

**MELTING ARCTIC:
IMPLICATIONS FOR THE 21ST CENTURY**
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INTRODUCTION

The Arctic region has not traditionally been the focus of international politics and world economics; however, recently environmental scientists have flooded the news with the effects of global warming in the region concerning the significant melting ice caps, dramatic ecological degradation, and potential irreversible loss of many species. Climate change is manifesting around the world through floods, ecological degradation, and potentially driving violence and conflict; in the Arctic, all these risks are compounded. The nature of the Arctic pole means that what will happen in the region is guaranteed to have an impact elsewhere.

While environmentalists have sounded the alarm about the risks to the environment in the region, there is an ever-growing security danger that faces the Arctic. With ice caps melting and retreating to unprecedented levels, the arctic seabed is now open for nations to explore its reported vast amount of natural resources.

This article will identify issues that will shape the twenty-first century of the Arctic. The scope of the article is not meant to be exhaustive of the problems and challenges but offer a thematic overview of the problems. There are three broad categories covered in this article. First, an overview of the changing climate, its ecological and environmental impact, and the challenges of operating in the Arctic. Second, an overview of the economics and international law implications that are a result of climate change and of increased activity in the region. Third, the geopolitics of the Arctic region.

ENVIRONMENTAL IMPACT

Ice and Snow Trends

Increased temperatures observed globally have led to noticeable changes in the ice accumulations and ice caps in the Arctic Ocean. The Intergovernmental Panel on Climate Change (IPCC) 2007 report indicated that satellite data showed an annual reduction of the Arctic Sea ice by 2.7% on average per decade, with a 7.4% decrease per decade during the summer months¹. The National Oceanic Atmosphere and Atmospheric Administration's projection models revealed that ice extent and thickness

during summer months will decrease to unprecedented levels and reach a complete ice-free state. On the other hand, during the winter season, ice thickness is reported to decrease as the ice extent retracts but not to levels low enough to open the Arctic Ocean to shipping from all kind of vessels.²

The Arctic Climate Impact Assessment (ACIA) scenario estimated an ice-free summer within 30-50 years. The ACIA report predicted that by the end of the 21st century the Arctic route will be accessible for 120 days of sailing, mainly during the summer when the ocean is ice-free.³ Vessels sailing through the Arctic during winter will require the use of icebreakers.⁴

According to NASA Researcher Maria-José Viñas, Arctic sea ice has diminished by 21,000 square miles each year since the 1970s. Sea ice extent at the end of the summer in 2018 was below the average for the 1980-2010 area; and 2018 tied with the sixth lowest summer time ice extent on record, tied with 2008 and 2010.⁵

Ice in Greenland, an area that is roughly three times the size of the state of Texas, is melting at an accelerating rate.⁶ Greenland is reportedly losing between 200 to 250 billion tons of ice a year, up from 50 billion in the 1990s. Ice loss in Greenland leads to increasing global sea levels.⁷ Monitoring the rate of melting of ice sheets in Greenland helps assess the level of sea rise that can be expected due to climate change. The National Snow and Ice Data Center reports that if the Greenland ice sheet melted completely, sea level would rise by twenty feet (or six meters) globally.⁸ This would impact dozens of major cities around the world and hundreds of millions of people.

Ecological Impact

The importance of environmental protection in the region is critical. The region's ecological diversity and its impact on global climate are of utmost importance. Spills or other environmental disasters in the Arctic would not be limited to the region but spread across the globe. As part of this, environmental activists have lobbied, campaigned, and even engaged in activities to stop the exploration of the Arctic. Chief among them is Greenpeace, whose volunteers have boarded ships and exploration platforms in attempts to bring them to a halt.

As climate change negotiations continue and states push for a reduction in CO₂, the risks associated with companies operating in the region are increasingly evident. Environmental advocates worry that drilling in the Arctic will ultimately lead to ecological degradation. Anti-Arctic advocates are wary of the risk of oil spills and that an increase in operations in the Arctic—whether for oil and gas exploration, or transit shipping—will increase the rate of ice loss and ecological degradation. An increase of ice

loss and the melting of icebergs leads to the release of carbon dioxide (CO₂) that has been captured and held in the ice over the past centuries.

