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The Arctic Ice Melt: Emerging Resources, Emerging Issues

Student Note

By: Thomas Au, Theodore Parran III, Jessica Rubin, and Jonathan Slomsiki

Introduction & Abstract

The permanent melting of Arctic sea ice has created a unique application of a wide array of international statutes and regulations to a complex, global issue. As the Arctic sea ice melts, more resources are becoming available, and countries neighboring the Arctic—and some beyond the shadow of the Arctic—are competing for a multitude of formerly untapped resources. Canada has an especially critical role in the post-Arctic sea ice arena due to both its location and its highly-protective native rights. Although it is more frequently perceived through the lens of an environmental crisis, the permanent melting of Arctic sea ice and the race to control the Arctic’s resources promises to be one of the key international law struggles of the twenty-first century.

Regular Arctic sea ice melt is not distinctive of the modern day. Indeed, it is a naturally occurring process that occurs cyclically throughout the seasons. However, Arctic sea ice melt has recently become accelerated due to the harmful effects of global industrialization and its externalities. A devastating cycle has been initiated in the Arctic that scientists predict will bring an end to Arctic sea ice as we know it. The opening of the Arctic is ushering in a potentially historic bounty of natural resources, and the amount of oil and natural gas that will become available is staggering. The Arctic sea ice melt will require international cooperation to prevent the outright usurpation of the Arctic’s riches.

Offshore drilling in Canada and the United States is managed by their respective federal governments. However, Canada and the United States employ significantly different approaches towards the regulatory management of exploration, leasing, development, and production of offshore oil and gas. It is critical to understand the differences in these approaches in order to effectively manage the emerging natural resources and resolve impeding disputes.

As the ice melts and resources become readily accessible, states are looking to stake their claim and reap the financial benefits. While both Russia and China have made overt strides at claiming resources, Canada and the United States are following the appropriate dispute resolution mechanisms outlined in the United Nations Charter (“UN Charter”) and the United Nations Convention on the Law of the Sea (“UNCLOS”) to resolve contested disputes. The conflicting claims over resources in the Beaufort Sea offers a unique insight into the
Canada-United States relationship and their multifaceted judicial and diplomatic approach to the dispute.

The recent creation of Nunavut and its grant of semi-autonomy as a distinct, aboriginally administered federal territory complicates the regulatory environment in the Canadian Arctic. Overlap and ambiguity in the Nunavut Land Claims Agreement Act create several emerging legal conflicts between the regulatory powers of Nunavut and the Canadian federal government. However, Canada has developed a workable solution based on historical initiatives with its eastern provinces regarding offshore resource management.

The permanent melting of Arctic sea ice is clear and present. With much of the Arctic's natural riches becoming increasingly exposed, it is imperative that the international community react responsibly to reach an equitable resolution between competing claims. Canada has an especially vital role in the entire process, and the manner in which international and native rights are balanced will have an indelible effect on the future of the Arctic.

I. The Science Behind the Melt

There is perhaps no environmental issue so immediate and omnipresent as the permanent melting of Arctic sea ice. Under normal global conditions, Arctic sea ice grows and shrinks seasonally from variations in temperature and sunlight. There are some natural phenomena, including polar amplification, that have hastened ice melt throughout Earth's history, but when observed and considered in the long run, those processes have had a negligible effect when considering the current, dismal state of Arctic sea ice. Since the advent of human-initiated environmental degradation, Arctic sea ice has been depleted at an alarming rate. The twenty-first century has seen a stream of new record lows of sea ice extent. Pollution and other human activities have caused the unprecedented Arctic sea ice melt, and naturally occurring, scientific processes exhibiting positive feedback have exponentially accelerated the record melt. This section begins with a brief primer on the Arctic as a geographic region, and then describes the scientific processes involved in the Arctic sea ice melt, from those that occur naturally to those man-made. Finally, the significance of these processes is illustrated through a description of the positive feedback loop at work in the melt.

A. Arctic Ice, Measurements, and Expected Melting

The Arctic conjures up images of a barren, frigid scene, replete with ice and snow. Indeed, the Arctic is primarily comprised of an
ocean bordered by a spattering of islands and larger masses, and covers about six percent of Earth's surface. In the most precise sense, the Arctic encompasses all of Earth north of 66 degrees, 32 minutes North Latitude (the Arctic Circle). Other definitions used mainly by scientists include the area beyond the northernmost point at which upright trees can grow (the "tree line") and the northern latitude area where the average daily temperature fails to rise above ten degrees Celsius. Regardless of the definition, the Arctic's most significant feature is Arctic sea ice: floating frozen seawater, much of which perennially covers the central Arctic Ocean. Sea ice is unique in that it originates entirely in water, as opposed to glaciers, icebergs, ice sheets, and ice shelves, which are all initially formed on land.

Actually measuring sea ice can be complicated and, at times, problematic. The two methods for measuring sea ice are "extent" and "area." When determining the volume of sea ice in the Arctic, the more simple method is measuring extent. Measuring sea ice extent involves categorizing an area of the ocean as "covered" or "not covered." Using satellite technology, scientists divide the Arctic and surrounding areas into individual pixels on a map, and if a certain pixel is at least fifteen percent covered in sea ice, then that cell's area is considered "covered" for purposes of the calculation. This process can lead to overestimating the amount of actual sea ice in the Arctic. For example, a given area of ten pixels may have fifteen percent sea ice coverage on each individual cell, but that area will be defined as one hundred percent covered under the definition of extent.

3. What is the Arctic?, supra note 1.
4. Id.
8. See id.
9. Id.
10. Id.
Conversely, measuring area consists of determining the precise amount of ocean covered by sea ice.\textsuperscript{11} The same satellite data used for extent is evaluated, but only the percentages of the pixels covered by sea ice are considered.\textsuperscript{12} A pixel with fifteen percent sea ice coverage will be counted simply as fifteen percent (more precisely, fifteen percent multiplied by the pixel’s land area) for an area calculation. Thus, a measurement of the Arctic’s sea ice extent will almost always be greater than a measurement of its sea ice area.\textsuperscript{13} Generally, the scientific community relies on the extent method as more reliable than the area method because determining whether a pixel has greater than or less than fifteen percent coverage is much easier than determining a precise percentage of coverage.\textsuperscript{14} Despite their differences, both measurements are essential. Both the concentration (area) and the scope (extent) of sea ice must be analyzed in order to gain a comprehensive understanding of the state of Arctic sea ice. For most investigations into the changes occurring to Arctic sea ice, extent is used because it explains, in a more comprehensive sense, the overall scope of the Arctic affected.

Though the most central area of Arctic sea ice (the “cap”) remains frozen throughout the year, the volume of Arctic sea ice ebbs and flows with seasonal changes. Indeed, some degree of melt is a natural process, usually beginning in March and continuing through September.\textsuperscript{15} In the first half of the twentieth century, this natural melt and freeze resulted in Arctic sea ice extent with an average maximum of about 14,000,000 km\textsuperscript{2} and an average minimum of about 11,000,000 km\textsuperscript{2}.\textsuperscript{16} However, since the 1950s, there has been a sharp decline in the extent of Arctic sea ice year-round.\textsuperscript{17} The maximum in 2005 was about 1,000,000 km\textsuperscript{2} lower than the maximum in 1950, and the minimum was about 4,000,000 km\textsuperscript{2} lower over that same time period.\textsuperscript{18} In 2012, the Arctic sea ice extent minimum decreased to

\begin{itemize}
\item \textsuperscript{11} \textit{Id.}
\item \textsuperscript{12} \textit{Id.}
\item \textsuperscript{13} \textit{See id.}
\item \textsuperscript{14} \textit{See Antarctic Sea Ice, NAT’L AER. & SPACE ADMIN., http://earthobservatory.nasa.gov/Features/Sealce/page4.php (last visited Mar. 31, 2013).}
\item \textsuperscript{15} \textit{See Daily Updated Time Series of Arctic Sea Ice Area and Extent Derived From SSMI Data Provided by NERSC, ARCTIC REG’L OCEAN OBSERVING SYS., http://arctic-roos.org/observations/satellite-data/sea-ice/ice-area-and-extent-in-arctic (last visited Nov. 11, 2012).}
\item \textsuperscript{16} \textit{See Northern Hemisphere Sea Ice Extent, UNIV. OF ILL., http://arctic.atmos.uiuc.edu/cryosphere/IMAGES/seasonal.extent.updated.jpg (last visited Nov. 11, 2012).}
\item \textsuperscript{17} \textit{See id.}
\item \textsuperscript{18} \textit{See id.}
\end{itemize}
3,410,000 km\(^2\)—the lowest ever recorded in the history of satellite data usage.\(^{19}\) Even though a natural sea ice melt-freeze process is expected in the Arctic, the rate at which the ice is melting and its ever-shrinking minimum and maximum extents has made it alarmingly clear to the scientific community that all is not well in the Arctic.\(^{20}\)

**B. Processes at Work in the Melt**

A number of natural processes work in unison to cause the growth and reduction of Arctic sea ice. Before analyzing the sources of the major climatic changes that have led to an unprecedented decline in Arctic sea ice, it is important to understand the processes that underlie any and all changes in sea ice quantities.

1. **Thermodynamics**

Sea ice melts and grows as a result of processes known as thermodynamics.\(^{21}\) Due to the fact that the Arctic Ocean’s water is anywhere between thirty-two and thirty-seven practical salinity units (psu),\(^{22}\) its water begins to freeze at -1.8 degrees Celsius.\(^{23}\) In reality, however, the situation becomes more complicated when considering heat exchange and varying salinity.\(^{24}\) As Arctic air chills sea water to its freezing point, sea ice begins to form, and the surrounding sea water must cool to support that growth.\(^{25}\) Cooling occurs as heat from the water beneath the sea ice escapes through the ice via conduction.\(^{26}\) As growth continues and sea ice thickens, it increasingly blocks that heat from escaping.\(^{27}\) When sea ice is so thick that heat can no longer

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20. See, e.g., id.


24. See id.


26. See id.

27. See id.
be conducted out through it, it has reached the point of thermodynamic equilibrium, which occurs when sea ice is around three meters thick.\textsuperscript{28} Reaching thermodynamic equilibrium takes sea ice numerous years of growth and melt cycles.\textsuperscript{29} Any snow accumulated atop the sea ice has a similar insulating effect and slows the overall growth.\textsuperscript{30}

Despite the effects of ice and snow on slowing conduction, they play a major role in reflecting a large amount of radiant heat and keeping the Arctic cool.\textsuperscript{31} Due to differences in albedo, the surface that receives direct sunlight makes an enormous difference in its temperature and, consequently, the overall welfare of Arctic sea ice.\textsuperscript{32} Snow covered ice has the highest albedo and reflects the highest percentage of radiation of all other Arctic surfaces; about ninety percent of all solar radiation that contacts snow covered ice is reflected away from the surface.\textsuperscript{33} Ice with an albedo of around 0.5 reflects about half of the solar radiation it receives.\textsuperscript{34} However, the amount of solar radiation that ice does absorb is sufficient enough to initiate sea ice melt, but not to a serious degree.\textsuperscript{35} Water has the lowest albedo of all the surfaces at 0.06 and thus absorbs approximately ninety-four percent of all solar radiation that contacts its surface.\textsuperscript{36} The reflectivity of snow and ice plays an essential role in protecting Arctic sea ice from the full power of solar rays.

