

Chapter 8

Emerging Trends in Arctic North America's Maritime Security Agenda: From Ice to Water



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Abstract Dramatic transformations in geopolitical thought have accompanied equally dramatic transformations of the physical environment, prompting a significant shift in the nature of geopolitics and the role of the state in defence and security. Many traditional geopolitical assumptions are no longer universally or perpetually applicable – perhaps they never were. But at the same time, the final consequences of the current polar thaw remain conjectural and cannot be predicted with any degree of certainty. This chapter explores the intersection between contemporary geopolitical thought and security narratives regarding Arctic North America's maritime spaces. Its focus is on change in the physical state of water under conditions of climate change and subsequent reassessments of strategic location, and the nature and origin of resulting threats to defence and human security.

Keywords Geopolitics · Climate change · Arctic · Maritime security · Sea power

Remote from global centres and located in a perpetually frozen environment, the North American Arctic has been positioned throughout much of history as peripheral to geopolitical assessments of world order. Today, however, it has become much more central to the global future that those early geopolitical theorists thought to define (Vuković, 2020). Dramatic transformations in geopolitical thought have accompanied dramatic transformations of the physical environment, prompting a significant shift in the nature of geopolitics and the role of the state in defence and security. Many traditional geopolitical assumptions are no longer universally applicable – perhaps they never were. But at the same time, the final consequences of the current polar thaw remain conjectural and cannot be predicted with any degree of certainty. This chapter explores the intersection between contemporary geopolitical thought and security

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narratives regarding Arctic North America's maritime spaces. Its focus is on change in the physical state of water under conditions of climate change and subsequent reassessments of the Arctic's strategic location, and the nature and origin of resulting threats to defence and human security. We posit that all of these are inter-related.

As late as World War II and the Cold War that followed, the most strategic sites for defence purposes within the North American North were on *terra firma* (for example, the D.E.W. Line and other military installations for strategic resources such as the Canol Pipeline, the Alaska Highway, and numerous extractive sites of industrial minerals). Today's Arctic security investments, however, are increasingly oriented towards maritime spaces and passages, coastlines and islands, in recognition of the propensity for melting ice to create new opportunities for shipping, tourism, and strategic mineral and energy resources, including hydrocarbons. This has significantly altered maritime security activities and narratives. There is now a greater emphasis on environmental impacts and disasters, pollution, search and rescue activities at sea, and mitigating other non-conventional threats resulting from significant and sudden environmental change. The objectives of security are now more oriented towards communities and safety, rather than an exclusive focus on the state, than any time in the past. They reflect new understandings and imperatives about the meaning of security and the strategic importance of Arctic places (Steinberg & Williams-Reed, 2017). They also reflect new geopolitical assessments.

Our discussion is inspired by the observation that despite significant scholarship about rapid environmental change and resulting shifts in security paradigms (Kee, 2019; Sfraga, 2021; Zellen, 2021), commensurately little attention has been devoted to understanding how environment, security, and geopolitical narratives intersect within maritime regions in the North American Arctic. In this chapter, we argue that shifts within traditional definitions of security (Nicol, 2020), and the changing geostrategic assessments that result, are highly interconnected and evolving. North America's Arctic "water world" is embedded in, and reflective of, geopolitical theory in ways which have not yet been fully addressed, except perhaps through the lens of critical geopolitics (Dittmer et al., 2011; Dodds, 2019; Dodds & Nuttall, 2015), which is arguably more concerned with deconstructing the power relationships that undergird regional security than understanding the intersections between geopolitics, climate change and security assessments. We make no claim that this observation is unique to North America, but rather that the North American experience sheds light on the nature of shifting Arctic geopolitical assessments and security policy and practice in general, in an era of climate-change.

We begin with examination of classical geopolitical theory, before assessing current changes to the strategic role of Arctic maritime spaces. We then question the assumption that water and ice are binary opposites whose ontological state determines the balance of world order within the region (Steinberg et al., 2020), and examine how the intersections between climate change and geopolitical thought have contributed to transformation in definitions of traditional security and have created new strategic spaces and subjects of security within the North. This is a story that leads us to reconsider the geopolitical saliency of Arctic's vast frozen Oceans – to trace their transformation from marginal to strategic places – and to explore how the concept of security has changed in keeping with these new geopolitical (and geo-economic) assessments.

