what sovereignty actually means, degrading its conceptual basis by reducing its meaning to little more than an expense in a military budget. Quite significantly, it paints the entire Arctic region with one brush, ignoring the specificity of disputed territory which puts that sovereignty into question in the first instance.

Anghie has argued that sovereignty was shaped by the colonial experience, reproducing the inequalities associated with that type of systematically abusive relationship in the name of progress, emancipation, and rights. However, in this regard, “sovereignty is a flexible instrument which readily lends itself to the powerful imperative of the civilizing mission, in part because it is through engagement with that mission that sovereignty extends and expands its reach and scope”.²⁶³ Conceptually, the governance structure imposed by sovereignty can be reconstituted and applied to governance questions as the law continues to evolve, though still reflecting historical tendencies.

The Beaufort Sea maritime boundary dispute is symbolic in this sense, affected not only by climate change, but a structure imposed by sovereign nations following an international maritime law and who are committed to extending their continental shelves for the purposes of claiming hydrocarbon resources according to this law. The coalescing of these characteristics renders the Beaufort Sea maritime boundary dispute rather complex. It does not have its origins in a recent disagreement or interpretation of the term sovereignty. Rather, its origins are in fact

²⁶³ Anghie, *Imperialism*, at 114.

much older. Each country's position is based on treaties from the nineteenth century, and thus took shape under conditions which were drastically different than they are today.

Accordingly, Canada has asserted that the maritime border must follow the land border which is set at the 141st meridian, followed straight north.²⁶⁴ This is based on the *Treaty of St. Petersburg, 1825*, signed between Russia and Britain, the rights of which were taken on by the United States (US) when it purchased Alaska in 1867 and by Canada when it took on Britain's rights in 1880.²⁶⁵ The Canadian position is that the *Treaty of St. Petersburg, 1825*, is evidence of the establishment of a land border and a maritime boundary following the 141st meridian.²⁶⁶ The US has said that this boundary is to be followed only to the coast and that an equidistance line is more than capable of delimiting the boundary.²⁶⁷

As the disputed area enters into the maritime boundary of the US according to the American delineation, this boundary must change to abide by a "general principle of equity" which requires "that every point on the boundary be an equal distance from each of the two adjacent coasts".²⁶⁸ Due to the border of Alaska, which leans slightly eastward to the east-southeast from Point Barrow, more of the disputed space would be in American territory according to this equity principle.²⁶⁹ By this method, the US would have control over a 21,500 square kilometer area of the Beaufort Sea that Canada continues to lay claim to (see Figure 3).²⁷⁰

²⁶⁴ Grant, *Polar Imperative*, at 454.

²⁶⁵ Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 99.

²⁶⁶ Baker and Byers, "Crossed Lines," at 72.

²⁶⁷ *Ibid.*, at 72.

²⁶⁸ Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 101.

²⁶⁹ Baker and Byers, "Crossed Lines," at 72.

²⁷⁰ Randy Boswell, Postmedia News Special to Nunatsiaq News, "Russia, Canada Neighbours? Seabed territorial push could bring borders together," published Feb. 14, 2012, available from: <http://www.nunatsiaqonline.ca/stories/article/65674russia_canada_neighbours_seabed_territorial_push_could_brin_g_borders_t/>, (accessed May 13, 2012), at paragraph 16.



Figure 3: The Canadian and American claims to the disputed area of the Beaufort Sea.²⁷¹

There are indications, however, that Canada's claim may succeed should geologists determine that sediment accumulation on the floor of the Beaufort Sea comes from silt draining from the Mackenzie River which would mean that this area is considered to be a natural prolongation of the Canadian continent according to the UNCLOS rules.²⁷²

Still, new information also provides an alternative scenario that the Canadian government could use in resolution of the dispute. The US interpretation would actually favour Canada when

²⁷¹ Baker and Byers, "Crossed Lines," at 73.

²⁷² Boswell, "Russia, Canada Neighbours?" at paragraph 10.

applying it to the central and northern parts of the Beaufort Sea, “pushing the boundary between the two countries on a roughly 45-degree angle farther to the northwest and eventually to a point above 80 degrees north, where it would intersect with the US-Russia maritime boundary”.²⁷³

Interestingly, the Canadian interpretation of the boundary entitles the US to much more territory undersea the further north the sea proceeds, giving slightly greater territorial considerations to Canada only in the southern part of the Beaufort Sea where much of the natural resource pool lies. This is a more recent development that should have some effect on negotiations going forward. The current boundary moves away from the mainland of both the Canadian and US coasts, and the further north the boundary is demarcated, the more Canada’s Banks Island is affected by the US formula, moving the maritime border west which effectively expands Canada’s area and claim. An extension of the continental shelf would thus impact both countries in interesting ways. The Banks Island proposition affects the equidistance line profoundly by crossing over the 141st meridian, leaning toward the maritime boundary between the US and Russia.²⁷⁴ Baker and Byers suggest that this would “leave a large disputed area of extended continental shelf to the west of the 141st meridian and east of the equidistance line,” and thus the US position would favour Canada while the Canadian position would favour the US beyond the 200 nautical mile exclusive economic zone set by the UNCLOS.²⁷⁵

Consequently, the Canadian and American legal positions differ in some ways, but ultimately help the other the further north the continental shelf is extended. The Canadian position can succeed for a number of reasons. Under the *Treaty of St. Petersburg, 1825*, article three delineates the object and purpose of delimitation between Russia and Great Britain:

²⁷³ Ibid., at paragraph 18.

²⁷⁴ Baker and Byers, “Crossed Lines,” at 72.

²⁷⁵ Ibid., at 72.

Commencing from the Southern-most Point of the Island called Prince of Wales Island, which Point lies in the parallel of 54 degrees 40 minutes, North Latitude, and between the 131st and 133rd Degree of West Longitude (Meridian of Greenwich), the said line shall ascend to the North along the Channel called Portland Channel, as far as the Point of the Continent where it strikes the 56th Degree of North Latitude; from this last mentioned Point the line of demarcation shall follow the summit of the mountains situated parallel to the Coast, as far as the point of intersection of the 141st Degree of West Longitude (of the same Meridian); and, finally, from the said point of intersection, the said Meridian Line of the 141st Degree, in its prolongation as far as the Frozen Ocean, shall form the limit between the Russian and British Possessions on the Continent of America to the North West.²⁷⁶

The 1969 Vienna Convention on the Law of Treaties says that object and purpose are two principles of a treaty that are available to guide interpretation of international law.²⁷⁷ In delimiting a boundary along the 141st degree, the *Treaty of St. Petersburg, 1825*, is consistent with its object and purpose, strengthening the Canadian claim.

Similarly, Baker and Byers suggest that the US had previously agreed to use the 141st degree boundary until 1976, when Canada, which had previously issued oil and gas exploration permits in the 1960s (just prior to the legislation of the 1970 *Arctic Waters Pollution Prevention Act*), issued further concessions in the disputed area of the Beaufort Sea.²⁷⁸ Canada used the 141st meridian defense when the US protested to this action, delimiting a 200 nautical mile fishing zone, prior to the UNCLOS and the exclusive economic zone.²⁷⁹ Baker and Byers also consider the fact that in the *1867 Treaty of Cession of Alaska* to the US, the 141st meridian was used as part of the eastern limit of the territory, and accepted until 1990 when the US and the Soviet Union updated the *Treaty*.²⁸⁰ This means that the US should accept the boundary in the east if it does so in the west.

²⁷⁶ “*Convention Between Great Britain and Russia, 1825*,” available from:

<<http://explorenorth.com/library/history/bl-ruseng1825.htm>>, (accessed May 13, 2012), at paragraph 3.