Increasing temperatures in the Arctic, the retreating of snow and ice, and the resulting increase in human activity in the region is threatening the ecological balance of the region. Scientists worry that the migratory species are going to be dramatically impacted by these changes. Moreover, these new stress factors on the environment will have an impact on the fauna and flora of the region. Hans Metltoffe, chief author of the Arctic Biodiversity Assessment says, "An entire bio-climatic zone, the high Arctic, may disappear. Polar bears and the other highly adapted organisms cannot move further north, so they may go extinct. We risk losing several species forever."⁹

The Operating Environment in the Arctic

This section highlights that even if there are no ecological impacts, the environment for operation is challenging. One such challenge to operating in the Arctic seas is linked to the infrastructure available to service the region. As a report from the World Economic Forum indicates, the region has limited infrastructure available for the numerous industries wanting to operate there. This includes: transportation, energy supply, and telecommunication networks. The report notes that "these types of infrastructure, currently lacking relative to anticipated needs, are important preconditions for sustainable Arctic development."¹⁰

One of the unique features of the Arctic is sea ice that renders operating in the Arctic hard and unpredictable. Driving this problem is the lack of information and oceanic data that will help guide ships away from areas of heavy sea ice concentration; "Sea ice is what sets the Arctic apart - what makes navigation in the Arctic especially unique and hazardous."¹¹ The demand for this information will undoubtedly grow as more businesses and countries grow their activities in the region, relying on the routes to ship their products through.¹²

Other factors that hinder the navigation through the North Pole and Arctic seas are "polar darkness, poor charts, lack of critical infrastructure and navigation control systems, low search-and-rescue capability, [and] high insurance/escort costs."¹³ Shipping and operating in the Arctic's hazardous environment increases the risk of incidents occurring at sea, which would require assistance and emergency response operations. Such response capacities are practically non-existent due to the remoteness and nature of the geography. Moreover, "cold, ice, a harsh operating environment on

response personnel and equipment, and the lack of shoreside" are additional factors that impede operations and add costs, as these investments are crucial for operations.¹⁴

Micheal Klare points to another unique feature of operating in the Arctic that sets Arctic drilling operations apart from other areas. Klare notes that drifting ice can damage facilities and boats, so firms and states will not be able to operate regular drilling platforms. Platforms will need to be reinforced with armor to safely withstand impact of drifting ice and Arctic waves. Alternatively, firms may opt to only operate in the region during summer months to reduce the risk of accidents and costs.¹⁵

ECONOMIC IMPACT

Natural Resources

Driving the increasing interests from the private sector in the Arctic is the promise of access to natural resources. The research conducted by the U.S Geological Survey (USGS) with the collaboration of the Geologic Survey of Denmark and Greenland has revealed large amounts of technically recoverable natural resources in the Arctic ocean. The geological survey's Circum-Arctic Resource Appraisal (CARA) has concluded that the estimates of natural resources *technically recoverable* are as follows: "9,300 million barrels of oil equivalent, including approximately 3,069 million barrels of crude oil, 32,252 billion cubic feet of natural gas, and 861 million barrels of natural gas liquids."¹⁶ The recent USGS assessment made in 2008 has revised the estimated of natural resources in the Arctic ocean and determined that, "90 billion barrels of oil, 1,669 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids may remain to be found in the Arctic, of which approximately 84 percent is expected to occur in offshore areas."¹⁷ The term *technically recoverable resources* is defined by USGS as "those producible using currently available technology and industry practices."

Other research and assessment made by Wood Mackenzie and Fugro Robertson have led to different estimates in relations to the percentage of un-recovered natural resources. While USGS estimated that natural resources in the Arctic amount to approximately 25 percent of total undiscovered natural resources, the Wood Mackenzie and Fugro Robertson Assessment estimated a smaller percentage of approximately 14 percent of total undiscovered natural resources. Both assessments, however, estimate that natural gas will amount to approximately 75 percent of the potentially undiscovered resources in the region. The Wood Mackenzie and Fugro

Robertson Assessment estimated that at peak level of output for the region, oil may reach three million barrels per day, whereas gas output peak will be reached at five million barrels of gas per day.¹⁸ Most of the resources are in four provinces: the West Siberian, East Barents, East Greenland Rift basins, and Arctic Alaska. The Wood Mackenzie and Fugro Robertson Assessment indicated that Russia owns 69 percent of the undiscovered but technically recoverable gas in the Arctic. The report also indicated that Russia's South Kara Yamal basin is home to approximately ninety billion barrels of oil.¹⁹ The Arctic region offers a tremendous potential for companies and countries to explore new sources of energy.

Law of Sea Treaty

The exploration of natural resources in the Arctic Ocean will come across a critical issue: border delimitations. To understand this problem, there is a need to explain two legal definitions: territorial water and economic exclusivity zones. The United Nations Convention on the Law of the Sea (UNCLOS) has established in Part II, Section 2, Article 3 that "every state has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from baselines determined in accordance with this convention."²⁰ Furthermore, Article 2.2 states that "this sovereignty extends to the air space over the territorial sea as well as to its bed and subsoil."²¹ These two articles highlight the sovereignty of each state over its territory and the rights to explore the resources that lie within those borders.