8.1 Setting the Geopolitical Stage: The North in Classical Geopolitics

Early exploration in the North American North resulted from a wave of voyages initiated in European centres or from Russian explorers and fur-traders coming from Kamchatka and eastern Siberia (Nicol & Chater, 2021). Although finding the fabled passage to the orient was the overarching mission, interest in its importance waned in the wake of the 19th century Franklin expedition. Nonetheless, Franklin's search parties were perhaps the most significant 19th century force in mapping and exploring the North American Arctic. By 1880, however, Britain had transferred the Arctic Archipelago (claimed through previous expeditions) to the new Dominion of Canada. It had apparently lost interest in the North American North as the century drew to a close, if faith is put in the work of Sir Halford J. Mackinder (1904, 1943), a pioneering British theorist of geopolitical thought in the late 19th and early 20th centuries, who drew attention to the parts of the world that he deemed strategic. Mackinder's classic 1904 tome, *Geographical Pivot in History*, described the terrestrial Eurasian heartland as history's central pivot area, the inner or marginal crescent abutting the heartland as peripheral to land power, and the more remote northern region (dubbed Lenaland) as even more peripheral from the ebb and flow of world history as great powers battled for control of the heartland (Fig. 8.1).

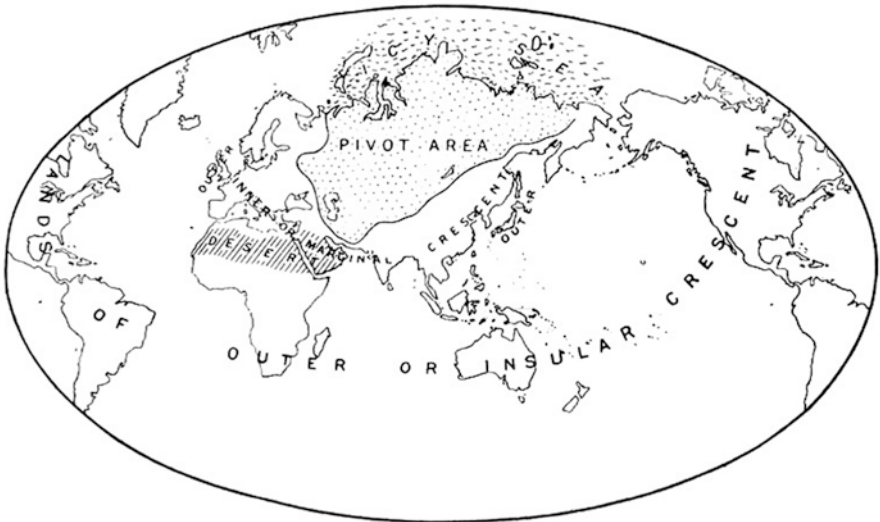


Fig. 8.1 A view of the World map. Most of the north and western Russia and parts of the Middle East make the pivot area. The curved area from Europe passing through the Middle East, India, and up to eastern Russia is the marginal crescent. The larger curved area from the top of northern America through South America, Africa, and Australia is the insular crescent. (Source: Mackinder, 1904)

Lenaland is, of course, a reference to its location in proximity of the great Northern Russian River and its Siberian site. But it is not too much of a stretch to suggest that Lenaland could conceptually, although not literally, be seen to have also included much of the Russian Far East and the Northeast Passage, as well as all the islands lying offshore. All of these were, before the current era of global climate change, every bit as remote.

Throughout the 20th century, geopolitical theories were much more explicit about the role of the Atlantic, or most specifically the mid-Atlantic as the forum for maintaining global balance, but had little to say about the North itself (Heininen & Nicol, 2008). Indeed, for much of the 20th century there was complete lack of recognition about how the Arctic region and its world of ice fit within the broader geographical or circumpolar zone, or how they, in turn, fit into a broader global order. Heininen and Nicol (2008, p. 6) suggest that while Mackinder eventually added the Russian far north to the pivot area of the Eurasian north in 1919, and in doing so brought this whole region into a strategic zone which required containment (with reference to Fig. 8.1), “the North American North [still] remained in the outer crescent, a virtual Rim around the more strategic areas.” Moreover, while “[l]ater theories were to reassess the importance of North America, specifically the U.S. in this equation” they did not do so “in any way which significantly included the North outside of its relationship to the USSR” (ibid., p. 6). Instead, Mackinder’s geopolitical theory doomed it to remain of minimal strategic importance – certainly as long as Ice Age conditions persisted in the Arctic. Although subsequent geopoliticians, such as Mahan, reassessed the strategic value of the margins of Eurasia and the North American continent, they continued the practice of marginalization inherent in these cartographic projections of power. Mahan drew the attention of the world to the strategic value of maritime spaces (Pollock, 1982), even as Mackinder continued to refine his original “World Island Theory” to include American power interests – although not the American Arctic (Heininen & Nicol 2008, p. 5). That said, if in the early 20th century, the strategic value of the Arctic and Lenaland was more for seals and whales than nuclear submarines and fighter jets, two great events changed this status in the late 20th and early 21st century. One was the changing role of technology and the redefinition of what constituted strategic spaces. The other was the recognition that the ice-covered polar seas were melting.