²⁷⁷ United Nations, “Vienna Convention on the Law of Treaties, 1969,” updated 2005, available from: <http://untreaty.un.org/ilc/texts/instruments/english/conventions/1_1_1969.pdf>, (accessed May 14, 2012), at Article 18.

²⁷⁸ Baker and Byers, “Crossed Lines,” at 75.

²⁷⁹ *Ibid.*, at 75.

²⁸⁰ *Ibid.*, at 75.

The American argument stems from a few different conclusions. Given that an equidistance line benefits Canada by effectively giving more territory to Canada, Baker and Byers identify that the US “could argue that a literal construction of the English-language text of the *1825 Treaty*....produces a different interpretation from that preferred by Canada”.²⁸¹ In this regard, the US might consider addressing the “fact that national jurisdiction in 1825 extended only a short distance offshore, and that the negotiators of the *1825 Treaty* could not possibly have sought to delimit a boundary they did not know existed”.²⁸² A similar discrepancy is found in the language of the *1825 Treaty* which delimits a boundary “as far as the Frozen Ocean” and the *1867 Treaty* which delimits a boundary “into the same Frozen Ocean”.²⁸³ The language based on the *1867 Treaty* sought to delimit a maritime boundary while the *1825 Treaty* concerned land possessions divided among imperial powers, including water.²⁸⁴ However, given current definitions concerning delimitations of maritime boundaries, and the fact that most Arctic nations, aside from the US, have accepted the terms of the UNCLOS, this approach seems worthy of discussion but unsubstantial in a claim. In this regard, Baker and Byers argue that the main issue is whether the *1825 Treaty* could apply to offshore territory under international law and “whether the *1867 Treaty* confirms that intention”.²⁸⁵

However, Baker and Byers have noted specifically that “state practice with regard to the delimitation of outer continental shelves remains too limited and variable to generate customary international law, and there are no International Court decisions on the matter”.²⁸⁶ Maritime boundary decisions are few and far between, the last being the *Black Sea Case* in 2009.

²⁸¹ Ibid., at 76.

²⁸² Ibid., at 76.

²⁸³ Ibid., at 76.

²⁸⁴ Ibid., at 76.

²⁸⁵ Ibid., at 76.

²⁸⁶ Ibid., at 78.

The *2009 Black Sea Case* is an important one, offering a glimpse into what may occur should the Beaufort Sea maritime boundary dispute require adjudication, and at the least, offering precedent. In this case, Romania, in 2004, filed an Application instituting proceedings against Ukraine suggesting that the two countries needed to establish a maritime boundary between them in the Black Sea as a “delimitation of the continental shelf and the exclusive economic zones of Romania and Ukraine in the Black Sea”.²⁸⁷ The nature of the disagreement concerns the limits of the maritime boundary, especially since an island between them, Serpent’s Island, could belong to either given each country’s own delimitations. Given that there are no real hostilities between the countries and that existing maritime treaties delimiting other areas with Ukraine (both under Soviet control and after independence), the court decided a boundary for the two nations based on the *2003 State Border Regime Treaty*, giving both nations access based on equidistance lines.²⁸⁸

Similarly, the case also prescribed a three-part process for determining maritime boundaries. First, the Court establishes an equidistance line; second, it determines whether this line should be adjusted; and finally, it ensures that according to international law, no state disproportionately benefits. Baker and Byers suggest that such a process heavily favours an ad hoc reasoning based on the configuration of a coastline to govern a maritime boundary, ignoring the entire land territory since historically “it is sovereignty over land territory that generates rights to maritime jurisdiction”.²⁸⁹ Problematically, in a case like the Beaufort Sea, features like the concavity of a coastline, islands, differences in coast size, can have disproportionate effects on the decision according to international law. Thus, other factors including socioeconomics,

²⁸⁷ *Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, *Judgment*, *I.C.J Reports 2009*, updated 2012, available from: <<http://www.icj-cij.org/docket/index.php?p1=3&p2=3&k=95&case=132>>, (accessed June 1, 2012), at 64.

²⁸⁸ *Ibid.*, at 130-131.

²⁸⁹ Baker and Byers, “Crossed Lines,” at 77.

environmental effects, or security are not considered as strongly as geography. Also, given that the Court used a previous agreement between Romania and the Ukraine as a basis for their decision, it would seem that bilateral discussions between neighbours is more adequate in resolving this disagreement.

However, the three-part process listed above says nothing of the role the geomorphology of the continental shelf and adjoining seabed plays in considering maritime delimitations. Legal precedent from the Court suggests that the characteristics of the seabed, in drawing a continental shelf boundary, have not been taken into account. This stems from the *1985 Libya-Malta Case* where the Court determined that even considering the exclusive economic zone, geomorphological characteristics of the coast and outward do not play a role in maritime boundaries when the coasts are in short distance from each other, namely, 400 nautical miles.²⁹⁰

While the details of this case are complex historically, this type of ruling offers an interesting critique of maritime delineation, contrary to that espoused by the UNCLOS. What it suggests is that geomorphological features should not factor into the disputed area, when the UNCLOS definitely suggests this to be the case, and the entire point behind the CLCS submissions. Since the space between the countries is so short in nautical terms, suggesting that natural prolongations do not offer the same conclusive ruling as distance is not factual beyond the exclusive economic zone. No further decisions have resolved this discrepancy as of yet, complicating matters to some degree.

This variability in delimiting an extended continental shelf boundary does not contribute to a resolution of the Beaufort Sea maritime boundary dispute. Part of the reason is that little information currently exists concerning the geomorphology of the seabed, which is why the

²⁹⁰ *Continental Shelf (Libyan Arab Jamahiriya/Malta)*, Judgment, I.C.J. Reports 1985, “Summary of Judgments, Advisory Opinions and Orders of the International Court of Justice,” available from: <<http://www.icj-cij.org/docket/files/68/6417.pdf>>, (accessed June 1, 2012), at 149.

CLCS submission is valuable in determining the extent of the natural prolongation of Canada's continental shelf north of the Mackenzie Delta.

As such, the dispute seems to be in a holding pattern until scientific data is collected by Canada. This could be further complicated should the US ratify the UNCLOS agreement, giving them a further ten years before they would need to submit their scientific findings. All indications suggest that the US is going to ratify. According to an Associated Press article entitled "Clinton brings message of cooperation to Arctic amid competing claims in resource-rich region," the Obama administration is looking for US Senate approval of the UNCLOS, particularly in order to identify and utilize the oil, gas, and mineral reserves located there.²⁹¹

Senate Foreign Relations Committee Chairman John Kerry echoed a similar view, pushing for the ratification of the UNCLOS, having had the support of multiple administrations, the Democratic Party, and the US Navy, viewing the UNCLOS as necessary to advancing American interests amidst the multinational system that currently governs the seas.²⁹² Senator Lisa Murkowski of Alaska has similarly stated her preference for American accession to the UNCLOS stating that it is very important the US ratify the agreement if a claim to territory is to be made successfully, especially because this would ensure American interests are protected under law, respected by the international community.²⁹³

In a speech delivered at the Law of the Sea Symposium in Washington D.C. in May 2012, US Secretary of Defense Leon Panetta made it very clear that it was time for the US to

²⁹¹ Bradley Klapper, The Associated Press, "Clinton brings message of co-operation to Arctic amid competing claims in resource-rich region," published June 2, 2012, available from: <<http://www.winnipegfreepress.com/business/clinton-brings-message-of-co-operation-to-arctic-amid-competing-claims-in-resource-rich-region-156645115.html>>, (accessed June 10, 2012), at paragraph 8.

²⁹² Josh Rogin, Foreign Policy, "New push begins for Law of the Sea Treaty," published May 10, 2012, available from: <http://thecable.foreignpolicy.com/posts/2012/05/10/new_push_begins_for_law_of_the_sea_treaty>, (accessed June 10, 2012), at paragraphs 3-4.