The application of albedo to Arctic ice melt is clear: the less sea ice in the Arctic, the more solar radiation the Arctic will absorb.\textsuperscript{37} Following that reasoning, there is a clear danger for the Arctic when considering this inherent positive feedback loop. Rising temperatures lead to snow and ice melt, which in turn decreases high albedo surfaces and increases low albedo surfaces, and an overall lower albedo increases the Arctic’s temperature which subsequently leads to

\textsuperscript{28} See id.
\textsuperscript{29} See id.
\textsuperscript{30} See id.
\textsuperscript{33} Id.
\textsuperscript{34} See id.
\textsuperscript{35} See id.
\textsuperscript{36} Id.
\textsuperscript{37} See id.
melted high albedo surfaces. The two processes working in tandem have the ability to cause a quickened and pervasive melt, but as long as the environment is stable and functioning normally, albedo feedback can be overcome by natural climatic cycles.

2. Dynamics

Arctic sea ice is constantly on the move. Dynamics do not affect the concentration of sea ice in a given area as much as the location of a particular piece of sea ice. The most impressive dynamic forces affecting sea ice are wind and ocean currents.

Wind is the most obvious and most impactful force behind sea ice movement, accounting for up to seventy percent of all sea ice movement over a given period. As wind blows over sea ice, it pushes the ice at a rate of about two percent of the speed of the wind. Gradually, the sea ice wears down and the rate at which it travels slows. Newly-formed sea ice is especially vulnerable to the wind's physicality and is more likely to be pushed into warmer waters to melt. Wind also works in conjunction with solar radiation, since sea ice blown free of snow has a higher albedo than snow-covered sea ice. Thus, wind has the ability to influence both the position of sea ice and its albedo.

Ocean currents also play a large role in sea ice movement but in a more long-term sense than wind. Most notably, the direction in which ocean currents pull sea ice is generally the opposite of the wind direction. This push-pull stress causes a wearing-away of the outer layers of sea ice and degrades the sea ice in an accelerated fashion. As sea ice is strained, its internal ice stress is decreased. The thinner,

40. Id.
41. Id.
42. See id.
44. See Thermodynamics: Melt, supra note 31.
45. Dynamics, supra note 39.
46. Id.
47. See id.
48. See id.
less dense sea ice melts at a higher rate than thicker sea ice created and maintained under pressure. Unlike the short-term impact of wind, the rate at which scientists study ocean current effects on sea ice is measured in terms of months and years.

C. Global Warming: the Underlying Perpetrator

Though the Earth has gone through elongated periods of heating and cooling throughout its history, the present-day, imminent global warming is widely-accepted in the scientific community as the product of centuries of environmental mistreatment, and the problem is disproportionately affecting the Arctic. Pre-industrialized Earth was able to equalize almost all pollutants that were created through natural processes. However, beginning in the late 1700s, humans began producing greenhouse gases at a rate that could not be offset, and greenhouse gases began to accumulate in Earth’s atmosphere. Lasting for centuries, these pollutants trap heat within the atmosphere and offset Earth’s delicate energy balance. Perilously situated at the northernmost area of the planet, the Arctic is particularly susceptible to global climate change and is enduring the devastating effects of global warming sooner and more viciously than any other area.

The United States Select Committee on Energy Independence and Global Warming ("SCEIGW") defines “global warming” as “the global temperature rise and subsequent impacts from the increase of heat-trapping gases in the atmosphere from human activities, primarily the combustion of fossil fuels.” The heat-trapping gases that the SCEIGW refers to are greenhouse gases—most notably carbon dioxide, methane, nitrous oxide, ozone, and water vapor—that

49. See id.
50. Id.
53. Id.
54. Id.
become lodged within the Earth’s atmosphere and absorb energy, blocking much of the infrared energy that would otherwise naturally dissipate into space.\textsuperscript{57} As the world gradually burned more and more fossil fuels to feed industrialization, carbon dioxide emissions have increased exponentially.\textsuperscript{58} Tracking the past four hundred thousand years, scientists had never observed atmospheric carbon dioxide in amounts over 300 parts per million (ppm), and measurements usually averaged around 240 ppm.\textsuperscript{59} However, since the 1950s, atmospheric carbon dioxide has annually set increasingly new record highs and is currently nearing 400 ppm.\textsuperscript{60} Frighteningly, carbon dioxide has an atmospheric lifespan of up to one hundred years.\textsuperscript{61} Thus, even if humans stopped creating carbon dioxide emissions today, the atmosphere would not be rid of carbon dioxide—merely one greenhouse gas in the equation—until potentially the twenty-second century. This anthropogenic sequence will continue without full-scale, human-led intervention to combat pollution emissions on the front end.\textsuperscript{62}

In addition to carbon dioxide, methane gas emission has played a unique role in global warming. Though methane only has up to a fifteen year lifespan in the atmosphere, it is over twenty times more effective at trapping energy than carbon dioxide.\textsuperscript{63} Like carbon dioxide, the amount of methane in the atmosphere has increased exponentially since the Industrial Revolution. Pre-1700 levels hovered around 700 parts per billion (ppb), but currently, atmospheric


\textsuperscript{58} See Global Warming: The Science, supra note 56.

\textsuperscript{59} See Climate change: How Do We Know?, NAT’L AER. & SPACE ADMIN., http://climate.nasa.gov/evidence/ (last visited Nov. 11, 2012).

\textsuperscript{60} See id.


\textsuperscript{62} See Global Warming 101, supra note 51; see also Rebecca Lindsey, If Earth Has Warmed and Cooled Throughout History, What Makes Scientists Think That Humans are Causing Global Warming Now?, NAT’L AER. & SPACE ADMIN., http://earthobservatory.nasa.gov/blogs/climateqa/if-earth-has-warmed-and-cooled-throughout-history-what-makes-scientists-think-that-humans-are-causing-global-warming-now/ (May 4, 2010) (detailing how global warming is a human problem that can only be remedied by human action).

methane is present at levels around 1900 ppm and rising.64 Humans have disseminated methane through the use of landfills, agricultural operations, wastewater treatment, fossil fuel production, and certain industrial operations.65 Yet through the initiation of global warming, the release of natural sources of methane has intensified, especially in the Arctic.66 As Arctic sea ice melts, it releases ancient methane that has been trapped in pockets within the sea ice.67 Even more alarming, scientists have identified over one hundred and fifty thousand seeps of methane throughout the Arctic,68 mostly connected to three massive reservoirs, which had been contained by sea ice, ice shelves, frozen sea beds, and permafrost up until the past century.69 This “ticking time bomb” situation could have dire consequences.70 Should the Siberian ice shelf’s permafrost melt, it alone would emit an amount of methane twelve times the current quantity in the atmosphere.71 Considering the overabundance of methane present in the atmosphere, this event would undoubtedly add catastrophic implications to the already dire situation in the atmosphere. The result of the increase in greenhouse gases is a more severe greenhouse effect and a progressively warmer planet blanketed in pollutants without a way to cool itself.

D. Positive Feedback and Intensified Processes

The Arctic is particularly vulnerable to climate change because of its location. This susceptibility has led some to refer to the Arctic as the “canary in the coal mine” of global warming.72 Situated atop the Northern Hemisphere, the Arctic is subjected to the effects of polar amplification and the summation of a host of positive feedback

65. Methane Emissions, supra note 63.
67. Id.
71. Id.
72. Global Warming Puts the Arctic on Thin Ice, supra note 55.
mechanisms that intensify climatic change in the northern pole at a much faster rate than the rest of the planet. The aforementioned deleterious processes work together to warm the Arctic, collectively precipitating Arctic sea ice melt. Greenhouse gases slightly warm the planet and sea ice begins to melt. As sea ice melts, the overall albedo of the Arctic decreases, and solar radiation is increasingly absorbed, warming the Arctic environment. As the Arctic warms, methane embedded inside and underneath ice is released and collects in the atmosphere, increasing the greenhouse effect and warming the entire planet. Thus, the positive feedback cycle comes full circle. These effects result in an overall warming of the Arctic that occurs 1.5 to 4.5 times faster than the rest of the planet.

Though much of the Arctic sea ice melt can be connected back to natural processes, the rate at which the sea ice is melting is undisputedly unnatural. Dynamic forces work to physically displace and weaken sea ice, and thermodynamic forces diminish sea ice through increased temperatures. With the presence of global warming, these natural processes have hastened and are themselves contributing to global warming through the release of additional pollutants. Global temperatures over the past century have increased at a rate of eight times faster than ice-age recovery periods, and the resulting impact on Arctic sea ice is evident. Just this past September 2012, Arctic sea ice extent reached its lowest level ever recorded in the satellite era. Some scientists fear that it is only a matter of time until Arctic sea ice disappears completely in the summer months. Regardless of the eventual extent of the melt, the Arctic sea is certainly transitioning away from its frigid, ice-laden past into a new era of increasingly open waters set for exploration and development.


75. See Dynamics, supra note 39.

76. See Thermodynamics: Introduction, supra note 21.

77. See Black, supra note 66.

78. See Lindsey, supra note 62.


II. Resources Made Available Due to the Melt

Ever-shrinking Arctic sea ice is continually opening an immense area that is ripe with natural resources. Most notably, oil and gas will be made available in historically large amounts.81 The Beaufort Sea, which is just north of Alaska, the Yukon, and the Northwest Territories, has been a focal point in the race for the Arctic’s natural resources.82 Countries and businesses have already begun to build infrastructure in anticipation of a race for oil and gas riches.83 To a lesser extent, minerals—including rare earth minerals—and drinking water are becoming increasingly available as the sea ice melts.84 The Arctic is fast becoming a veritable treasure trove for countries and companies seeking to cash-in on one of the planet’s most untouched source of natural resources. This section describes the types of resources that are becoming progressively more available due to the sea ice melt, from oil to natural gas to various other resources, including minerals, fish stocks, and drinking water.

A. Oil

Below Arctic sea ice lays a massive amount of oil that is increasingly accessible due to sea ice melt. Onshore oil reserves in the Arctic Circle already account for two hundred and forty billion barrels of oil, or about ten percent of the world’s discovered oil reserves.85 Offshore reserves, however, remain mostly undiscovered in the Arctic, a fact that would undoubtedly change with the permanent melting of Arctic sea ice.86 The United States Geological Survey (“USGS”) predicts that there is approximately ninety billion barrels of available oil in the area above the Arctic Circle.87 This amount would equal...
approximately thirteen percent of the world’s undiscovered and accessible oil and provide a boom for the countries and companies that are able to claim it. British Petroleum and Exxon are already vying for pole position in the race for Arctic oil in Russian territory.