The economic exclusive zone, as stated in Part V, Article 56 1(a), explains that,

*The coastal State has: sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds.*²²

Article 57 explains that "the exclusive economic zone shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured."²³

One of the main areas of contention amongst some of the Arctic nations concerns border disputes because of the proximity of the coastlines, leading to disputes over who has rights over exploration of natural resources.

The Law of Sea Treaty Article 74.1 states that "The delimitation of the exclusive economic zone between States with opposite or adjacent coasts shall be effected by agreement on the basis of international law, as referred to in Article 38 of the Statute of the International Court of Justice, in order to achieve an equitable solution."²⁴ This clause puts an emphasis on the importance of inter-governmental cooperation and negotiation to resolve the issues and work together to reach agreeable solutions.

The Russian-Norway treaty signed at the end of September 2010 highlighted a positive move forward. The treaty followed an incident in which Russia had planted a Russian flag in the sea bed of the Arctic, claiming ownership of the sea bed and its resources.²⁵ The move was highly controversial and sparked comments from Arctic nations highlight the delicate nature of the region and the need for resolving disputes. Russia's flag gesture was merely symbolic and under international law held no weight. Events like these highlighted the need for serious work on border delimitations between the Arctic nations through existing legal international frameworks.

The United States, for its part, remains the only Arctic state which has not ratified UNCLOS, despite the U.S. Navy and major businesses supporting ratification. The group of lawmakers that oppose ratification believe the treaty impedes on the sovereignty of the U.S. and limits the ability of its Navy to operate freely and take unilateral actions at sea. Advocates for UNCLOS ratification, including the U.S. Navy, argue that opposition to the treaty has hurt the U.S. position in the international arena.²⁶ Failure to ratify UNCLOS limits the ability of the U.S. government to seek legal recourse through the existing mechanisms. In particular, the U.S. cannot seat U.S. nationals on the Commission on the Limits of the Continental Shelf, a commission whose work is of particular importance when taking into account that U.S. border disputes with both Russia and Canada.²⁷

The U.S.-Russia maritime border dispute in the Bering and Chukchi Seas lingers to this day. The region's border has not been defined since the U.S. purchased Alaska in 1867. The U.S. and Soviet Union had reached an agreement but, with the collapse of the USSR, the treaty has yet to be ratified. Russia sees the treaty in its current form as unfair, claiming that it deprives Russia of 15,000 square miles.²⁸ The region is of strategic interest to both nations, as it can serve as a chokepoint to halt shipping.

Trade

Trade through the Arctic is of interest to the nations of the Arctic

council, as the retreating ice and opening seas are radically changing the dynamics of the region. Scott Borgesson, an expert on the Arctic, notes that climate change “is turning what has traditionally been an impassible body of water ringed by remote wilderness into something dramatically different: an emerging epicenter of industry and trade akin to the Mediterranean Sea.”²⁹ These countries will benefit from the opening up of the routes, reducing time and distance for ships to sail from their coast to markets.

The Arctic is of interest to China, the world’s largest explorer. China has been keeping an eye on the development in the Arctic, as retreating ice may provide an opportunity to deliver product to European markets through a new route. Analysts suspect that China may benefit from savings provided by a shorter route, cutting distance to European markets substantially. In the beginning of 2018, China released its first Arctic policy. In it, China outlines its goals and policies for the Arctic, deeming itself as a “near Arctic” state, which has a stake in the development of the region. China is a proponent of what it calls the “Polar silk-road.” China views the Arctic as an opportunity to project its influence and power beyond its region. Through the Arctic, China hopes to be able to participate in oil and gas exploration, the development of a robust shipping infrastructure, and to be included in the regional bodies that manages the affairs of the Area.³⁰

Shipping Disputes

Shipping through the Arctic Ocean raises another political problem. Russia is exercising its right under Article 234 of UNCLOS, which stipulates that “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.”³¹

Russia has demanded that ships wishing to sail through the Northern Sea route and Russia’s Exclusive Economic Zone (EEZ) submit an application for guiding and pay a set fee to use the route, often referred to as the icebreaker fee.³² The fees that Russia demand are expensive and are required year-round, even throughout summer months when icebreakers are not typically required. The U.S has strongly opposed Russia’s regulation, noting that ships sailing through international waters should not be required to pay any fees or to adhere to any state’s regulations or rules.