²⁹³ Barry Scott Zellen, *Arctic Doom, Arctic Boom: The Geopolitics of Climate Change in the Arctic*, (California: ABC-CLIO, 2009), at 158.

“fully assert its role as a global leader, and accede to this important treaty,” as UNCLOS is the most important and fundamental “legal instrument underpinning public order across the maritime domain”.²⁹⁴ He also noted that without having ratified the Convention, the US is “at a distinct disadvantage, particularly when it comes to disputes over maritime rights and responsibility”.²⁹⁵

Though the Secretary does not mention the Beaufort Sea specifically, he makes the point of noting two related areas. The Secretary suggests that there is “broad support” for the UNCLOS amongst major US industries, namely from “companies that are dealing with offshore energy, shipbuilding, commercial shipping” and others concerned with offshore resources.²⁹⁶ Correspondingly, he also suggests that accession to the Convention “would ensure our ability to reap the benefits of the opening of the Arctic- a region of increasingly important maritime security and economic interest”.²⁹⁷ The Secretary goes on to mention that the availability of a new shipping route and the presence and accessibility of natural resources as Arctic sea ice recedes requires American accession to the UNCLOS. Expectations that navigability could be possible are misleading however, and depend on the time of year, season, technological availability, and weather patterns.

According to Furgal and Prowse of Natural Resources Canada, there is not expected to be winter shipping at all since this is very difficult as winter ice is colder and stronger than summer ice, and thus, more difficult to traverse.²⁹⁸ Griffiths suggests that sea ice retreat in the Canadian Arctic specifically is “neither so rapid nor so predictable” as the somewhat reductionist

²⁹⁴ Leon E. Panetta, US Department of Defense, Office of the Assistant Secretary of Defense (Public Affairs), “Law of the Sea Symposium (Speech),” delivered May 9, 2012, available from: <<http://www.defense.gov/speeches/speech.aspx?speechid=1669>>, (accessed June 10, 2012), at paragraph 11.

²⁹⁵ Ibid., at paragraph 12.

²⁹⁶ Ibid., at paragraph 14.

²⁹⁷ Ibid., at paragraph 23.

²⁹⁸ Furgal and Prowse, “Chapter 3: Northern Canada,” at 83.

hypothesis of the global warming persuasion seems to convey.²⁹⁹ Travers disagrees on these points, depicting Arctic sovereignty as an issue of control, while Huebert suggests it is about security and that delayed action is unwanted.³⁰⁰ Huebert argues that Griffiths is correct in challenging “the prevailing efforts to apply policy to the current scientific understanding of climate change,” but suggests that scientific uncertainty or difference of opinion based on those facts is no reason to delay action, particularly as sea ice is melting at an accelerating rate.³⁰¹

Conversely, to Griffiths this explanation leads to the simplistic conclusion that a reduction in sea ice cover means a “retreat of sea ice in the archipelago to a point where the Northwest Passage becomes powerfully attractive for summer-months and even year-round intercontinental shipping,” although the science behind this theory suggests otherwise.³⁰² In effect, this “sovereignty-on-thinning-ice thesis,” as Griffiths refers to it, is really “built on untenable assumptions of relatively speedy and undifferentiated ice-cover reduction throughout the archipelago and indeed the Arctic region.”³⁰³ The theory, he argues, disregards specific variations in sea ice duration (noted in a previous section) and “relies on assumptions of uniformity in constructing grounds for an international challenge to Canada’s jurisdiction”.³⁰⁴

Stephen Carmel, a senior vice-president at the world’s largest shipping company, Maersk Line, has similarly suggested that sea ice will continue to be a factor in shipping, as will weather there which reduces visibility.³⁰⁵ Carmel does not expect the Arctic to be usable until at least

²⁹⁹ Franklyn Griffiths, “The Shipping News: Canada’s Arctic Sovereignty Not on Thinning Ice,” *International Journal* 58.2 (Spring 2003), at 263.

³⁰⁰ Coates, et.al., *Arctic Front*, at 182.

³⁰¹ Rob Huebert, “The Shipping News Part II: How Canada’s Arctic Sovereignty is on Thinning Ice,” *International Journal* 58.3 (Spring 2003), at 298.

³⁰² Griffiths, “The Shipping News,” at 263.

³⁰³ *Ibid.*, at 263.

³⁰⁴ *Ibid.*, at 263.

³⁰⁵ Standing Senate Committee on National Security and Defense, “Interim Report,” at 37.

2050.³⁰⁶ Thus, there is too much uncertainty regarding the physical conditions necessary for suitable Arctic navigation, as determined by Secretary Panetta, to mount a direct challenge to Canadian Arctic sovereignty in any real physical sense right now.

Secretary Panetta's most salient recommendation for American accession to UNCLOS however, is that the UNCLOS "is the only means for international recognition and acceptance of our extended continental shelf claims in the Arctic, and we are the only Arctic nation that is not party to the Convention".³⁰⁷ International maritime law, in this sense, holds an important strategic position within modern maritime claims as it reflects a history that informs an ever-changing present. This is done through adjudication at international institutions (International Court of Justice), policy discussion at many levels (United States Department of Defense), and academia to name but a few forums.

These are not static positions though, and just as they are informed by the past, they affect each other's decision-making processes. This interdisciplinary approach to decision-making is elucidated by Secretary Panetta's quote above, suggesting that accession to international maritime law is the best way of achieving not only acceptance from an international community of states, organizations, corporations, and people, but of achieving domestic priorities while reducing uncertainty by holding all parties to the same standards. The quote demonstrates the strongest indication that ratification is not only going to happen, but in the not-too-distant-future, which could only bode well for the resolution of the Beaufort Sea maritime boundary dispute.

³⁰⁶ Ibid., at 35.

³⁰⁷ Panetta, "Law of the Sea Symposium," at paragraph, 27.

Chapter Six: The High Stakes of Resource Development in the Beaufort Sea

The history of Arctic discovery shows how the development of the human race has always been borne along by great illusions.³⁰⁸

Before we can make decisions about our future use of oil and gas and related decisions about protecting endangered species, native communities and the health of our planet, we need to know what's out there....so that the global community can make those difficult decisions.³⁰⁹

The Foreign Policy Statement says that the Beaufort Sea maritime boundary dispute, regardless of US accession to the UNCLOS, legal precedent, or historic treaty rights, is a disagreement that “is well managed, neither posing defense challenges for Canada nor diminishing Canada’s ability to collaborate and cooperate with its Arctic neighbours”.³¹⁰ The intention of the Government is that these ‘boundary issues’ will be worked out “with our neighbours to explore the possibility of resolving them in accordance with international law”.³¹¹

However, given the demand for natural resources and the increased attention on the Arctic, also noted by the US Secretary of Defense among others, there are also indications that the dispute could intensify. Namely, oil prices remain high at around \$125 a barrel with global demand for oil expected to rise to over 100 million barrels a day by 2030.³¹² This will likely remain constant in the long-term amidst increasing demand from China and other emerging markets.³¹³ This is important because the disputed area of the Beaufort Sea is thought to contain at minimum 1 billion cubic metres of oil and 1.7 billion cubic metres of gas.³¹⁴ Comparatively,

³⁰⁸ Charles Emmerson, “Fridtjof Nansen, 1911 (quote),” in *The Future History of the Arctic*, (New York: Public Affairs, 2010), at 1.

³⁰⁹ United States Geological Survey, “90 Billion Barrels of Oil and 1,670 Trillion Cubic Feet of Natural Gas Assessed in the Arctic, Director Mark Myers,” published 2008, available from: <<http://www.usgs.gov/newsroom/article.asp?ID=1980>>, (accessed May 12, 2012), at paragraph 4.