B. Natural Gas

The area beneath Arctic sea ice is replete with stores of natural gas. The USGS estimates that reserves of natural gas approach 1,670 trillion cubic feet of recoverable natural gas and forty-four billion barrels of recoverable natural gas liquids. Natural gas, unlike oil, is spread out among the geological provinces and could thus be more difficult to harvest than oil. Inherent difficulties in harvesting and transporting natural gas could also add substantial expenses onto natural gas operations in the Arctic. Nonetheless, it is estimated that the Arctic holds approximately thirty percent of the world’s undiscovered natural gas reserves. So far, Russian companies, including global energy giant Gazprom, appear to be leading the way in exploration and extraction, but other countries and companies will undoubtedly vie for potential gaseous riches hidden below the Arctic surface.

As Arctic sea ice diminishes, commercial opportunities to reap the bounties of natural riches once hidden beneath the ice increase. An industry-shifting amount of oil and natural gas deposits are predicted to become available as the ice recedes. Additionally, minerals, fish, and drinking water, though to a lesser extent, may soon be collected

88. Id.
90. See Rosenthal, supra note 83.
91. Arctic Natural Gas, supra note 87.
92. Arctic Circle Estimates, supra note 85, at 1.
93. See id.
95. Id.
in order to feed a growing demand. Even though the research has been conducted and the data has been collected, the looming question of who owns the resources made available is perhaps the most essential inquiry when considering the commercial impact of the Arctic melt.

III. Oil and Gas Law and Regulation in the United States and Canada

In both Canada and the United States, offshore drilling is managed by the federal government. However, Canada and the United States employ significantly different approaches towards the regulatory management of exploration, leasing, development, and production of offshore oil and gas. Additionally, Canadian provinces and American states have different rights to offshore seabed (or subsurface) mineral rights. Exploration in Canadian Arctic waters is also complicated by concurrent aboriginal rights and regulations. Understanding these different features, as well as why the systems developed in the manner that they have, is critical to effective international management and resolution of offshore oil and gas rights. This note uses the Beaufort Sea as an example of the practical effect of these legal and regulatory differences.

A. The United States

1. U.S. Federal Law on Offshore Drilling (Rights)

The United States federal government has sovereign rights to the seabed and subsurface of submerged lands beyond the three or nine nautical mile state demarcation. In the United States, rights to offshore natural resources are predominately governed by the Submerged Lands Act ("SLA"), the Outer Continental Shelf Lands Act ("OCSLA"), the Federal Oil and Gas Royalty Management Act ("FOGRMA"), and the Coastal Zone Management Act ("CZMA").


a. The Submerged Lands Act

State and federal rights to seabed minerals are defined by the SLA. This law gave states the rights to any natural resources within three nautical miles (or 3.45 land miles) from their coastlines. There are two significant exceptions. Under the SLA, the rights of Texas and Florida in the Gulf of Mexico were extended to nine nautical miles (10.35 statute miles). Beyond three (or nine) nautical miles, the United States federal government possesses original title to subsurface mineral rights.

b. The Outer Continental Shelf Lands Act

Leasing and exploration of offshore oil and gas is controlled by the OCSLA. In addition to codifying federal control over the Outer Continental Shelf ("OCS"), the OCSLA also lays out a number of requirements for the Department of the Interior ("DOI"). First, it requires the DOI to develop and maintain an oil and gas leasing program structured in five-year increments. Additionally, the OCSLA requires agencies to consider "economic, social, and environmental values of the renewable and nonrenewable resources contained in the outer Continental Shelf, and the potential impact of oil and gas exploration on other resource values of the outer Continental Shelf and the marine, coastal, and human


102. The OCSLA defines "continental shelf" differently than international law. Compare 43 U.S.C. § 1331(a) (2012) ("The term 'outer Continental Shelf' means all submerged lands lying seaward and outside of the area of lands beneath navigable waters as defined in section 1301 of this title, and of which the subsoil and seabed appertain to the United States and are subject to its jurisdiction and control [...]) with United Nations Convention on the Law of the Sea art. 76(1), Dec. 10, 1982, 1833 U.N.T.S. 3 [hereinafter UNCLOS] ("The continental shelf of a coastal State comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend up to that distance.").

environments."\textsuperscript{104} The OCSLA also requires the DOI to receive "fair market value" for all leases on the OCS.\textsuperscript{105}

c. \textit{The Federal Oil and Gas Royalty Management Act}

OCS leases are also governed by the FOGRMA.\textsuperscript{106} In response to concerns that the DOI did not have sufficient accounting and enforcement mechanisms,\textsuperscript{107} Congress enacted the FOGRMA to create a "comprehensive system for determining, collecting and auditing all fees and payments for offshore leases in addition to conducting inspections and enforcing penalties."\textsuperscript{108}

d. \textit{The Coastal Zone Management Act}

The CZMA\textsuperscript{109} was designed to encourage coordination and cooperation between the federal and state governments by providing for state-developed ocean resource plans as part of states' federally approved coastal zone management programs.\textsuperscript{110} The CZMA requires federal agency actions to "be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs."\textsuperscript{111} Essentially, this means that federally permitted oil and gas exploration projects must be submitted for state review.\textsuperscript{112}

\begin{footnotesize}
\begin{enumerate}
\item Id. § 1344 (a)(1) (2012) (additional considerations for the “timing and location of exploration, development and production of oil and gas” can be found in §§ (2)(A)-(2)(H)).
\item Id. § 1701 (a)(2) (2012); see also EIA OFFSHORE GUIDE, supra note 100, at 8.
\item EIA OFFSHORE GUIDE, supra note 100, at 8.
\item Id. § 1456(c); see also VANN, supra note 101, at 12 ("When a state determines that a lessee’s plan is inconsistent with its coastal zone management program, the lessee must either reform its plan to accommodate those objections and resubmit it for BOEMRE and state approval or succeed in appealing the state’s determination to the Secretary of Commerce."); see also 30 C.F.R. § 250.235 (2011).
\end{enumerate}
\end{footnotesize}
2. U.S. Regulatory Structure

Offshore oil drilling is managed by a number of different federal agencies in the United States. Since many agencies have overlapping authority at different stages of exploration and development, it may be helpful to describe the division of authority in three general parts: (1) leasing rights and licensing (for all stages of exploration and development), (2) environmental regulation, and (3) tort and labor law.\(^{113}\)

a. Leasing, Exploration and Development

In the United States, there are four stages in the leasing process: "(1) the five-year planning program; (2) preleasing activity and the lease sale; (3) exploration; and (4) development and production."\(^{114}\) The Bureau of Ocean Energy Management ("BOEM")\(^{115}\) is charged with the development of the Five-Year Outer Continental Shelf Oil and Natural Gas Leasing Program ("OCS Leasing Program")\(^{116}\) that implements the OCSLA.

b. Environmental Regulation

Federal agencies are charged with administering a number of federal environmental laws in relation to offshore oil and gas exploration and development, including the National Environmental Policy Act,\(^{117}\) Endangered Species Act,\(^{118}\) the Clean Water Act,\(^{119}\) the

\(^ {113}\) Tort and labor law will not be discussed in this note. For additional information on personal injury and tort law on offshore oil and gas facilities, see Donald T. Kramer, Annotation, Construction and Application of § 4 of Outer Continental Shelf Lands Act of 1953 (43 U.S.C.A. § 1333), Relating to Laws Applicable to Subsoil and Seabed of Outer Continental Shelf and Artificial Islands and Fixed Structures Erected Thereon, 163 A.L.R. FED. §1 et seq. (2000).

\(^ {114}\) VANN, supra note 101 at 5.

\(^ {115}\) Formerly known as the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE) and also as the Minerals Management Service (MMS). On Oct. 1, 2011, the BOEMRE was reorganized and divided into the BOEM and the Bureau of Safety and Environmental Enforcement (BSEE). See Bureau of Ocean Energy Management, Regulation and Enforcement, BOEMRE.GOV, http://www.boemre.gov/ (last visited Nov. 4, 2012).


National Fishing Enhancement Act,\(^{120}\) and the Oil Pollution Act.\(^{121}\) These laws create directives for multiple agencies, including the Environmental Protection Agency, the Department of the Interior Fish and Wildlife Service, the National Oceanic and Atmosphere Administration, and BOEM in the regulation of offshore drilling either in the initial environmental review or in the event of a disaster, such as an oil spill. While the BOEM is required to release a Programmatic Environmental Impact Statement ("PEIS"), the agency must also collaborate with other environmental regulators to develop the PEIS.\(^{122}\)

At the time of writing, active leases have been granted to six companies in the United States' portion of the Beaufort Sea.\(^{123}\) While further lease sales in the Beaufort Sea are planned, BOEM has postponed additional auctions until 2017 in order to allow for additional environmental review.\(^{124}\)

\section*{B. Canada}

In Canada, rights to and management of offshore natural resources are governed by the Oceans Act, the Canada Petroleum Resources Act, and the Canada Oil and Gas Operations Act.\(^{125}\)

\begin{itemize}
\item \(^{124}\) See 2012–2017 Lease Sale Schedule, BUREAU OF OCEAN ENERGY MGMT., http://www.boem.gov/Oil-and-Gas-Energy-Program/Leasing/Five-Year-Program/Lease-Sale-Schedule/2012---2017-Lease-Sale-Schedule.aspx (last visited Nov. 11, 2012) ("Beaufort Sea Sale 242 has been postponed from 2015 to 2017 in recognition of the significant overlapping of subsistence use, resource distribution, species habitat, and to allow more time to analyze and implement our focused leasing strategy in this area.").
\item \(^{125}\) Other Canadian federal laws may have limited applicability and jurisdiction. Another way of looking at applicable federal law is to identify which laws apply at different stages in the drilling process. The PEW Environment Group created the following table that identifies the relevant laws in each stage of exploration and development:

\begin{center}
\textbf{Figure 2: Five Phases of Canada's Arctic Offshore Hydrocarbon System}
\end{center}
1. Canadian Federal Law on Offshore Drilling

In Canada, the federal government develops regulations, laws, and policies for offshore drilling. Three laws predominately govern the title to and exploration and development of offshore oil and gas. These are: the Oceans Act, the Canada Petroleum Resources Act ("CPRA") and the Canada Oil and Gas Operations Act ("COGOA"). The Oceans Act defines the territorial rights of the federal government and provinces.\(^{126}\) The CPRA governs the issuance of licenses and