Icebreakers

The lack of icebreakers among non-Russian Arctic nations is problematic. There is great inequality in the world’s icebreaker fleet. Russia dominates the market with around seventeen icebreakers, six of which are new generation icebreakers. These nuclear-powered icebreakers generate enough force to break through ice twice as thick as regular icebreakers. Russia also has plans for new icebreakers to be introduced over the next decade.

On the other hand, the U.S. only boasts one icebreaker that is qualified as heavy, the Polar Star. The Polar Star was originally decommissioned; however, due to the lack of investment and new appropriations, the ship was re-commissioned and upgrades were made in order to render it operational for the time being.³³ At the moment, there are no plans for the U.S. military to upgrade its icebreaker fleet. This is evident by the lack of new funds appropriated in the latest defense budget. A report on the Arctic notes this icebreaker gap, as “the world’s icebreaker fleets are aging and will require significant investment during the coming years to maintain their effectiveness and capability.”³⁴

GEOPOLITICAL IMPACT

The reopening of the Arctic has not only attracted nations’ economic interests and concerns for environmental degradation, but it has meant that Arctic nations, and others, have looked to the Arctic through a militaristic and security lens.

Russian Federation

Arctic countries have been building up their forces and infrastructure in the Arctic region. Leading the charge has been the Russian Federation. Russia, which has half of the Arctic ocean coastline, has been the most active state in the region, deploying its northern fleet to the region and rebuilding its Arctic command, including four new Arctic brigade combat teams, fourteen new operational airfields, and sixteen deep water ports.³⁵ In August 2018, Russia held surprise drills to test their forces’ readiness and new navy installations in the region.³⁶ As part of these tests, Russia tested a new coastal defense system called Bastion, meant to target enemy ships.³⁷ In addition to new anti-ship systems, Russia had recently deployed its S-400 air defense system in the Kola Peninsula near the Finnish border, with new submarines and anti-submarine ships.³⁸

As the nation with the most Arctic territory, it is expected that Russia would undertake efforts to protect its border and coastline.

However, the annexation of Crimea, disputes over border delimitation in the region, and rising tensions with NATO countries create a risk military confrontation in the region.

United States

The United States, for its part, is playing catch-up in the region. Since the end of the Cold War, the U.S. has shifted its attention away from the region to focus more closely elsewhere, be it the Middle East, or the pivot towards China. As a result, U.S. policy has failed to react to the growing concerns in the Arctic region. A depleted icebreaker fleet is but one of the areas where the U.S. lacks behind other Arctic states, most importantly Russia.³⁹ In 2013, the U.S. released a national security document detailing its strategy for the region. It focused on three major pillars: advancing U.S. security interests, pursuing responsible Arctic region stewardship, and strengthening international cooperation. The first pillar of this strategy focused on evolving the Arctic infrastructure and strategic capabilities, preserving the freedom of the seas in the region and crucially providing for the energy security needs of the U.S. The document defines access to energy resources in the Arctic as a “core component of our national security strategy.”⁴⁰ The 2013 document established that signing onto UNCLOS is a principal objective, noting that accession would “protect U.S. rights, freedoms, and uses of the sea and airspace throughout the Arctic region, and strengthen our arguments for freedom of navigation and overflight.”⁴¹

The U.S. Navy for its part has issued two separate Arctic roadmaps, one in 2009 and more recently in 2014 in which it describes the challenges and the role that the Navy sees itself playing in the evolving region. The roadmap provides four major tenets of the U.S. Navy strategy: ensure U.S. Arctic sovereignty and provide homeland defense, provide ready naval forces to respond to crisis and contingencies, preserve freedom of the seas, and promote partnerships within the U.S. government and with international allies.⁴²

The U.S. lacks the necessary infrastructure to operate in a meaningful way in the Arctic. Outdated charts of the region, lack of deep ports, icebreakers, and communication facilities are what the U.S. will need to invest in. Additionally, the U.S. remains to be one of the few states that has not adopted UNCLOS, hindering the country’s ability to utilize existing legal mechanisms to defend its interests in the region.⁴³ The U.S. Navy is expected to release a new Arctic roadmap that will outline the Navy’s priorities and objectives for the region.