³¹⁰ *Foreign Policy Statement*, at 8.

³¹¹ *Ibid.*, at 8.

³¹² *The Economist* (Finance and Economics), “Keeping it to themselves: Gulf states not only pump oil; they burn it too,” published March 31, 2012, available from: <<http://www.economist.com/node/21551484>>, (accessed May 30, 2012), at paragraph 15.

³¹³ *Ibid.*, at paragraph 1.

³¹⁴ Sian Griffiths, *BBC News*, “US-Canada Arctic border dispute key to maritime riches,” updated August 2, 2010, available from: <<http://www.bbc.co.uk/news/world-us-canada-10834006>>, (accessed April 10, 2012), at paragraph 17.

this little area contains a similar amount of oil and gas to that of the largest oil field in North America in Prudhoe Bay, Alaska.³¹⁵

Moreover, the US Geological Survey (USGS) has estimated that the entire area north of the Arctic Circle contains approximately 90 billion barrels “of undiscovered, technically recoverable oil, 1670 trillion cubic feet of technically recoverable natural gas, and 44 billion barrels of technically recoverable natural gas liquids,” that is, those that are ready for production according to present industry practice and available technology.³¹⁶ Effectively, these are resources that could potentially account for “about 22 percent of the undiscovered, technically recoverable resources in the world,” mainly offshore (estimated at 84 percent), amounting to approximately “13 percent of undiscovered oil, 30 percent of the undiscovered natural gas, and 20 percent of the undiscovered natural gas liquids in the world”.³¹⁷ The most recent research by the USGS also suggests that approximately half of these resources can be found in three geologic areas: the Amerasia Basin, the East Greenland Rift Basins, and Arctic Alaska.³¹⁸

Arctic Alaska directly borders the Beaufort Sea and is affected by the same weather patterns, sea currents, and ice floes that affect the Yukon portion of the Beaufort Sea. It is also thus geologically consistent with the sea, indicating a possibility exists that the same resources found closer to Alaska can be found closer to the Arctic Canadian coast. As such, the delimiting of a maritime boundary under rules of international law in Beaufort Sea is of great concern, particularly as exploration around the sea and deeper into the Arctic Ocean is gaining momentum. Over 400 oil and gas fields beyond the Arctic Circle have already been discovered, accounting “for approximately 40 billion barrels of oil, more than 1100 trillion cubic feet of gas,

³¹⁵ Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 98.

³¹⁶ United States Geological Survey, “90 Billion Barrels of Oil and 1,670 Trillion Cubic Feet of Natural Gas Assessed in the Arctic,” at paragraph 1.

³¹⁷ *Ibid.*, at paragraph 3.

³¹⁸ *Ibid.*, at paragraph 5.

and 8.5 billion barrels of natural gas liquids”.³¹⁹ Thus, given demand for oil and the supply that exists, it is not inconceivable that the disputed area will be of continued value to both Canada and the US, and why a resolution is in both of their interests.

Although international law relating to the Beaufort Sea has been in evolution for a substantial period of time, considering the Beaufort Sea as a potential hydrocarbon province is more recent. While the first oil from the Arctic region to be traded throughout Europe and North America was whale oil used to light lamps as early as 1619, the recovery of hydrocarbons is relatively new by comparison, as only in 1888 was it determined that the area around the Mackenzie River could hold petroleum reserves.³²⁰ In 1920, Theodore August Link led an American expedition into the Norman Wells area of the Northwest Territories that struck oil. Not far from the Beaufort Sea coast onshore, the find was thought to be the largest potential oil field in the world at the time, although there was great hesitation in developing the site due to the difficulty in transporting the oil by the only possible means at the time: rail.³²¹

The reality was that there was no interest in constructing a railway or pipeline because Norman Wells was producing 100 barrels a day by the end of 1920, and while demand for gasoline rose (1.03 million barrels of oil a day in 1920 to 2.58 million barrels by 1929), new fields in the American West were much more easily accessible and thus cheaper to explore, produce, and transport.³²² This changed for a period during the Second World War. Drilling at the Norman Wells site produced one million barrels a year by 1944, supplying American demand through three pipelines built specifically to take oil to Alaska and the Yukon.³²³ Once the war

³¹⁹ Ibid., at paragraph 8.

³²⁰ Emmerson, *The Future History of the Arctic*, at 172-173.

³²¹ Ibid., at 173.

³²² Ibid., at 174.

³²³ Ibid., at 175.

was over, the new wells were capped, while the older wells continued to supply local populations with oil.

The following years saw increased competition from cheaper Middle Eastern oil, price changes affecting exploration and production. However, with the Norman Wells field still producing 471,000 barrels of oil in 1950, continued efforts to identify other potential fields in the Mackenzie Delta increased, starting with the Geological Survey of Canada and Dome Petroleum, drilling a first commercial well (though run dry) by 1962. At around this time the Canadian government supported the creation of Panarctic Oils Limited, an exploration company, which struck a major gas field at Drake Point on Melville Island in 1969, on King Christian Island in 1970, and an oil field on Cameron Island in 1974, while Imperial Oil struck oil at Atkinson Point in 1970 and natural gas near Tuktoyaktuk in 1971.³²⁴ These coincided with the discovery of hydrocarbons at Prudhoe Bay, deeming that the dream of Arctic oil production was a possibility, particularly as world oil shortages and price increases, resulting from unrest in the oil-rich Middle East, made the idea of further potential discoveries relevant.³²⁵ So much so, that by 1982, oil companies were paying \$2.07 billion for drilling rights in the Beaufort Sea.³²⁶

Mathews has identified a total of 33 wells drilled between 1972 and 1989, with Dome Petroleum (partially financed by millions of dollars in loans from Japan) introducing drill-ships capable of exploration in the Beaufort Sea up to 60 meters deep during this time with the aid of the National Energy Program (NEP) in 1980 a little later.³²⁷ The NEP was designed, through a number of programs, to accomplish three stated objectives: to provide for Canadian energy

³²⁴ Ibid., at 179.

³²⁵ Doug Matthews, "Oil: How Canada is Dealing with its High North," *Journal of Energy Security*, published May 31, 2011, available from: <http://www.ensec.org/index.php?option=com_content&view=article&id=311:the-prospects-and-the-perils-of-beaufort-sea-oil-how-canada-is-dealing-with-its-high-north&catid=116:content0411&Itemid=375>, (accessed June 7, 2012), at paragraph 5.

³²⁶ Emerson, *The Future History of the Arctic*, at 187.

³²⁷ Matthews, "Oil: How Canada is Dealing with its High North," at paragraph 7.

independence from the world oil market, to establish fairness in revenue sharing, and to increase opportunities for Canadian participation and ownership in the energy industry.³²⁸

This was a beneficial program to Canadian oil companies exploring the Beaufort Sea and other areas in the Arctic Ocean at the time, providing for financial support from taxpayers through initiatives like the Petroleum Incentive Program (PIP) which offered grants that supported the building and advancement of drilling arms and icebreakers.³²⁹ In effect, the PIP was intended to complement the NEP's stated objective of increasing Canadian ownership of Canada's oil industry from 27 percent to 50 percent by 1990 by awarding financial grants to encourage exploration, development, and production.³³⁰ For example, PIPs covered 35 percent of costs for exploration conducted on provincial land and 80 percent of costs for exploration conducted on frontier lands, including the Arctic, for companies that were at least 75 percent Canadian-owned.³³¹ Conversely, companies that were less than 50 percent Canadian-owned received no grants for exploration conducted on provincial land, and only 25 percent of costs were covered for exploration on frontier lands.³³² Eventually this support wavered with a change in federal government, as the Conservative Party came to power in 1985 and discarded the National Energy Program amid decreasing oil prices and more accessible zones of exploration.