<table>
<thead>
<tr>
<th>Phases</th>
<th>Agency</th>
<th>Laws (in addition to Federal-Inuit land claim agreements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Call for Nominations</td>
<td>INAC</td>
<td>None</td>
</tr>
<tr>
<td>1. Call for Nominations</td>
<td>INAC</td>
<td>Canada Petroleum Resources Act, Canadian Oil and Gas Operations Act</td>
</tr>
<tr>
<td>3. Exploration Activities</td>
<td>NEB</td>
<td>National Energy Board Act, Canadian Environmental Assessment Act, the Canada Oil, and Gas Operations Act, the Canada Oil and Gas Drilling and Production regulations, the Canada Oil and Gas Installation regulations, the Territorial Lands Act, the Arctic Waters Pollution Prevention Act, the Migratory Birds Convention Act, the Species at Risk Act, the Fisheries Act, and the Canadian Environmental Protection Act.</td>
</tr>
<tr>
<td>4. Significant Discovery/Production License</td>
<td>INAC</td>
<td>Canada Petroleum Resources Act, National Energy Board Act</td>
</tr>
<tr>
<td>5. Hydrocarbon Production Activities</td>
<td>NEB</td>
<td>National Energy Board Act, Canadian Environmental Assessment Act, the Canada Oil, and Gas Operations Act, the Canada Oil and Gas Drilling and Production regulations, the Canada Oil and Gas Installation regulations, the Territorial Lands Act, the Arctic Waters Pollution Prevention Act, the Migratory Birds Convention Act, the Species at Risk Act, the Fisheries Act, and the Canadian Environmental Protection Act.</td>
</tr>
</tbody>
</table>

\(^{126}\) See Oceans Act, S.C. 1996, c. 31 (Can.).
management of Canadian federal exploration and production rights. The CPRA also defines the royalty regime for oil and gas exploitation. The CPRA applies to both onshore and offshore facilities. Finally, the COGOA governs the regulation of petroleum operations. In addition, it sets requirements for associated benefits to territories and aboriginal groups in affected areas.

2. Canadian Regulatory Structure

Canada does not have a uniform method of regulation and division of responsibilities. Canadian regulation can best be described by region. There are three major regions for offshore oil and gas in Canada: the East Coast, the West Coast, and the Arctic. Since the East and West Coast regions have a longer history and the East Coast region is more developed, their regulatory structure informs the regulatory system and debate in the Arctic. Thus, it is important to describe the regulatory structure of each region.

a. East Coast

On the East Coast, regulation is divided between two regulatory agencies: the Canada Nova Scotia Offshore Petroleum Board ("CNSOPB") and the Canada-Newfoundland and Labrador Offshore Petroleum Board ("C-NLOPB"), which have authority offshore from their respective provinces. The CNSOPB is an independent joint agency between the Canadian federal government and the Nova Scotia provincial government. It was established in 1990 by the Canada-Nova Scotia Offshore Petroleum Accord Implementation Acts. Likewise, the C-NLOPB was established by mirror federal and provincial legislation. This includes Hibernia, Terra Nova, Whiterose, and Sable. See, e.g., CAN. ASSOC. OF PETROLEUM PRODUCERS, THE 2010 RESPONSIBLE CANADIAN ENERGY 2010 PROGRESS REPORT 18 (2011), available at http://www.capp.ca/getdoc.aspx?DocId=200577&DT=NTV.


128. Id.


132. The Acts are actually two identical acts passed by the Canadian Parliament and the Nova Scotia Legislature that were required to implement the 1986 Canada-Nova Scotia Offshore petroleum Resources
provincial statutes\textsuperscript{133} that implement the Atlantic Accord.\textsuperscript{134} One region under the C-NLOPB, Hibernia, is also controlled by statute.\textsuperscript{135}

The key features of the East Coast are: (1) the power-sharing between the Canadian federal government and the provinces, and (2) the delegation of authority to independent regulatory agencies that have central control over the most significant issues, including worker health and safety, environmental protection, and licensing for exploration and development.\textsuperscript{136} Additionally, unlike the United States, royalties are collected by the provincial governments, not the federal government.

\textit{b. West Coast}\textsuperscript{137}

Canadian federal government policy prohibits exploration and development of any potential oil or gas resources off the coast of British Columbia.\textsuperscript{138} Accordingly, there is no regulatory structure for the exploration and development of offshore oil and gas on the

\begin{itemize}
\item \textsuperscript{133} Canada-Newfoundland Atlantic Accord Implementation Act, S.C. 1987, c.3. (Can.); Canada-Newfoundland and Labrador Atlantic Accord Implementation Newfoundland and Labrador Act, R.S.N.L. 1990, c. C-2 (Can.).
\item \textsuperscript{135} See Hibernia Development Project Act, S.C. 1990, c.41 (Can.).
\item \textsuperscript{136} See What We Do, CAN.-N.S. OFFSHORE PETROLEUM BD., http://www.cnsopb.ns.ca/about-us/what-we-do (last visited Nov. 4, 2012).
\item \textsuperscript{137} For an alternate geographic reference, the West Coast includes the Georgia Basin, the Winona and Tofino Basin, and the Queen Charlotte Basin. See MIN. OF ENERGY, MINES AND NAT. GAS, B.C.’S OFFSHORE OIL AND GAS: A GUIDE TO THE GEOLOGY AND RESOURCES 2 (2003), available at http://www.empr.gov.bc.ca/Mining/Geoscience/MapPlace/thematicmaps/OffshoreMapGallery/Documents/Petroleum-Brochure.pdf.
\item \textsuperscript{138} A common misconception is that a “moratorium” on exploration exists pursuant to federal law. For a detailed history and explanation of the development of Canadian offshore oil and gas law with respect to British Columbia, see Review of the Federal Moratorium on Oil and Gas Activities Offshore British Columbia, NAT. RESOURCES CAN. (Feb. 27, 2009), http://www.nrcan.gc.ca/energy/sources/offshore-oil-gas/1265 (last visited Mar. 31, 2013).
\end{itemize}
Canadian West Coast. In the absence of a negotiated and developed regulatory scheme for the West Coast, the Canadian National Energy Board retains jurisdiction over seabed resources.

If Canadian federal policy did change, then a federal-provincial agreement would have to be drafted and enabling legislation would have to be passed by both the Canadian Parliament and the provincial legislature in British Columbia. This would create a similar regulatory structure to the one that already exists on the East Coast. While the federal government has clear jurisdiction over offshore resources, such a system of legislation and agreement is required because of the overlapping federal and provincial authority created by the Oceans Act, customary international law, and international treaties. Canada’s current system of negotiated agreements serves to preemptively settle disputes between the First Nations, provinces, and the federal government. It also creates a less fractured regulatory system.

c. Arctic

Regulation in the Arctic region is more complex based on the location of the particular oil or gas field. The northern-most portions of the Western Canada Sedimentary Basin lay beneath the Northwest Territories, while the Arctic Margin falls offshore the Northwest Territories. The Arctic Cratonic largely falls beneath or offshore Nunavut, although some portions extend into the Northwest Territories. Rights to and regulation of oil and gas deposits differs based on the jurisdiction where the leases are obtained and where the drilling is to occur.

i. Northwest Territories

In the Northwest Territories, title and regulatory rights are in transition between the federal government and the territorial government. In February 2011, the Northwest Territories and the Canadian federal government signed the Northwest Territories Lands and Resources Devolution Agreement-in-Principle (“NWTAIP”) to

139. Al Hudec and Van Penick, British Columbia Offshore Oil and Gas Law. 41 ALTA. L. REV. 101, 108 (2003); see also CAN. CTR. FOR ENERGY INFO. REPORT, supra note 129, at 23-24.


142. Id.

143. CAN. CTR. FOR ENERGY INFO. REPORT, supra note 129, at 3.
transfer the rights and regulatory authority of oil and gas operations in the Northwest Territories to the territorial government. Whether this process will be completed and when, however, remains unknown, since an aboriginal group has challenged the validity of the NWTAIP in both territorial and Canadian federal courts.

Regulation also varies based on the sub-territorial region of the Northwest Territories. However, offshore oil and gas largely exists in two sub-territorial regions: the Beaufort Sea and the Inuvialuit Settlement Region ("ISR"). Under the Inuvialuit Final Agreement ("IFA"), which governs the rights and interests between the Canadian federal government and the Inuvialuit people, the Canadian federal government owns all rights and claims to offshore subsurface oil and gas.

However, until devolution is complete, the Canadian National Energy Board ("NEB") and the Department of Aboriginal Affairs and Northern Development ("DAAND") possess regulatory jurisdiction and authority over offshore oil and gas. Like the United States, the Canadian federal government divides the regulatory responsibilities between the financial (including licensing) and the health, safety, and


147. Id. at 75, §9.0 ("The Inuvialuit Final Agreement (IFA) was signed by all parties on June 5, 1984. It is a land claim agreement under subsection 35(3) of the Constitution Act 1982. The IFA applies throughout the Inuvialuit Settlement Region (ISR) and takes precedence on all matters that it covers. To the extent of any inconsistency between the IFA and any other federal, territorial or municipal law, the IFA prevails to the extent of the inconsistency (IFA s. 3(3)). The legislation implementing the Agreement is the Western Arctic (Inuvialuit) Claims Settlement Act, s.c. 1984, chp. 24.").

148. Id. at 17, §1.1.

149. Id. at 75, §9.0.

150. Id. at 23.

217
environmental aspects. The NEB regulates the safety, environmental, conservation, and technical issues, while the DAAND regulates the financial aspects. Licensing is controlled by DAAND under the CPRA.

ii. Yukon

The Yukon is one region where devolution has been completed for onshore oil and gas. However, the Canadian federal government retains the rights and responsibilities for offshore oil and gas. While the federal government possesses the rights to offshore resources, the 1993 Canada-Yukon Oil and Gas Accord ("CYOGA") provided for "a shared offshore management regime and revenue sharing arrangement in the Beaufort Sea with [the] Yukon." Like Nova Scotia and Newfoundland and Labrador, the CYOGA provides for a joint

<table>
<thead>
<tr>
<th>Activity</th>
<th>Responsible Organization</th>
</tr>
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<tbody>
<tr>
<td>Issuing Exploration Licences</td>
<td>Department of Aboriginal Affairs and Northern Development</td>
</tr>
<tr>
<td>Issuing Authorizations and Approvals for wells</td>
<td>National Energy Board</td>
</tr>
<tr>
<td>Issuing Significant Discovery Declarations</td>
<td>National Energy Board</td>
</tr>
<tr>
<td>Issuing Commercial Discovery Declarations</td>
<td>National Energy Board</td>
</tr>
<tr>
<td>Issuing Significant Discovery Licences</td>
<td>Department of Aboriginal Affairs and Northern Development</td>
</tr>
<tr>
<td>Issuing Production Licences</td>
<td>Department of Aboriginal Affairs and Northern Development</td>
</tr>
<tr>
<td>Managing royalties from oil and gas production</td>
<td>Department of Aboriginal Affairs and Northern Development</td>
</tr>
</tbody>
</table>


154. Canada-Yukon Oil and Gas Accord Implementation Act, c. 5, s. 20 (1998) (Can.).
Federal-Territorial Offshore Committee. However, that committee functions as only “a consultative mechanism on administrative and policy decisions and issues affecting the offshore” and does not possess the broad regulatory powers found in the Canadian-provincial regulatory boards.