In the first instance, changing technology in the early twentieth century played an important role. Air power refined and extended land and sea power. Emerging as the principal rival to Mackinder in the post war years, Spykman (1942a, b, 1944), Spykman & Rollins, 1938a, b, 1939a, b) renamed Mackinder’s “marginal crescent” the “rimland”, elevating its strategic importance for the ages of sea and air power. It was then that the North American Arctic, remote, frozen and on the margin, gained real strategic value – perhaps in a way not seen since the golden age of polar exploration. In elevating the rimland in strategic recognition and consequence, and by postulating that it was now the age of “rimland supremacy”, Spykman inverted Mackinder’s classical geopolitical logic that control of the heartland was of paramount importance. And it is here that the Arctic became increasingly important (Heininen & Nicol, 2008). Central to the geopolitical framework developed through

Spykman's assessments were new postulations regarding global struggle. As a result, post-World War II, the location of the rimland shifted from Atlantic and Indo-Pacific to include the North American Arctic. The Cold War's ballistic missile threat recalibrated the significance of the North American Arctic as a buffer zone countering the Soviet threat (Coates et al., 2008; Nicol, 2015; Nicol & Chater, 2021), and placed it on the cartographical rim of the Eurasian continent. This was a circumstance unforeseen by Mackinder's geopolitical lens. But, neither Mackinder, nor Spykman could have foreseen the thawing of the polar ice, nor the integration of the Arctic Ocean into the world ocean economically and strategically that followed (Greaves, 2021; Sfraga, 2021; Heininen and Southcott, 2010).

8.2 Classical Geopolitical Futures in a Melting Arctic?

From the perspective of classical geopolitical theory, the Arctic, or rather the Arctic's water world, has become increasingly strategic. Mackinder's twenty-first century "heartland" is now more likely to be focused on a "rimland", and a maritime domain, rather than a terrestrial domain at the heart of a continent. The work of two naval and maritime-geopolitical theorists – Mahan and Corbett – are useful to understand this cartographic transformation. Mahan has been called one of the foremost thinkers on naval warfare and maritime strategy, providing "the essential starting point for studying the course and conduct of war at sea and for understanding the strategic importance of the maritime commons in determining the rise and fall of great powers" (Maurer, 2016, n.p.). He believed that "war and change in world politics was rooted in competitions among the great powers". Thus, "the great commercial seafaring states, in particular, would play a leading role in world politics because of the wealth they generated from international trade" (ibid., n.p.). He also believed the United States needed to play a bigger role "in upholding the balance of power on a global scale" (ibid., n.p.). Mahan "exhorted naval commanders to seek out and defeat enemy battle fleets, thereby winning command of the sea" (Holmes, 2011, n.p.) and generally assumed that "permanent, absolute command of important expanses was possible" (ibid.).

Contrast this with the thinking of Mahan's principal rival, British historian Corbett, who "agreed that 'permanent general control' was a worthy goal, but he also insisted it might prove unattainable". Instead, the "normal position" was an "uncommanded sea," if only "because no navy was big [...] enough to be at all places at all times" (Holmes, 2011, n.p.). While for both Mahan and Corbett, the tenets of classical geopolitical thought to which they both subscribed would predict that as the Arctic region emerged as a new pivot area for world politics, its maritime zones would become more important to naval competition and strategic rivalry, they could not have foreseen that with the additional complexities of a dynamic geophysical transition from an icy polar sea to a more liquid, open, navigable, and commerce-friendly Blue Arctic a circumpolar "rimland" would become of global geopolitical importance in both eastern and western hemispheres.

Pivotal to our analysis of emerging geopolitical assessments of the North American Arctic is, therefore, the changing strategic importance of coastal and maritime regions as ice melts and climate change proceeds. It requires consideration of the dynamic change in the Arctic Ocean's frozen state. Rather than essentialize geopolitical thought in relation to its predictive ability, however, the point here is that Arctic geography, being largely insular and archipelagic, matters more today in the era of polar thaw than in the prior era of near-permanent polar pack ice. Historically the many islands and archipelagos that defined the region's physical geography remained locked in ice, in some cases all year round – accessible by air and snow mobile, perhaps, but mainly off the beaten path for most of the year. Because of conditions favoring natural inaccessibility, they were also perceived as strategic buffers circumventing regional conflicts during the Cold War, for example, due to their inaccessibility. More suitable for travel by dog sled to hunt on sea ice than the advancement of platoons, the climate of the North American North was seen to provide the best possible means of continental defence from the Soviet threat and the Nazi and Imperial Japanese threats before that.