However, roughly 300,000 barrels of oil were produced from the Beaufort Sea during the period the National Energy Program was in effect.³³³ More recently, offshore exploration in the Beaufort Sea for hydrocarbon resources is increasing as sea ice extent and thickness decline,

³²⁸ Office of the Auditor General of Canada, "Chapter 9- Department of Energy, Mines and Resources: Energy Program, 1983 Report of the Auditor General of Canada," issued Nov. 1, 1983, available from: <http://www.oag-bvg.gc.ca/internet/English/parl_oag_198311_09_e_3374.html#0.2.L39QK2.3YG3SA.X1DX1F.C5>, (accessed July 18, 2012), at 9.3 (EMR Background).

³²⁹ Matthews, "Oil: How Canada is Dealing with its High North," at paragraph 8.

³³⁰ Barbara Jenkins, "Re-examining the 'Obsolescing Bargain': A Study of Canada's National Energy Program," *International Organization* 40.1 (Winter 1986), at 147.

³³¹ *Ibid.*, at 147.

³³² *Ibid.*, at 147.

³³³ Matthews, "Oil: How Canada is Dealing with its High North," at paragraph 9.

making some areas much more accessible, and as oil prices continue to increase. Most companies conducting exploratory activities are international oil companies though, as incentive programs for domestic companies as effective as the NEP are not available.

Corporations including Imperial Oil and British Petroleum (BP) compete for the right to explore and potentially develop a parcel of land, whether onshore or offshore, in a process regulated by the National Energy Board under the *Canada Oil and Gas Operations Act, 1985*, with exploration licenses issued pursuant to the *Canada Petroleum Resources Act, 1985* (sections 22 to 27). The Minister of Aboriginal Affairs and Northern Development opens the bidding to industry for these exploration rights with a Call for Nominations, giving industry the opportunity to determine areas of interest, followed by a Call for Bids, allowing corporations the ability to submit their interest for a specific area.³³⁴ The Call for Bids is open for 120 days and can be found in the *Canada Gazette*.³³⁵

Once the bidding time is complete, exploration rights are determined through a bidding process in which the successful bidder is the one that presents the highest single-bid for expenditures planned on the exploration of the land block.³³⁶ Thus, the successful bid relies on how much a corporation, for instance, is seeking to spend on exploration. This exploration license lasts for two years, and is divided into two terms, in which time the “successful bidder is expected to spend the dollar value of the license” with at least one well being drilled during the first term.³³⁷ A significant discovery licence follows successful exploration and allows the exploration tenure to continue indefinitely should resources be found.³³⁸ It is a feature that

³³⁴ Department of Aboriginal Affairs and Northern Development Canada, *Northern Oil and Gas Annual Report, 2011*, updated 2012, available from: <http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ/STAGING/texte-text/nog_ann2011_pdf_1335968796614_eng.pdf>, (accessed July 18, 2012), at 12.

³³⁵ *Ibid.*, at 12.

³³⁶ *Ibid.*, at 12.

³³⁷ *Ibid.*, at 13.

³³⁸ *Ibid.*, at 13.

rewards the successful exploration of an area, granting tenure over an extended period of time, so that production is not rushed.³³⁹ Finally, a production licence is issued for a discovery that can be commercialized and exists over a twenty-five year term that can be renewed if the area still produces oil.³⁴⁰

Imperial Oil and BP Exploration won bids in 2007 and 2008 that entitled them a license to explore areas of the Beaufort Sea. Imperial Oil won a bid to explore the deeper waters of the sea with a bid of \$585 million and BP won a bid to explore close to Imperial Oil with a bid of \$1.2 billion.³⁴¹ In 2010, Imperial Oil, Exxon Mobil, and BP formed a conglomerate venture for the exploration of ten billion barrels of oil in the Beaufort Sea with Imperial and Exxon each holding a 25 percent stake and BP the remaining 50 percent.³⁴² Chevron Canada won a similar bid in even deeper waters (nearly 2000 meters deep) with a purchase price of \$103 million in 2010.³⁴³ This summer (2012), Chevron Canada will be preparing to do seismic work in the Beaufort Sea, an area of approximately 2060 square kilometers located 120 kilometers offshore.³⁴⁴ Seismic testing is the first step in preparation for a sustained exploration of the area to determine the geomorphology of the area to determine the potential oil and gas reserves there.

Such exploration occurs in various places in the Beaufort Sea, typically between 69°N latitude to 72°N latitude and between 132°W longitude and 140°W longitude, which is effectively the same area being disputed by Canada and the US. However, conditions in the

³³⁹ Department of Aboriginal Affairs and Northern Development Canada, "Oil and Gas in Canada's North- Active Exploration and New Development," updated Feb. 1, 2012, available from: <<http://www.aadnc-aandc.gc.ca/eng/1100100037301>>, (accessed May 30, 2012), at "The Call for Bids."

³⁴⁰ Ibid., at "The Call for Bids."

³⁴¹ Ibid., at paragraph 11.

³⁴² Katarzyna Klimasinska, "Exxon, BP, Imperial Oil Form Exploration Venture For Canada's Beaufort Sea," Bloomberg.com, published July 30, 2010, available from: <<http://www.bloomberg.com/news/2010-07-30/exxon-bp-imperial-oil-form-exploration-venture-for-canada-s-beaufort-sea.html>>, (accessed May 30, 2012), at paragraph 2.

³⁴³ *CBC News*, "Chevron plans seismic testing in Beaufort Sea," updated Feb. 23, 2012, available from: <<http://www.cbc.ca/news/canada/north/story/2012/02/23/north-chevron-beaufort-seismic.html>>, (accessed May 30, 2012), at paragraph 7.

³⁴⁴ Ibid., at paragraph 3.

Beaufort Sea are not ideal for exploration as it is “predominantly a frozen sea with open water generally occurring only between July and October, although winds and currents can quickly bring the ice pack close to shore during the open water season.”³⁴⁵ Similarly, in shallow water this creates moving ice packs leading to unpredictability in navigation and transport, made even more difficult under conditions of near total darkness surrounding the region between late October and until March.³⁴⁶ Add to this the fact that drilling operators and environmental and governmental regulators lack experience in the production of oil and gas from the Beaufort Sea, there is substantial cause for concern that a spill could occur (although the equipment necessary for this is not available yet). Further, there would be a tremendous difficulty in response to a spill, including a lack of fundamental infrastructure necessary to deal with a spill (roads, personnel) and responding in an unforgiving climate.³⁴⁷

Under such circumstances, a spill of any scale is a possibility. To protect against disastrous spills, new filing requirements have been instituted for offshore drilling in the Canadian Arctic. This new policy involves drilling a relief well in the same area as the main well and during the same season (the Same Season Relief Well Policy).³⁴⁸ Thus, should a drilling seasons consist of 100 days, the first 50 days would be used to drill the first and main well, the next 50 days would be used to build the relief well.³⁴⁹ The stated outcome of instituting such a policy is one of contingency to “minimize harmful impacts on the environment” by immediately responding to a well that is malfunctioning.³⁵⁰

³⁴⁵ Matthews, “Oil: How Canada is Dealing with its High North,” at paragraph 14.

³⁴⁶ Ibid., at paragraph 14.

³⁴⁷ Ibid., at paragraph 18.

³⁴⁸ National Energy Board, *Filing Requirements for Offshore Drilling in the Canadian Arctic*, updated 2011, available from: <<http://www.neb-one.gc.ca/clf-nsi/rthnb/pplctnsbfrthnb/rctcfffshdrllngrvw/rctcrvwflngrqrmnt/rctcrvwflngrqrmnt-eng.pdf>>, (accessed July 18, 2012), at 21.