**iii. Nunavut**

As in the Northwest Territories, the Canadian federal government owns title to offshore oil and gas, and is responsible for the administration and regulation of those rights. However, disagreements between the federal government and Nunavut organizations over control of non-renewable resources have increased the ambiguity as to who has title to and who may regulate oil and gas in Nunavut.

These issues may be resolved by devolution. Like the Northwest Territories, Nunavut has recently begun the process for devolution in 2012, with the federal government’s selection of a negotiator. However, until this process is complete, the federal government will be responsible for the determination and administration of offshore oil and gas rights.

**C. Distinctions Between United States & Canada**

1. Administrative Management of Offshore Resources

While offshore oil and gas is controlled by the federal government in both Canada and the United States, the two nations employ significantly different regulatory regimes. The two systems can generally be characterized by one feature: the development of a new regulatory structure for each geographic area, such as in Canada, or the use of existing regulatory agencies to implement policy across multiple geographic areas, such as in the United States. Neither system is perfect and both come with their respective strengths and

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limitations. Canada’s more unitary regulatory system allows companies to deal with, predominately, a single regulator and specific regulations based on the needs and interests of that area. By contrast, the United States regulatory framework is more difficult to understand, as multiple agencies may promulgate overlapping regulations with unclear authority at specific offshore sites.

However, the United States’ system also allows for decision-making to be based on a wider range of federal and state agency information and resources. This is particularly important in assessing the environmental impact of offshore activity, which requires greater resources and expertise.

2. Revenue Sharing

One significant consequence of the Canadian joint federal-provincial agreement and regulatory structure is that fewer intergovernmental conflicts exist regarding collection and disbursement of oil and gas revenues. In the United States, debate over the division of offshore oil and gas revenues has been the subject of decades worth of litigation, legislation, and debate that continues to this day. Despite recent federal legislation, including the Gulf of Mexico Energy Security Act of 2006, which directed 37.5% of federal revenues from OCS leases to neighboring states, governors continue to lobby for an increased share of federal OCS revenues.


Part of the issue appears to stem from the fact that the United States federal government is responsible for collecting offshore oil and gas royalties and distributing these revenues to the states. In contrast, Canadian provincial governments collect royalties and distribute these revenues according to pre-arranged federal-provincial agreements. At first glance, federal-state conflicts may appear to be of little import for industry because federal and state governments are only disputing who gets what share of a set proportion from the company's lease. However, the American federal-state discord may have real effects on the issuance of oil and gas exploration licenses and leases if states attempt to block leases under the CZMA because they feel that the proportion of royalties they receive is not equitable. Such conflict is less likely under the Canadian administrative and regulatory system.

3. The Beaufort Sea Example

One geographic area where regulatory differences may have a discreet effect is in the Beaufort Sea. If this offshore area falls under American jurisdiction, then development and leasing will almost certainly be delayed until 2017. However, if this area falls under Canadian control, then development and leasing may occur on a faster timetable, as Canada has already authorized exploratory licenses in several offshore areas in the Beaufort Sea. This has the potential to greatly advance the production and end-consumer timetable for offshore resources in the short and mid-term.

163. The provincial governments of Newfoundland and Labrador and Nova Scotia collect royalties – the "owner's share" of production. Under legislated agreements called accords, between the federal government and the provinces of Nova Scotia and Newfoundland and Labrador, the royalties are set and collected by the provinces as if the wells were located on land. This approach allows the investor to recover much of the initial investment before paying an increasing share of revenues in royalties to the provinces.


165. See infra section IV.A and accompanying text for a description of national claims in the Beaufort Sea.

Interestingly, there are likely to be no economies of scale or efficiency increases based on either American or Canadian regulatory management of these resources. This is due to two factors: (1) the highly erratic environmental conditions, such as ice flows, and (2) the specialized nature of drilling equipment and limited number of ships or mobile rigs that can safely and feasibly extract these resources.

One regulatory area with the potential to have a significant impact on the exploration and development timeline in the American and Canadian sections of the Beaufort Sea is environmental regulation. While a detailed analysis of these differences is beyond the scope of this note, it is important to consider Executive Order 12114, which allows United States federal agencies to consider foreign laws and regulations in related American environmental decisions and documents. This suggests that despite different regulatory regimes and claims, cooperation is possible that would allow for the efficient and effective development of offshore resources by both the United States and Canada.


168. This is likely true even in regards to efficiencies in applying for multiple leases simultaneously, as highly localized environmental data must be developed for each lease area. Furthermore, the United States and Canada have clear jurisdiction over individual areas of the Beaufort Sea, suggesting that any company wishing to expand operations in the Beaufort Sea will likely be required to deal with both governments and regulatory systems, in any event.


170. See id.

171. See, e.g., Wright, supra note 166.


IV. Mechanisms for Resolution: Diplomacy and Otherwise

As the ice melts and resources become readily accessible, states are looking to stake their claim and reap the financial benefits. Often characterized as the “race” or “scramble” for resources, Arctic States with direct and indirect claims are portrayed as rats vying for a piece of the almighty cheese. But while Russia has planted a flag in the North Pole seabed, and China’s Snow Dragon icebreaker has set sail, Canada and the United States are shying away from these overt and ostentatious actions. Rather, Canada and the United States are following the appropriate dispute resolution mechanisms outlined in the UN Charter and the UNCLOS to resolve a potentially multi-billion dollar contested area: the Beaufort Sea.

Under these agreements, party-states must utilize “peaceful means” in resolving disputes. Peaceful means may involve any number of enumerated possibilities, including the use of diplomatic endeavors as well as more adversarial, international judiciaries. While international judiciaries such as the International Court of Justice (“ICJ”), the International Tribunal for the Law of the Sea (“ITLOS”), and the Commission on the Limits of the Continental Shelf (“CLCS”) may produce clear and “binding” resolutions,


177. U.N. Charter, art. 33, para. 1; UNCLOS, supra note 102, art. 279.

178. See U.N. Charter, supra note 177, art. 33, para. 1.


often the joint diplomatic endeavors produce the most financially advantageous and amicable results.

This section will use the disputed Beaufort Sea area as a case study to illustrate the beneficial impact of not just engaging international judiciaries but doing so while maintaining joint diplomatic ventures. Canada and the United States, by sharing the longest undefended border in the world, have a uniquely amicable relationship and bring these relations to dispute resolution through their execution of bilateral agreements, pursuit of joint initiatives, and participation in specialized organizations. However, mere diplomacy is limited and Canada will rightly pursue answers from the CLCS to better clarify the conflict. Yet Canada’s pursuit for answers is still peppered with diplomatic engagements, and thus in effect, the United States and Canada will see financial and diplomatic returns, regardless of who “wins the race.”

A. Beaufort Sea Dispute

The Beaufort Sea is located northeast of Alaska and due north of Canada. It extends out into the Arctic Ocean approximately 476,000 sq. km. (184,000 sq. mi.). Of these 476,000 sq. km., approximately just over 21,000 sq. km. (6,250 sq. mi.) are in dispute.

At the heart of the disagreement is the 1825 Convention between Great Britain and Russia Concerning the Limits of their Respective Possessions on the Northwest Coast of America and the Navigation of the Pacific Ocean (“1825 Convention”). The 1825 Convention
between Great Britain and Russia ceded present-day Alaska to Russia., between Great Britain and Russia ceded present-day Alaska to Russia. and in 1867, Russia sold Alaska to the United States. The 1825 Convention set the eastern border of Alaska and the western border of the Yukon at the “meridian line of the 141st degree, in its prolongation as far as the frozen ocean.” Canada and the United States interpret this designation very differently.

Canada claims, as clearly stated in the 1825 Convention, that both its land and maritime boundary follows the 141st meridian line. This would indicate that the border between Alaska and Canada extends along that meridian line and ocean area existing within the permissible nautical miles east of that border, as per the UNCLOS, would fall under Canadian control.

The United States disagrees with Canada and claims that “as far as the frozen ocean” means that the boundary follows the 141st meridian only as far as the land or baseline, and that ocean beyond the baseline must fall under customary international law. The United States comes to this conclusion by looking to international caselaw and the equidistance principle. Under the North Sea Continental Shelf Cases (Ger. v. Den.), the ICJ held that, as dictated by Article 6 of the Convention on the Continental Shelf, equitable principles should guide boundary disputes when the two states are separated by sea. Thus under the interpretation of the United States, each states’ claim should be split equidistant from the opposing coastlines, which would create an extended arc (21,000 sq. km. or 6,250 sq. mi.) across the 141st meridian.

Procedures enumerated in the UN Charter and the UNCLOS provide a multitude of non-mutually exclusive options for Canada and the United States to utilize. The following sections will explore some of the more applicable diplomatic and adversarial mechanisms provided. Then these applicable mechanisms, when applied to the Beaufort Sea dispute and used in conjunction, will show how both

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187. Id.


189. 1825 Convention, supra note 186, art. III.

190. Id.

191. See, e.g., Lewis-Koshkinen, supra note 184.


194. Id.
Canada and the United States can see financial and diplomatic success in the Arctic region.

B. Applicable Dispute Resolution Mechanisms

While some scholars have called for the creation of a new “Arctic Treaty,” the existing frameworks and mechanisms provide sufficient guidance.195 Moreover, the Arctic States, in the Ilulissat Declaration, have affirmed their sole reliance on the existing frameworks.196 Thus Arctic States will rely on the UNCLOS as it is the most prevalent framework in allocating ownership in the Arctic region.197 While the United States has not ratified the UNCLOS, its actions indicate that it accepts it as customary international law and will abide by its provisions since the UNCLOS will protect its economic interests in the Beaufort Sea.198

Through UNCLOS Article 279, as per Article 33(1) of the UN Charter, “[t]he parties to any dispute . . . shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or


196. See ARCTIC COUNCIL, THE ILULISSAT DECLARATION (May 28, 2008), available at http://www.oceanlaw.org/downloads/arctic/Ilulissat_Declaration.pdf (“[UNCLOS] provides for important rights and obligations concerning the delineation of the outer limits of the continental shelf, the protection of the marine environment, including ice-covered areas, freedom of navigation, marine scientific research, and other uses of the sea. [Canada, Russia, Denmark, Norway, and the United States] remain committed to this legal framework and to the orderly settlement of any possible overlapping claims.” [emphasis added]).

197. A simple search of reputable law journals and government reports illustrates the consistent use of UNCLOS as the primary tool in evaluating sovereign claims to Arctic resources.