The U.S.–E.U. imposed sanctions on Russia had a direct impact on existing partnerships between Western and Russian companies operating in the Arctic seas. Exxon Mobil’s partnership with Russia’s Rosneft in the Arctic has been terminated as a result. The two had been in partnership to explore the Russian Kara Sea, where an estimated 87 billion barrels of Oil are available.⁴⁴ Due to the sanctions imposed by the West, companies are barred from sharing technologies and money to Russian companies therefore forcing Exxon Mobil to abandon the project.⁴⁵

Denmark – Greenland

In recent years, Russia and China have taken more active steps to exert their influence. As was noted previously, China considers itself a *near Arctic state* and has been attempting to establish a foothold in the region. Denmark denied China’s attempt to purchase an old naval base in Greenland. A Chinese mining company was eyeing that base to gain access to the Arctic region. Denmark, which has had a defense agreement with the U.S. since 1951, has so far resisted the temptation to allow Chinese companies to get access to its territories in Greenland, fearing repercussions for its alliance with the U.S.⁴⁶

Norway

Norway is the only Arctic nation that shares a ground border with Russia. It is also one of the few nations that has resolved its territorial disputes with Russia. In September 2010, the Norwegian government issued a detailed document highlighting its policy for the High North. In this document, Norway identifies the region as the “most important strategic priority area in the years ahead.”⁴⁷ Norway’s economy relies heavily on hydrocarbons; defending its rights in the Arctic and ensuring access to the fields for exploration is therefore a priority.

The document highlights Norway’s focus on taking its “international and national obligations seriously.” It notes the importance of ecological and environmental protection for the region. Moreover, the government of Norway highlights the importance of developing suitable frameworks for the exploration of natural resources in the region, focusing on cooperation and the protection of the lives and cultures of the indigenous populations there.⁴⁸

In recent years, however, tensions between Norway and Russia have grown. With concerns following Russia’s annexation of Crimea, Norway

has invited NATO countries, particularly the U.S. and U.K. to deploy forces. The U.S. will deploy over 700 marines to Norway in 2019, and the U.K. will deploy 800 Royal Marines as part of the U. K's new defense Arctic strategy.⁴⁹ In October and November of 2018, Norway will host Trident Juncture, a large-scale NATO exercise. The exercise will seek to reinforce NATO's seriousness in the region.

Canada

Canada's Arctic foreign policy statement reads that:

Canada's vision for the Arctic is of a stable, rules-based region with clearly defined boundaries, dynamic economic growth and trade, vibrant Northern communities, and healthy and productive ecosystems. Canada's Arctic foreign policy provides the international platform from which to project our national interests in the world across all four pillars of the Northern Strategy: exercising our sovereignty, promoting economic and social development, protecting the Arctic environment, and improving and devolving governance...Exercising sovereignty over Canada's North, as over the rest of Canada, is our number one Arctic foreign policy priority...Canada's Arctic sovereignty is long-standing, well-established and based on historic title...When positions or actions are taken by others that affect our national interests, undermine the cooperative relationships we have built, or demonstrate a lack of sensitivity to the interests or perspectives of Arctic peoples or states, we respond.⁵⁰

Canada believes in the importance of diplomacy and engaging the Arctic nations to work collectively to ensure the Arctic development. Canada argues that "the rapid pace of change and growing importance of the Arctic requires that we strengthen our capacity to deliver on Canada's priorities on the international scene."⁵¹ Canada's statement describes a Canada that is serious about the Arctic and its rights to the resources that are available within its EEZ; furthermore, it highlights Canada's commitment for security and development notably regarding environmental protection.

Canada has taken major steps to act upon its Arctic foreign policy. It has adopted a new defense policy based on the notion of Canada first, showing intentions that Canada's interests will come first, over any other nations. This stance has manifested itself with Canada's claim to authority over the Northwest Passage, whereas nations like the U.S., Russia, and even the European Union

argue that the passage is an international strait. In August 2007, then-Prime Minister Harper declared that the "first principle of Arctic sovereignty is use it or lose it," noting Canada's strong position about the strait's ownership.⁵²

LOOKING AHEAD

The Arctic will once again regain an important role in the affairs of the twenty-first century and both Arctic and non-Arctic states would be wise to take heed and to prioritize the region. The race for the Arctic might have been driven by state interests, but saving the region and the planet will require a group effort.

The future of the region will be governed by how serious and effective the global response to climate change is. If current trends continue, it is likely that snow and ice will melt at faster rates, leading to a drastic rise in sea levels around the world. The interests in resource exploration and shipping through the region are likely to only increase.

The existing tensions in the region can only be resolved through diplomatic and existing governance. The Arctic Council will see its role and importance increase as more nations and corporations seek to engage within the region. The likelihood of military confrontations in the region are slim, but the dangers linked with the increased militarization of the area are ever-present. Arctic states will have to continue to work under the framework of the Arctic Council to resolve disputes and to establish a governing mechanism for the region that prioritizes environmental protection and promotes sustainable economic development. Solving border disputes

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