³⁴⁹ Ibid., at paragraph 23.

³⁵⁰ National Energy Board, *Filing Requirements for Offshore Drilling in the Canadian Arctic*, at 21.

In 2009, Imperial Oil, supported by other companies and the Canadian Association of Petroleum Producers, approached the National Energy Board in an attempt to ease this rule considering that the Arctic building season is too short to accommodate the construction of two wells.³⁵¹ Imperial Oil argued that “a same-season relief well would essentially block deepwater drilling in the energy rich Arctic,” suggesting that measures focused on spill prevention were more appropriate, although they also said that a spill could continue spilling “for up to three years before a relief well could be drilled”.³⁵²

The National Energy Board (NEB) instead agreed to review its offshore drilling regulations in consideration of these novel circumstances and the April 20, 2010, spill of British Petroleum’s Macondo Well in the Gulf of Mexico. The NEB created the Arctic Offshore Review in response, attempting to get ahead of any such event by existing, seeking to examine the best information that is available to come to the best recommendation possible concerning spill risks, injury risks, and prevention procedures and costs associated with drilling.³⁵³ In that regard, the NEB “will likely recommend an increase in the current liability limits of \$40 million established for Arctic exploration.”³⁵⁴ Recent Ecojustice work also suggests that such a liability limit must undergo review as clarification about what is covered under this cap is necessary, as well as

³⁵¹ Sandro Contenta, “Canadians have their own oil worries,” *GlobalPost.com*, updated June 5, 2010, available from: <<http://www.globalpost.com/dispatch/global-green/100602/canadians-worry-about-oil-spilling-beaufort-sea>>, (accessed June 8, 2012), at paragraph 7-8.

³⁵² *Ibid.*, at paragraph 9.

³⁵³ National Energy Board, “Backgrounder- National Energy Board Report on the Arctic Offshore Drilling Review,” updated March 2, 2012, available from: <<http://www.neb-one.gc.ca/clf-nsi/rthnb/pplctnsbfrthnb/rctcfffshrdrlngrvw/fnlrprt2011/bckgrndr-eng.html>>, (accessed July 18, 2012), at paragraph 11.

³⁵⁴ Matthews, “Oil: How Canada is Dealing with its High North,” at paragraph 29.

whether the current cap is high enough to account for the potential environmental damage that could occur.³⁵⁵

Furthermore, as of June 2012, the NEB's role in the approvals process for oil and gas operations has been changed under amendments to Bill C-38, or, the *Jobs, Growth and Long-term Prosperity Act*.³⁵⁶ Namely, these amendments give the Governor in Council (GIC), who reports to the Minister of Aboriginal Affairs and Northern Development and thus Cabinet, greater power in a number of approvals processes including licensing for the construction of oil and gas infrastructure (granting Certificates of Public Convenience and Necessity or CPCNs).³⁵⁷ Previously, the GIC could reject such certificate applications already approved by the NEB, but could not give approval to an application that had been denied by the NEB.³⁵⁸ With these amendments, this is now possible.

Also, timelines for the assessment of a CPCN application must now be made to the Minister of Aboriginal Affairs and Northern Development within fifteen months of receipt, with the GIC making a final decision.³⁵⁹ This means that final decision-making power rests with the federal cabinet and not the NEB, whose role now shifts to an organization responsible for environmental assessment.³⁶⁰ Thus, the NEB "will have to submit all future decisions on major

³⁵⁵ Pierre Hamilton, "Oil Companies Should Pay Full Cost of Arctic Oil Spill," *Ecojustice.ca*, updated Sept. 16, 2011, available from: <<http://www.ecojustice.ca/blog/oil-companies-should-pay-full-cost-of-arctic-offshore-oil-spill?searchterm=Arctic>>, (accessed July 18, 2012), at paragraph 7.

³⁵⁶ House of Commons of Canada, "Bill C-38: An Act to implement certain provisions of the budget table in Parliament on March 29, 2012 and other measures," *First Session, Forty-first Parliament, 60-61 Elizabeth II, 2011-2012*, passed June 29, 2012, available from: <<http://parl.gc.ca/HousePublications/Publication.aspx?Docid=5524772&file=4>>, (accessed July 18, 2012), at Sections 52-54.

³⁵⁷ Lars Olthafer and Katie Slipp, "Bill C-38 Expected to Have Significant Impact on National Energy Board Powers," *Blake, Cassels, and Graydon, LLP*, updated July 19, 2012, available from: <http://www.blakes.com/english/view_disc.asp?ID=5486>, (accessed July 24, 2012), at paragraph 3.

³⁵⁸ *Ibid.*, at paragraph 4.

³⁵⁹ House of Commons of Canada, "Bill C-38," at Section 58.

³⁶⁰ Olthafer and Slipp, "Bill C-38 Expected to Have Significant Impact on National Energy Board Powers," at paragraph 2.

pipeline projects to Cabinet for approval,” including projects that the NEB does not approve.³⁶¹

This gives Cabinet the ability to request further review of a specific project by the NEB or to go through with the approval, as the federal government streamlines the approvals process for large-scale resource development. This suggests that should any exploration and production occur in the Canadian Beaufort Sea going forward, it will have been approved by the federal government.

Conversely, in the US as of March 2012, the Bureau of Safety and Environmental Enforcement approved an Oil Spill Response Plan for Shell Incorporated’s plans for drilling in the Beaufort Sea. This occurred after the Bureau reviewed the plan and consulted with the other parties involved, including federal and state partners involved in the response, as Shell has proposed to begin “drilling up to four shallow water exploration wells in Alaska’s Beaufort Sea this summer, beginning on July 1”.³⁶² This is an important step in the approvals process, although Shell would need well-specific drilling permits in order to begin drilling.

The approval went through comprehensive review including internal, public, and interagency review, requiring Shell to prepare plans for different scenarios above and beyond their initial spill response plans. This included identifying a potential thirty-day worst case scenario should a spill occur, the equipment that would be necessary to control it, and the logistics of how this would be accomplished.³⁶³ As such, Shell has suggested that they will use “a well control containment capability that consists of a combination of a subsea capping stack, and surface separation equipment that will be located on a newly-built containment vessel” to be

³⁶¹ Max Paris, *CBC News*, “Cabinet to get final say on pipeline projects: Little-noticed change to send all National Energy Board approvals to federal cabinet for review,” updated April 19, 2012, available from: <<http://www.cbc.ca/news/politics/story/2012/04/19/pol-neb-minister-decision-change.html>>, (accessed June 2, 2012), at paragraph 1.

³⁶² Bureau of Safety and Environmental Enforcement, “BSEE Issues Approval for Shell Beaufort Sea Oil Spill Response Plan: Thorough review incorporates interagency comments and lessons learned,” updated March 28, 2012, available from: <<http://www.bsee.gov/BSEE-Newsroom/Press-Releases/2012/press03282012.aspx>>, (accessed June 2, 2012), at paragraph 1.

³⁶³ *Ibid.*, at paragraph 5.

inspected by the Bureau.³⁶⁴ Furthermore, Shell is required to comply with standards set by the Bureau of Ocean Energy Management (BOEM). These include conditions stipulating stringent safety protocols, such as the demonstration of a capping and containment systems and the requirement that Shell “employ an approved, site-specific bowhead whale monitoring program,” and halt operations by August 25.³⁶⁵ Resumption of activities would not be able to occur under these conditions “until nearby Native Alaskan villages have completed their subsistence hunts and Shell has received approval from BOEM”.³⁶⁶ This suggests that the drilling season is quite short, and that based on prior information, a relief well would likely not be operational.