198. See, e.g., Betsy Baker, Filling an Arctic Gap: Legal and Regulatory Possibilities for Canadian-U.S. Cooperation in the Beaufort Sea, 34 VT. L. REV. 57, 64-70 (2009) (stating that while the United States has yet to ratify the UNCLOS, it has made piecemeal overtures to indicate that it accepts the necessary provisions as customary international law).
other peaceful means of their own choice."\textsuperscript{199} This provision provides states parties with great flexibility in resolving disputes with some options more effective than others. In the following sections, the applicable mechanisms to this case study are divided into two disparate avenues for dispute resolution: diplomacy and judicial intervention. While all available mechanisms are peaceful measures, some are more adversarial than others. By understanding the strengths and weaknesses of each mechanism, upon their application, it will be seen that a multi-faceted approach will produce the best results.

1. Diplomacy: Specialized Organizations, Agreements and Joint Endeavors

Specialized organizations, bilateral agreements, and joint initiatives born out of the Arctic States' needs have emerged to address the shifting concerns and interests in the Arctic region.\textsuperscript{200} The following sections will introduce the Arctic Council, the Conference of Parliamentarians of the Arctic Region, and the joint missions to gather data in Arctic waters. Together, these initiatives comprise the core diplomatic mechanisms at play in resolving the Arctic disputes between Canada and the United States. These particular diplomatic mechanisms will serve to provide an important compliment to the more adversarial methods later discussed.

a. Arctic Council

Out of numerous discussions between the Arctic States, the Arctic Council was formed in 1996.\textsuperscript{201} The Arctic Council acts as a forum for states with direct and indirect claims and interests in the Arctic region to participate in working groups and potentially affect Arctic policy.\textsuperscript{202} It is the only body that acknowledges not just states with direct claims, but those with indirect economic interests as well.

\textsuperscript{199} U.N. Charter, \textit{supra} note 177, art. 33, para. 1; UNCLOS, \textit{supra} note 102, art. 279.

\textsuperscript{200} See Christopher C. Joyner, \textit{The Legal Regime for the Arctic Ocean}, 18 \textit{J. TRANSNAT'L L. & POL'Y} 195, 200 (2009) ("While the [UNCLOS] is central to articulating rules for using the Arctic Ocean, two key points must be realized: first, there is already in place a diverse series of international agreements pertaining to ocean space in general, which can be applied to the Arctic in particular; and second, these and other instruments actually function as parts of a larger, more multifaceted legal regime for regulating human activities in Arctic Ocean space.").


Although eight states comprise the Arctic Council’s Member States, only Canada, the United States, Russia, Denmark, and Norway have direct claims to the mineral resources as each border the Arctic Ocean. Indigenous groups, such as the Inuit Circumpolar Council, also have a presence as Permanent Participants. Additionally, many European states have Permanent Observer status and even China has a presence as an ad hoc observer state.

The Arctic Council, however, has been criticized for lacking any real power in the region. By traditional definitions, it is not an “international organization” since a treaty mandate does not bind its members. Without a treaty mandate or centralized secretariat, the Arctic Council lacks an enforcement mechanism and therefore its states’ mere consensus determines action. While the Arctic Council was able to garner enough consensus to produce its first and only binding document in 2011, the Arctic Search and Rescue Agreement, it has yet to produce any other binding document to address the multitude of identified issues. To combat this shortcoming and appearance of ineffectiveness, in September 2012 the Arctic Council’s Standing Committee of Parliamentarians of the Arctic

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205. See id.


Region published its “Arctic Governance in an Evolving Arctic Region” report.209 This report provides several proposals to increase the Arctic Council’s effectiveness in the region.210 However, these recommendations could take years to implement and these changes require stable funding, which is a problem for the Arctic Council in and of itself.211

b. Joint Endeavors

In 2008, the Canada-United States Arctic discourse shifted. Prior to 2008, Canada and the United States solely utilized independent initiatives to collect data in the Arctic: Natural Resources Canada and Fisheries and Oceans Canada,212 and the Continental Shelf Project in the United States.213 But in 2008, Canada and the United States realized that collaboration would mutually benefit their Arctic goals and the USCGC Healy and the CCGS Louis S. St. Laurent embarked on the first joint mission to map the Arctic Ocean.214 The vessels would meet again in 2009, 2010, and 2011 to map over 100,000 sq. mi. of the Arctic Ocean and collect over nine thousand miles of seismic data,215 with plans to continue.216 But why cooperate? What is the incentive?

First, neither the United States nor Canada possess the necessary equipment to independently map the Arctic. One icebreaker alone can

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209. SCPAR PROPOSAL, supra note 207.

210. See id. at 2-13.

211. See id. The report advises the Arctic Council to restrict leadership to only the eight Member States regardless of the money and influence China and the European Union are trying to impart. But generally, this report discusses the SCPAR’s concern that the Arctic Council’s infrastructure needs to be re-designed in order to be effective. For example, the Arctic Council needs stabilize funding, a centralized secretariat, and a proper treaty mandate to facilitate new, binding multilateral agreements.


214. See id.


216. See id. Starting in 2012, Canada and the United States also embarked on a joint mission to map areas of the Atlantic Ocean.
cost close to eight hundred million dollars, and two are needed to collect the extensive bathymetric and seismic reflection data. The United States currently has one medium-sized icebreaker, the USCGC Healy, which can only collect bathymetric data. Canada was in a similar situation since the CCGS Louis S. St. Laurent could only collect seismic data. Starting in July 2007, Canada and the United States began discussing how to resolve their obstacles in a mutually beneficial way. Bringing both icebreakers together would produce the needed data that could serve to support the other’s continental shelf claims. Canada and the United States embarked on four joint missions to map the Arctic Ocean. In conducting these joint missions, Canada and the United States have saved hundreds of millions of dollars and collected substantial results. On April 27, 2012, at the International Polar Year conference, both states agreed to continue these endeavors while seeking new ways to collaborate in the future. Notably, both Canada and the United States vowed to “[e]ncourage closer collaboration among current scientific research and environmental assessment efforts across the Beaufort Sea region.”


219. NAT’L OCEANIC & ATMOSPHERIC ADMIN., supra note 215.

220. Id.


222. See EXTENDED CONT’L SHELF PROJECT, supra note 213.

223. See NAT’L OCEANIC & ATMOSPHERIC ADMIN., supra note 215.


225. Id.
2. Pertinent Judicial Measure: UNCLOS Article 76: CLCS

The UNCLOS allows international judiciaries such as the ICJ and the ITLOS to resolve states parties' disputes. Since the Beaufort Sea case study deals primarily with the continental shelf determination, this section will focus on the CLCS; Canada will utilize the CLCS to evaluate the Beaufort Sea dispute no later than December 2013. To best understand how Canada is utilizing this mechanism, this section will explore the international law at issue, the CLCS’s jurisdiction over a dispute, the process the CLCS employs in evaluating submitted proposals for continental shelf extensions, and the effect of its decisions.

UNCLOS Article 76(1) defines the continental shelf to include both the "seabed and subsoil" that extends beyond the territorial sea marker (the state’s baseline) of twelve nautical miles so as to guarantee “a distance of 200 nautical miles . . . measured [beyond the territorial waters]."227 States can exercise exclusive sovereign rights over exploring and exploiting the resources of the continental shelf within the two hundred nautical mile boundary even if the shelf does not extend to that distance.228 States can even request an extension of the two hundred nautical mile limitation by submitting a proposal to the CLCS.

The CLCS was established to “make recommendations to coastal States on matters related to the establishment of the outer limits of their continental shelf.”229 States have ten years from the date it signs the UNCLOS to utilize the CLCS.230 The coastal state petitioning the CLCS must provide “charts and relevant information, including geodetic data, permanently describing the outer limits of the continental shelf.”231 However, the CLCS will not automatically evaluate a proposal if the area is in dispute and certain procedures must be followed by the petitioner in these situations in order for the CLCS to evaluate the proposal. Ultimately, the CLCS recognizes that resolving matters in dispute in connection with establishing the outer limits of the continental shelf rests with states. Thus the CLCS promotes the use of diplomatic measures prior to and post-recommendation. However once the recommendation is made, it is final and binding.232

227. UNCLOS, supra note 102, art. 76(1).
228. Id., arts. 76(1) & 77(1).
229. Id., Annex II & art. 76(8).
230. Id., Annex II, art. 4.
231. Id., art. 76(9).
232. Id. at art. 76(8).
C. Two Methods Are Better Than One

Canada and the United States are doing exactly what should be done to resolve the Beaufort Sea dispute. Diplomacy proliferates relationships and seemingly fosters a collaborative environment that cost-effectively produces valuable information, but it merely provides a forum with no real resolutions. Resolution through pure diplomacy is especially hard to reach when billions of dollars in resources are at stake. Additionally, as seen in the Delimitation of the Maritime Boundary in the Gulf of Maine case, Canada and the United States are accustomed to resolving their maritime disputes in court.\(^{(233)}\) So in keeping in line with the accepted frameworks (UNCLOS) and historical approach to resolving their maritime disputes, it comes as no surprise that Canada is utilizing the CLCS, regardless of it appearing adversarial. Canada's actions may not further its diplomatic relations with the United States, but as seen by the states' numerous joint endeavors, it has not hindered them.

The CLCS and the process outlined in Article 76 of the UNCLOS is crucial in determining rights to the Beaufort Sea and other contested areas in the Arctic. Under Article 76, states that have ratified the UNCLOS have ten years from the date of ratification to submit a claim for continental shelf extension beyond the two hundred nautical mile limit.\(^{(234)}\) As of November 2012, Canada was in the final stages of preparing its submission.\(^{(235)}\) Canada has spent in the upwards of fifty-one million dollars alone to map the Arctic seabed and gather the proper data for such a monumental claim.\(^{(236)}\) Even though jointly-mapping the Arctic Ocean saved Canada and the United States an undocumented, but presumably large, amount of money, tens, if not hundreds, of millions of dollars were spent in supporting the icebreakers and maintaining the annual missions.

Once Canada submits its claim for an extended continental shelf, comprised of data gained in its joint-missions with the United States, the CLCS will notify the United States of the submission. This is required because the Beaufort Sea is technically disputed.\(^{(237)}\) The United States will then have ninety days to reply or object with the research and data it gained during its joint-missions with Canada.

\(^{(233)}\) Delimitation of Maritime Boundary in Gulf of Maine Area (Can./U.S.), 1982 I.C.J. 560.

\(^{(234)}\) UNCLOS, supra note 102, Annex II, art. 4.

\(^{(235)}\) See Canada's Program, supra note 212.


\(^{(237)}\) At this point, it appears as though the Beaufort Sea "dispute" is less of a dispute and more of an area of confusion that needs clarification.
This process provides the needed consent for the CLCS to proceed in considering Canada’s submission. Upon receiving all necessary information, the CLCS will make a final and binding recommendation.\(^{238}\) Further, as seen by Canada and the United States abiding by the ICJ ruling in *Delimitation of the Maritime Boundary in the Gulf of Maine*, the parties will cooperate. But will the CLCS recommendation even matter? Will Canada and the United States not see significant riches regardless of who “wins”?

With approximately “1.7bn cubic metres of gas and over 1bn cubic metres of oil” available in the disputed area of the Beaufort Sea,\(^{239}\) the moratorium on offshore drilling exploration and bidding has been somewhat lifted.\(^{240}\) While Canada has yet to permit off-shore exploration pending its National Energy Board’s review,\(^{241}\) the United States Department of the Interior permitted Shell to conduct exploratory drilling and begin construction of its first well in the Arctic by allowing “as much as 1,400 feet of well casing to support the required blowout preventer, a device meant to shut down a runaway well.”\(^{242}\) However, Shell ran into problems and has abandoned its efforts until late 2013.\(^{243}\) Therefore, regardless of Canada’s impending submission and the United States’ eagerness to “drill baby drill,” Canada and the United States are moving forward and will see significant gains regardless of the CLCS’s determinations in the coming years. The true limiter of Canada’s claims may not be the United States, but rather its aboriginal populations.

\(^{238}\) UNCLOS, *supra* note 102, art. 76(8).


\(^{241}\) Griffiths, *supra* note 239.


V. Conflicting Nunavut Claims

The application of Canada's regulatory paradigm for resource exploration, development, and extraction in its Arctic territory should simply entail the application of Canada's existing federal law for regulating the implicated industries and activities. However, because of the fairly recent creation of Nunavut and its grant of semi-autonomy as a distinct, aboriginally administered federal territory, the regulatory environment in most of the Canadian Arctic is quite complicated. In some areas, such as on-site activities for deep water exploration for and extraction of oil and gas, it is clear that federal regulations, and only federal regulations, apply.

Overlap and ambiguity in the Nunavut Land Claims Agreement Act ("NLCAA") create several emerging legal conflicts between the regulatory powers of Nunavut and the Canadian federal government. These conflicts could jeopardize permitting the regulation of any land-based exploration or land-based support for deep water development. Also, because of several disagreements regarding the ongoing devolution of powers from the federal government to the Nunavut territorial government, the possibility of significant legal and policy conflicts exist in the near future. The most important of these issues is federal-versus-territorial jurisdiction over the internal waters of the Canadian Archipelago. Yet Canada, building on previous initiatives with its eastern provinces regarding offshore resource management, has a workable solution to its current legal conundrum.

A. Anthropological and Legal History of Nunavut

What is now known as the Canadian Archipelago has been continuously inhabited by aboriginal peoples of the Tunit, Thule, and Inuit ethnic groups for at least four thousand years. The descendants of the Intuit make up over ninety-five percent of Nunavut’s current demographic. The Inuit continue to base their economy largely off of subsistence hunting and gathering, as they have for centuries. Europeans first visited and likely settled in the Archipelago as early as 1000 CE, with the first recorded European


246. Id.

247. Id.

exploration making landfall in the Archipelago in 1576 when English explorer Martin Frobisher claimed what would become Baffin Island for Great Britain.249

With Canada’s assertion of independence from Great Britain, the Canadian Archipelago became part of the Northwest Territories, and was administered as such for most of the twentieth century. At first, most of the Arctic’s inhabitants lived in settlements on the northernmost shores of the continent and the southern shores of the Archipelago’s lower islands. Subsequently, several Inuit communities were moved northwards as Canada sought to reinforce its sovereignty in the high Arctic.250 Combined with population growth and the aid of modern technology, this push northwards has allowed Inuit settlements throughout the lower half of the Archipelago.251

In the mid-1970’s, the umbrella Inuit association in Canada, the Inuit Tapiriit Kanatami, began exploring the possibility of a new land claim agreement to create an Inuit Territory separate from the Northwest Territories.252 A plebiscite in 1982 authorized such a split, and in 1993, the NLCAA was passed by Canadian Parliament.253 The transfer of rights and governance from the Northwest Territories to Nunavut was completed in 1999.254 However, the process of rights devolution from the Canadian federal government to Nunavut began in May of 2012, and will continue for some time.255

B. Nunavut’s Legal and Political Relevance regarding Emerging Arctic Resources

Most of the valuable mineral wealth in the Canadian Arctic lies under the land or waters of Nunavut. While there are still substantial deposits within the Northwest Territories and in the open ocean beyond the Canadian Archipelago, large quantities of mineral wealth lie within the Nunavut Settlement Area (“NSA”).256 Furthermore,
because of logistical considerations, the mineral wealth in Nunavut itself will likely be of interest sooner than that further offshore. In the face of this emerging development, Nunavut’s planning and permitting powers allow it to possibly exert significant leverage over the development of the basic infrastructure needed to carry out large-scale extraction of resources in the open ocean. While Nunavut cannot currently exert first-hand regulatory control over areas outside of the NSA, it can actively work to deny infrastructure development of which it does not approve.

VI. Current Conflicts between Nunavut and Canadian Federal Regulation

A. Introduction to Federal-Territorial Legal Conflicts

There is currently tension between territorial oversight granted by the NLCAA and Canadian federal law regarding mineral rights, regulation, and permitting. This includes environmental oversight of both marine and land-based exploration and extraction of minerals. According to the NLCAA, the Canadian federal government retains the power to grant oil exploration and extraction rights, including general property rights such as possession of title, transfer of title, rights of entry and passage, and rights to extraction permits and leases. The federal regulations regarding these rights create several conflicts with the powers given to the Nunavut territorial government through the NLCAA’s grant of legislative and rule-making powers. These conflicts are exacerbated because the NLCAA creates no clear delineation of how Nunavut territorial regulations apply to mineral rights when Federal regulations also apply. The same is true for conflicts between the legal structures of oversight and compliance under both territorial and federal law.

B. Conflicts Between the NLCAA and Canadian Federal Law

The conflicts of law and regulation are diverse, and include aspects of the NLCAA itself. First, the NLCAA limits the ability of any non-Inuit organization to access Inuit land. Specifically, the


258. The main oversight and permitting bodies are the Nunavut Planning Commission ("NPC"), the Nunavut Impact Review Board ("NIRB"), and the Nunavut Water Board ("NWB").

259. See NUNAVUT LAND CLAIMS AGREEMENT, supra note 244.

260. Other federal laws that likely apply to Nunavut but do not create federal-territorial conflicts include the Arctic Shipping Pollution Prevention Regulations, Arctic Waters Pollution Prevention Act, and the Ocean Dumping Prevention Act.
agreement strictly forbids access to Inuit Owned Lands by non-Inuit organization unless they apply for and are granted access permission by the Nunavut territorial government and local Inuit organizations.\textsuperscript{261} This provision is in direct conflict with the Canadian federal government’s authority to grant rights to mineral claimants and the accompanying rights of entry and extraction.\textsuperscript{262} Second, the NLCAA grants the Nunavut Planning Commission (“NPC”) with exclusive power to formulate, review, and approve or deny all infrastructure and development projects in the NSA, including private efforts to develop mineral wealth based on federally recognized mineral rights claims.\textsuperscript{263} Because the Nunavut territorial government is granted this control, the NPC’s powers to approve and deny development plans clashes with the Canadian federal government’s authority to grant rights to mineral claimants and the accompanying rights to entry, development, and extraction.

Third, the Nunavut Impact Review Board (“NIRB”), created by the NLCAA as the main body which measures the social, economic, and ecologic impacts of proposed development projects, has powers that also potentially conflict with federal powers. The NIRB’s jurisdiction covers all projects in all land and marine areas of the NSA.\textsuperscript{264} Furthermore, there is language in the NLCAA that also applies the NIRB’s review and permitting powers to projects outside of the NSA that could have a significant impact on NSA waters or land.\textsuperscript{265} The NLCAA also specifically grants Designated Inuit Organizations the unfettered right to challenge any aspect of an NIRB certification in Canadian federal court.\textsuperscript{266} Consequently, even if a project passes the scrutiny of the NPC and NIRB, local Inuit government and advocacy organizations can further check development plans via a petition to the courts for injunctive relief or other order amending a development plan.\textsuperscript{267}

Finally, the NLCAA declares that Nunavut’s regulatory and permitting bodies have general advisory powers regarding activities in

\textsuperscript{261} \textit{Nunavut Land Claims Agreement}, supra note 244, art. 21.2.1.
\textsuperscript{262} See id., §III.B.
\textsuperscript{263} Id., art. 11.5.4-11.5.13.
\textsuperscript{264} Id. art. 12.11-12.12.
\textsuperscript{265} Id., arts. 10.1 &12.7 (Regarding Monitoring and Enforcement, the NIRB has the authority to implement a variety of oversight measures and reserves the final right to permit or withhold certification of a given project).
\textsuperscript{266} Id. art.12.10.5.
\textsuperscript{267} See Qikiqtani Inuit Assn. v. Canada (Minister of Natural Resources), (2010) 4 C.N.L.R. 190 (Can. Nun. C.J.) (Court imposed injunction on seismic testing off of Baffin Island over environmental concerns as area is rich in marine life vital to local Inuit hunting activities.).
marine areas adjacent to the NSA, and can issue recommended regulatory provisions for such activities. While this power does not give Nunavut’s regulatory and permitting bodies authority to deny development outside of the NSA, it does give them the opportunity to not only give advisory opinions, but also to possibly demand that those opinions be given due deference in any decision making process. Should a proposed project directly contravene Nunavut’s recommended policy or procedure, it could sue for injunctive relief or other similar remedy in Canadian federal court.

C. Conflicts Between the Nunavut Waters and Surface Rights Tribunal Act (“NWSRTA”) and Canadian Federal Law

The NWSRTA, which creates the Nunavut Water Board ("NWB") as a separate body from the NPC and NIRB to review and license water use and refuse dumping in the NSA, also potentially conflicts with Canada's federal regulations and permitting of mineral rights. First, the Act gives Inuit individuals and communities water use priority over any other person’s or organization’s use, even regarding mineral rights granted by the federal government. This allows the NWB to forestall any development that will directly or indirectly impact Inuit water use should it find cause to do so. Second, the NWB sets all water quality and effluent standards for the NSA. This power can indirectly interfere with mineral exploration and extraction within and outside of the NSA, and if activities interfere with water quality or violate applicable effluent standards, the offending party could be held liable for the offense itself as well as any damage caused.