Accordingly, a similar process has been conceived of that provides for an environmental assessment of the area known as the Beaufort Regional Environmental Assessment (BREA). The goal of this research is to provide the opportunity for a number of groups involved in the area to “prepare for oil and gas activity in the Beaufort Sea by: filling regional information and data gaps related to offshore oil and gas activities; and supporting efficient and effective regulatory decision-making by providing scientific and socio-economic information to all stakeholders,” including First Nations communities (namely the Inuvialuit), industry, academia and government (the Department of Fisheries and Oceans, Environment Canada).³⁶⁷ Currently, seventeen research projects are underway or will be underway, with a number of them seeking completion dates around 2015. These will attempt to “gather new regional information and assist regulators and Inuvialuit communities in understanding the Beaufort Sea environment” as it concerns hydrocarbon resource development.³⁶⁸

³⁶⁴ Ibid., at paragraph 6.

³⁶⁵ Ibid., at paragraph 7.

³⁶⁶ Ibid., at paragraph 7.

³⁶⁷ Department of Aboriginal Affairs and Northern Development Canada, “Backgrounder- Beaufort Regional Environmental Assessment (BREA),” updated Feb. 27, 2012, available from: <<http://www.aadnc-aandc.gc.ca/eng/1330363956729>>, (accessed May 30, 2012), at paragraph 1.

³⁶⁸ Ibid., at introduction, paragraph 2.

The research is comprehensive, seeking to detail numerous elements associated with the Beaufort Sea include the impact development will have on fish habitats and ecosystems, migratory bird patterns, and on sea ice (with the goal of creating a sea ice information database called CanICE).³⁶⁹ Similarly, scientists will be trying to forecast weather and ocean conditions in the Beaufort Sea, the net environmental benefits and costs associated with dispersants should a spill require response, and a delineation of the geomorphology of the continental shelf and ridges based on satellite and radar imagery, most significant to hydrocarbon resource development and the delimitation of maritime boundaries in the disputed area (though this is not the assessment's stated purpose).³⁷⁰ This research is important, but incomplete presently, and is suggestive of the general attitude displayed in the Beaufort Sea maritime boundary dispute as well. It is all very much in flux, remaining in a state of stagnation, perhaps until both the CLCS submission and the Beaufort Regional Assessment Program come to completion.

Under these circumstances, the international legal regime currently in place supports the sovereign rights of nations to exploit undersea resources by providing incentives for this exploitation “without any intrinsic regard for the rational and efficient principles of sustainability and conservation”.³⁷¹ Part of this has to do with Article 82 (1) of the UNCLOS, concerning resources beyond the exclusive economic zone, in which the coastal state is supposed to make financial contributions for the exploitation or resources beyond the continental shelf to the International Seabed Authority (ISA).³⁷² Payments are to be made annually on an escalating scale after the first five years of production at a particular site, beginning at 1 percent of the

³⁶⁹ Ibid., at section 7, paragraph 1.

³⁷⁰ Ibid., at section 12, paragraph 1.

³⁷¹ David M. Ong, “Chapter 6: Towards an International Law for the Conservation of Offshore Hydrocarbon Resources within the Continental Shelf?” in *The Law of the Sea: Progress and Prospects*, edited by David Freestone, Richard Barnes, and David M. Ong (New York: Oxford University Press, 2006), at 100.

³⁷² Division for Ocean Affairs and the Law of the Sea, Office of Legal Affairs, United Nations, “The United Nations Convention on the Law of the Sea: Article 82 (4),” at 55-56.

value or volume of production at the site, up to 7 percent after the twelfth year.³⁷³ The ISA will then distribute these funds to parties to the UNCLOS, “on the basis of equitable sharing criteria, taking into account the interests and needs of developing States, particularly the least developed and the land-locked among them”.³⁷⁴

Arguably, Article 82 of the UNCLOS provides an incentive “for the coastal State concerned to exploit completely any hydrocarbon or other non-living resource found lying beyond the 200 nm limit of the continental shelf,” prior to the conclusion of the first five years of production.³⁷⁵ Similarly, a disincentive is established in the conservation and sustainable utilization of hydrocarbon resources, as well as the more generally accepted principle of permanent sovereignty over these resources. This is being balanced with environmental concern to evoke a duty to protect the environment or the resource rather than an absolute right to either.³⁷⁶ Even the Truman Proclamation of 1945 mentioned earlier sought to gain jurisdiction and sovereign control over such resources in order to conserve, sustain, and monitor natural resources during development so that they can be utilized appropriately and not rushed into use.

In turn, sustainable development comes to imply the management of a resource through the maintenance of a balance between contradictory purposes: conservation and optimal utilization.³⁷⁷ By aiming to balance opposing interests and equitably distribute benefits, the pursuit of undersea hydrocarbon resources results in the espousal of more complex systems of governance that inevitably lead to further complication and strife, not to mention innumerable delays in coming to conclusive decisions. The CLCS decisions are but one example, with the

³⁷³ Ibid., “Article 82 (2),” at 55.

³⁷⁴ Ibid., “Article 82 (4),” at 55-56.

³⁷⁵ Ong, “Chapter 6,” in *The Law of the Sea: Progress and Prospects*, at 101.

³⁷⁶ Ong at 102.

³⁷⁷ Ong, at 104.

Commission having reviewed 56 submissions by 2011 and giving recommendations to only 11 at this point.³⁷⁸

This means that Canada's submission could take a decade or more to review, hindering efforts at a potential reconciliation. It does not however halt discovery, exploration, or production of hydrocarbon resources and minerals in the area. A defense of sovereignty in this situation could be characterized as a preliminary effort to adequately delimit the maritime borders of Arctic coastal states and to quell their excitement over an abundance of hydrocarbon and mineral riches waiting to be unearthed. Given this context, sovereignty and international cooperation, though seemingly exclusive, are actually compatible as "sovereignty can facilitate cooperation by providing clear jurisdiction for regulating shipping and the extraction of natural resources".³⁷⁹ This suggests that Canada and the US have no real interest in confrontation. Rather, with the US seeking accession to the UNCLOS, cooperation in mapping and resource extraction are even more realistic.

³⁷⁸ Riddell-Dixon, "Meeting the Deadline," at 376.

³⁷⁹ Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 128.

Chapter Seven: Conclusions

The more precisely the position is determined, the less precisely the momentum is known in this instant, and vice versa.³⁸⁰

The Beaufort Sea maritime boundary dispute demonstrates that strong linkages exist between maritime delimitations (disguised as threats to sovereignty) and energy development in the Canadian Arctic. Accordingly, Byers has identified different resolutions that may be available. Perhaps the most obvious is a negotiated boundary, dividing the disputed area in half between both nations.³⁸¹ Canada and the US could seek to send the dispute to an international court, but precedent suggests that this could be risky; especially as in 1903 the US was awarded 26,000 square kilometres (the Alaska Panhandle) in an arbitration case.³⁸² Similarly, Canada and the US could bundle this dispute with others, connecting “the Beaufort Sea boundary to the resolution of the Northwest Passage dispute” or by connecting the Beaufort Sea maritime boundary dispute to the Dixon Entrance dispute, involving a 50 kilometer-wide body of water connecting the mainland coast to the open sea towards the southern end of the Alaskan coast where a salmon fishery exists.³⁸³

Byers also suggests that Canada should recognize the Beaufort Sea disputed area as American territory, while the US should recognize the Dixon Entrance as Canadian, offering a creative trade-off without disrupting cooperative seabed mapping occurring presently. There is precedent for this involving Russia and Norway in 2008, where Russia accepted a Norwegian claim to fishing in the Svalbard Islands, and Norway accepted “a more westward dividing line for the continental shelf in the Barents Sea”.³⁸⁴ They could also attempt to agree on a joint

³⁸⁰ Werner Heisenberg, American Institute of Physics, “The Uncertainty Principle, 1927,” updated 2012, available from: <<http://www.aip.org/history/heisenberg/p08.htm>>, (accessed June 13, 2012).