D. Possible Policy Conflicts Involving Indirect Legal Conflicts

Indirectly, Nunavut’s authority to permit projects that support offshore activities that would otherwise be solely in the purview of Canadian federal regulations could complicate infrastructure development. For example, any offshore development of Canada’s extensive Arctic oil and gas reserves must first be made possible by significant infrastructure improvements throughout Nunavut. This development will include the creation of deep-water ports as well as

268. See Nunavut Land Claims Agreement, supra note 244, art. 15.4.1.
269. Given the deferential approach generally taken by the Canadian courts to issues of Aboriginal rights and impacts, such a challenge could possibly succeed.
271. Id.
272. Id., art. 82; see also arts. 86-92 & 13 (describing the system of compensation for Inuit communities affected by discharge of waste).
onshore fuel holding and transfer stations. These projects, as well as other necessary land-based and near-shore infrastructure, will be needed to support the initial drilling activities to establish oil rigs and maintain their day-to-day operations. If Nunavut is not particularly pleased with any part of this development process for whatever policy reason, be it economic or ecologic, the territorial government has sufficient power to seriously impact, if not completely stall, the mentioned development initiatives. Luckily, Canada already has a viable model to mitigate these conflicts of law and policy, as it has already dealt with similar issues regarding offshore oil and gas exploration and extraction on its eastern coast. (See Section V for a full analysis and recommendation).

VII. Emerging Conflict over Control of Canadian Ocean Waters

A. Devolution of Rights and Conflicting Nunavut-Federal Goals

As Nunavut continues to negotiate its devolution agreement with the Canadian federal authorities, a number of emerging issues are set to feature prominently in joint discussions. Chief among these issues, and in reality their genesis, is the question of jurisdiction over the claimed internal waters of the Canadian Archipelago. Since the resolution of this issue will largely dictate the outcomes of the other included conflicts, this discussion will focus on the jurisdictional question. Nunavut’s current territorial grant, while unclear in certain areas, unequivocally grants Nunavut regulatory jurisdiction over near-shore waters up to a certain distance from shore. Also, Nunavut has regulatory jurisdiction over most landfast ice attached to the shoreline within the NSA, regardless of its distance from the coast. This is due to the Inuit’s reliance on wide-ranging hunting grounds that are oftentimes only accessible by traversing landfast ice for many hundreds, if not thousands, of miles.

Nunavut’s position entering devolution negotiations is that all waters “internal” to the Archipelago, and therefore within Nunavut’s territorial grant, are under its sole jurisdiction. This would include areas covered by land-anchored ice pack as within the territorial grant, as well as makes up an important part of traditional hunting grounds. If the Canadian federal government were to cede these waters to Nunavut’s control, it would more or less relinquish its


powers regarding regulation and permitting of mineral exploration as well. Furthermore, it is likely that Nunavut would demand such a transfer of rights and powers, and has already declared its intention to do so.\textsuperscript{275} Such a transfer would result in increased territorial oversight under the NLCAA throughout the Arctic marine environment.

\textbf{B. International Law Constraints on Nunavut Claims}

However, under applicable international law, the standard means of determining territorial waters would not necessarily give Canada, or by extension Nunavut, the ability to claim sovereignty over much of the expansive waters contained within the Canadian Archipelago. Pertinently, UNCLOS Article 234 was enacted specifically to give weight to Canada’s sovereignty in the Arctic for the purpose of extending Canada’s regulatory power over the waters in and around the Canadian Archipelago.\textsuperscript{276} This provision provides the international justification for several important pieces of Canadian federal legislation regarding shipping and pollution control in the Arctic.\textsuperscript{277} However, Canada’s position as having full sovereignty over open ocean areas in the Archipelago is still contested. While it seems likely that Canada will be recognized as sovereign in the contested areas, resolution of the conflict still remains to be determined. Until that time, any claim by Nunavut to its internal waters is in some sense suspect.\textsuperscript{278}

\begin{itemize}
\item \textbf{275.} See id.
\item \textbf{276.} UNCLOS, \textit{supra} note 102, art. 234 (“Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.”).
\item \textbf{277.} Relevant laws include the Arctic Shipping Pollution Prevention Regulations, Arctic Waters Pollution Prevention Act, as well as relevant parts of the Canada Petroleum Resources Act and the Ocean Dumping Prevention Act; \textit{see also} R. v. Gulf Canada Corp., (1987) N.W.T.R. 277 (Can. N.W. Terr. T.C.) (Northwest Territory Court instituted fines for dumping in the Beaufort Sea related to oil extraction).
\item \textbf{278.} Until Canada’s claims to the waters internal to the Canadian Archipelago, also known as the Northwest Passages, are fully resolved, there are possible international legal hurdles to Nunavut’s desired jurisdiction over those waters. Also, there is the possibility of royalty conflicts where oil and gas deposits lay both within Nunavut’s territorial bounds and also extend beyond into the open ocean, as Nunavut could
\end{itemize}
C. Possible Solutions

1. Federal and Aboriginal Jurisdictional Interests in Arctic Mineral Extraction

It is possible that Nunavut’s desire to have complete regulatory control over its internal waters could be granted by the Canadian government. However, this is not necessarily an ideal outcome for several intertwined legal, political, and practical reasons. Generally, while it is necessary to respect Nunavut’s legitimate interest in regulating potentially devastatingly harmful activities in nearby waters, it still seems necessary to preserve some regulatory and development powers and responsibilities for the Canadian federal government.

There are several reasons for preserving significant federal input in the Arctic. First, the Canadian federal government has an important interest in promoting the development, albeit responsibly, of its vast Arctic natural resources. Without some measure of direct federal control, Canada as a whole would have little way to ensure that its national Arctic development agenda gained traction. Second, the simple scope and scale of Canada’s Arctic territory, as well as that of the resources becoming available for extraction, creates an immense new administrative and bureaucratic challenge for whatever body is tasked with overseeing development. While Nunavut’s territorial government will undoubtedly see an increase in revenue with increased development (and an accompanying ability to increase capacity for oversight activities), federal resources would make possible a regulatory effort that would otherwise be outside of Nunavut’s abilities. Third, it is important that the Canadian federal government has a significant hand in its Arctic infrastructure development, both because it alone has the resources to create the installations necessary to support growth, and because its involvement will further cement its claims to the lands and waters of the Archipelago. It serves both Canada’s and Nunavut’s political and economic interests to have the federal government establish the infrastructure necessary to increase Canada’s military, administrative, and economic abilities in the area.

assert a claim to royalties from the proceeds of those “shared” pools of resources.


2. A Federal-Territorial Agreement and Joint Petroleum Board

For these reasons, it would be in Canada’s best interest from both a federal and territorial perspective to create a joint governing body to oversee the development of its Arctic resources. Fortunately, several functioning models already exist from which the two parties can work. As indicated, on Canada’s east coast, the federal government has implemented agreements with several of its eastern provinces regarding the joint oversight of offshore resource management.281

These agreements create a joint provincial-federal system to oversee all aspects of offshore gas and oil development, and most importantly create a balanced, independent oversight and permitting board evenly represented by the provinces and the federal government.

Such a board possesses several powers that would make it an effective tool to oversee resource development in Canada’s Arctic marine environment. First, the board has the power to prohibit any party that owns an interest in an offshore mineral right from either commencing development or continuing operations because of environmental dangers or extreme weather conditions.282 Second, the board, pursuant to its powers as a federal regulatory body, has the authority to issue property interests in offshore mineral deposits.283 Third, the board has complete control over the permitting process for the entire range of mineral extraction activities, from exploration,284 to declaring the existence of commercially exploitable discoveries,285 and overseeing the extraction of any resources through the issuance of development orders.286

In order to better tailor a possible federal-territorial agreement to fit Nunavut’s needs, any offshore resource agreement would likely need several additional terms or refinements to adequately safeguard Nunavut’s interests. First, Nunavut would likely desire that the board would have the explicit authority to set environmental safety standards for drilling materials, equipment, and techniques, particularly in the dangerous early phases of exploratory drilling.287

281. See supra note 256, § III.B.
282. Id., § 53(1).
283. Id., § 57(1).
285. Id. at § 78.
286. Id. at § 79.
Second, Nunavut would likely desire that the agreement lay out baseline spill prevention and response standards that must be within a certain response time to any exploration fields, as well as the funding mechanisms for these programs. Third, Nunavut would likely desire agreement terms that give the NPC and NIRB at the very least an advisory role to board decisions and activities. An alternative solution could actually place the senior members of these bodies as some of Nunavut’s voting representatives on the board.

Politically, one possible difficulty with implementing this program would be the necessity for Nunavut to share some of its sought-after power regarding development in its desired internal waters. Currently, the Canadian federal government has complete control over these offshore activities. However, as this plan is a viable option for governing resource development in all waters in and around the NSA, giving Nunavut shared jurisdiction in sum, and not merely in its claimed internal waters could be a beneficial way for the Canadian federal government to negotiate a continued regulatory presence throughout its Arctic waters.

D. Assessing Nunavut

Currently, Nunavut remains years away from effectively implementing workable plans to capitalize on its vast resources. First, it badly lacks the infrastructure necessary to facilitate effective use of its vast natural resources. Significantly, there are currently no roads connecting Nunavut to the rest of continental Canada, and there are presently no deep water ports anywhere in the Canadian Arctic. Current ice-ports cannot handle large-scale infrastructure components. While air-travel is more accessible, there are few services available to transfer the machinery and cargoes needed for large-scale development. Second, conditions are still harsh and forbidding, as even though sea ice is retreating, a short work season and construction costs are prohibitive. Third, Nunavut, with a total population of fewer than forty thousand persons and a challenged education system, likely lacks sufficiently qualified individuals to staff many of the proposed development projects.288

As these hurdles are overcome, satisfactory resolutions to the discussed conflicts become ever more important because of what is at stake in the Canadian Arctic. On the one hand, Canada would be foolish to allow ineffective and inefficient regulatory paradigms to hinder its further economic development. On the other hand, the

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unspoiled vastness of Nunavut would likely be severely impacted ecologically if the worst case scenario of a major spill in the open sea of the Canadian Arctic were to happen. This outcome would do great damage to Canada, both culturally and economically. Such a human-made disaster in the Canadian Arctic would likely result in expensive, prolonged, and acrimonious litigation in Canadian territorial and federal courts, as well as massive public disapproval. While the legal outcomes are hard to predict, given the Canadian courts’ deference to traditional aboriginal culture, such an offense would likely open the responsible private and public entities to potentially massive liability, as well as possible legislation imposing moratoriums on resource extraction. Arctic resource exploration and extraction is quickly moving from tomorrow’s possibility to today’s reality. It would behoove Canada to be prepared with responsible, yet efficient, regulations and policies.

Conclusion

Technological advances coupled with an unprecedented degree of ice melt is creating new opportunities for the development of oil and natural gas in the Arctic region. However, full utilization of these resources efficiently, economically, and safely, will require cooperation from all interested parties, including national governments, sub-national governments (both provinces and states), independent regulatory bodies, aboriginal groups, and private industries. Before effective development can occur, these groups must address a host of emerging issues regarding ownership and exploration rights, which may require higher levels of intergovernmental communication, the use of international dispute resolution bodies, or the development of new regulatory institutions. However, these groups must also be mindful to address follow-on issues, such as environmental and safety regulation. While national governments, vested ethnic groups, and oil and gas-related industries may have different interests and objectives, the Arctic provides a unique opportunity for these governments and organizations to work effectively towards a common goal—the efficient and safe development of new energy resources.