³⁸¹ Byers, *Who Owns the Arctic? Understanding Sovereignty Disputes in the North*, at 102.

³⁸² *Ibid.*, at 102.

³⁸³ *Ibid.*, at 104.

³⁸⁴ *Ibid.*, at 104.

arrangement whereby both nations share in the development of hydrocarbon resources in the disputed area, sharing in the benefits as well.³⁸⁵

Moreover, settlement of this dispute will and must involve the Inuvialuit of the Yukon and the Northwest Territories, as much of the zone in question lies “within the Inuvialuit Settlement Region, which was established by the 1984 Inuvialuit Final Agreement on the basis on the basis of the Canadian position concerning the international boundary,” as well as the Yukon North Slope, where “a special conservation regime protects wildlife and aboriginal harvesting interests”.³⁸⁶ Baker and Byers also point out that under Canadian law, the federal government “has a duty to consult, to limit any infringement of aboriginal rights as much as possible, to make any such limitation clear through an Act of Parliament, and to provide compensation”.³⁸⁷ Interestingly, the Inuvialuit have been having preliminary discussions with KOGAS, the Korean public natural gas company, on seeking to develop some of the natural gas resources located in the region; an intriguing proposition potentially threatening the conservation regime in place by those initially seeking to protect it.³⁸⁸

Canadian Arctic sovereignty in this sense is a concept that McRae says “conjures up images of Canada losing its national heritage in the north,” of the United States “asserting rights over what is rightfully Canadian,” and images “of the sacrifices made by Canada’s indigenous people in the far north in order to secure what Canada claims as its own”.³⁸⁹ He further suggests that Canadian Arctic sovereignty is a powerful concept, and a federal government “that stood

³⁸⁵ Ibid., at 103.

³⁸⁶ Ibid., at 103.

³⁸⁷ Baker and Byers, “Crossed Lines,” at 79.

³⁸⁸ Matthews, “Oil: How Canada is Dealing with Its High North,” at paragraphs 33-34.

³⁸⁹ McRae, *Behind the Headlines: Arctic Sovereignty? What is at Stake?*, at 1.

silent in the face of a claim that Arctic sovereignty was in peril would be renouncing Canada's history and the aspirations of its forbears".³⁹⁰

It is a principle that resounds loudly but has a narrow focus under international maritime law. Effectively, it concerns "the waters of the Arctic archipelago which encompass the various routes of the Northwest Passage," but not the Beaufort Sea as this concerns an unresolved issue of maritime delimitation and the limits of the continental shelf.³⁹¹ Sovereign rights to exploitation of natural resources, namely hydrocarbons, represent "a much more limited form of jurisdiction than is embodied in Canada's sovereignty claim in respect of the waters of the Arctic Archipelago".³⁹² Instead, these are determined by the UNCLOS which "attempts for the first time to provide a global framework for the rational exploitation and conservation of the sea's resources and the protection of the environment" while recognizing the importance of the freedom of navigation on the seas and basically acting as "a model for the evolution of international environmental law".³⁹³ Canadian Arctic sovereignty is thus not threatened concerning the Beaufort Sea maritime boundary dispute with the US.

It is borders that are essential to this debate then, and these are dictated by the UNCLOS. However, the UNCLOS, as a flexible international legal mechanism with a rich historical basis, does not exist "in isolation from the real world or from existing structures of international law," and thus requires "an understanding of the wider legal environment within which it operates".³⁹⁴ As such, it "has not remained static...and cannot be understood without reference to later

³⁹⁰ Ibid., at 1.

³⁹¹ Ibid., at 6.

³⁹² Ibid., at 7.

³⁹³ Birnie, Boyle, and Redgwell, eds., "Chapter 7," at 383.

³⁹⁴ Freestone, Barnes, and Ong, "Chapter 1: The Law of the Sea: Progress and Prospects," *The Law of the Sea: Progress and Prospects*, edited by David Freestone, Richard Barnes, and David M. Ong (New York: Oxford University Press, 2006), at 5.

developments, including the recommendations of the Rio Conference,”³⁹⁵ as just one example of an influential document that, when taken together with the UNCLOS, provide a more comprehensive legal regime that can deal with most issues related to the seas, including the Arctic Ocean.

Other issues arise when considering the effects of climate change on the Arctic Ocean and surrounding environment, as melting sea ice reveals previously unseen territory and adjusts coastal delimitations. The Arctic environment is harsh as it is, but is especially sensitive to “any additional sources of stress, both natural and human induced”.³⁹⁶ This has a profound effect on the ability of a state to access resources within their national jurisdiction as identified by the limitations set under the UNCLOS concerning the continental shelf under Article 76 and Article 82.

Consequently, the resources of the Beaufort Sea represent “a significant new source of oil and, more importantly, one under the regulation of, and financially beneficial to, the federal government”.³⁹⁷ This need for unexplored resources resembles the same pattern of behavior exhibited by early explorers seeking valuable resources in early maritime legal history, giving rise to early international maritime law in the form of *mare liberum*, *mare nostrum*, *mare clausam*,³⁹⁸ Vitorian *jus gentium*,³⁹⁹ and the Grotian *mare liberum*.⁴⁰⁰ In a more modern sense, the evolution of international maritime law can be described as the evolution of a demand for the protection of sovereign jurisdiction over national resources and potential natural resources, as well as the right to exploit these, under international law.

³⁹⁵ Birnie, Boyle, and Redgwell, “Chapter 7,” at 384.

³⁹⁶ Ibid., at 228.

³⁹⁷ Matthews, “Oil: How Canada is Dealing with Its High North,” at paragraph 32.

³⁹⁸ Grant, *Polar Imperative*, at 18.

³⁹⁹ Anghie, “Francisco de Vitoria and the Colonial Origins of International Law,” at 324.

⁴⁰⁰ Freestone and Salman, “Ocean and Freshwater Resources,” at 339.

However, these resources also signify a resort to a new source of oil that is expensive to explore and produce. Parks notes that this is a symptom of the fact that oil and gas are being consumed faster and in increasingly larger quantities, causing government and industry to “stake out and bid upon remaining stocks, to feed insatiable domestic use and foreign markets, or to suspend them at will”.⁴⁰¹ While these are important considerations to the present, there is also not a great sense of urgency to conclude this dispute, as technological and environmental limitations mean that drilling is geared toward the future and not a reality for the immediate term. In fact, a number of factors including environmental hazards, technological inefficiency, risk and willingness in instituting governmental regulation, all contribute to the slow progression of this dispute.

The development of the Beaufort Sea maritime boundary dispute demonstrates the importance of the development of international law in territorial disputes, especially so given environmental change, evolving legal principles, and the natural resources to be claimed by coastal states. It is a dispute that is in the unique position of being on the frontlines of multiple changes, that is, the nexus between the defense of sovereignty as a policy priority, both domestically and in foreign affairs, and energy resource development.

As such, it is possible that the status of the Beaufort Sea maritime boundary dispute will change after Canada submits its scientific findings to the CLCS in 2013, but merely because the position of the dispute is known at this specific moment, does not mean that what may come of it is just as certain.⁴⁰² Thus, it remains at a stalemate, and one with an indeterminate future.

⁴⁰¹ Jennifer Parks, “Chapter Four: The Race for Tomorrow’s Energy: Untapped Oil North of 60,” in *Canada’s Arctic Sovereignty: Resources, Climate and Conflict* (Edmonton: Lone Pine Publishing, 2010), at 118.

⁴⁰² Heisenberg, “The Uncertainty Principle, 1927.”

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