However, climate change has accelerated a shift in both the strategic saliency of Arctic maritime spaces and the nature of threat itself. The seabed of the Arctic Ocean has been mapped with some precision, while defining the details of its contours is ongoing, with ever-greater degrees of precision possible using satellite imagery and new forms of technology. Of equal concern, this mapping has also begun to reveal the degree to which ice is transforming to water – on a seasonal or even permanent basis. Models and predictions vary, but in general it is clear that already today, significant portions of North America's Arctic coastline and the Northwest Passage will remain ice free over summer months. Predictions are that the Central Arctic Ocean will be ice-free during summer months by approximately 2050, while routes through the Northeast and Northwest Passage may be open even sooner. All of this affects the accessibility of coastal regions and islands, and transforms their accessibility, having consequences for strategic theories concerning both global maritime order and the changing position of the North American Arctic. Associated with this shift, in symbolic if not actual strategic importance, is the changing relevance of coastal and archipelagic regions, passages and maritime zones.

There are essentially two different ways to explore the impacts of this transformation. The first is strategic in nature and in regard to defence activities, and raises a number of questions. Will changing geopolitical assessments be reflected mainly through new assessments driven by the exceptional nature of Arctic defence under conditions of climate change? Will these be strategically focused upon the coastal and maritime regions of the North? If so, how? Although the Arctic is a region currently not stabilized by a single naval hegemon, but by its strong tradition of multi-lateral, collaborative governance, will this struggle for control continue to allowing for a more Corbettian, multipolar balance of power?

The second way of assessing the future is through examination of traditional defence and security interests as they intersect with shifting geopolitical assessments and environmental change. As ice melts and new maritime spaces emerge, geopolitical certainties unravel. New security threats develop that are quite unlike those identified by classical geopolitical theorists. What are the implications? We

discuss the first set of strategic and defence impacts in the section below, returning afterwards to the second idea, that new understandings of security cannot be disassociated from geostrategic analysis and defence praxis in the contemporary North American Arctic.

8.3 Transformations

Transformations to geopolitical thought result from shifts in the strategic value of places – generally for defence or economic reasons. From a North American perspective, coastal and insular regions of the Arctic are becoming increasingly important. They facilitate the “opening of a new ocean” that “joins the Atlantic Ocean, Gulf of Mexico, and the Pacific Ocean” and makes it a coherent geopolitical space. From a U.S. perspective, and arguably a North American one too, the opening of the new coastal, insular and maritime Arctic spaces is “a critical, geographic component of our country’s maritime ring of economic, homeland, and national security” (Sfraga, 2021, p. 6). In this sense, the current geopolitical significance of North America’s Arctic and its insular and coastal regions under conditions of climate change does not depart significantly from that predicted by modern geopolitical theory. The distinctive and strategic geopolitical importance of islands, archipelagos, and island chains reflects and reinforces much thinking with regard to maritime and naval competition around the world. This is particularly evident in recent years in the Arctic Ocean, where amidst the polar thaw islands have played an outsized role, with increasingly accessible island chains, coastal waters and passages forming natural bridges between the continents.

It is within these insular zones, some of which are under claim as internal coastal waters and passageways, that the potential for conflict is said to exist. It represents a nexus in as yet “uncommanded” space: an “important crossroad where issues of climate change, international trade and global security meet” (Canada, 2019, n.p.). Because of the centrality of the Arctic Ocean to the future world maritime order, in the future we might anticipate a dynamic balance-of-power emerging, as illustrated by the current tensions and evolving relationships among Russia, China, the “West” and the other Arctic states – who are either members of, or partners with, NATO. This might in turn precipitate numerous security dilemmas as Arctic states fortify their remote Arctic insular territories, as Russia is presently doing, while Arctic NATO members (and their non-NATO partners) respond, in turn. Just as China has successfully embraced and deftly implemented its own island-chain strategies to counter those of the United States and its Pacific allies, might we anticipate a similar effort in Arctic waters, as long isolated Arctic islands and archipelagos are “rediscovered” for their strategic value, and fortified in turn? This could stimulate a race to develop Arctic strategic infrastructure reminiscent of World War II and the Cold War, and result in a more active and robust naval presence by the Arctic states, their partners, and rivals.

But whether this would be a Mahanian struggle for domination and mastery, or a more balanced, multilateral and Corbettian absence of control, is still open to

debate. Much depends upon our understanding of how polar thaw will affect maritime access and control.

Some analysts suggest that melting sea ice will change geopolitical interest in the region, and create flash points for conflict between great and medium powers alike. Great Powers like China may be drawn to the region in search of resources, while others, like Russia, may continue to militarize the region – ostensibly for similar purposes. The replacement of sea ice by open seas could nullify existing arrangements for managing territorial claims within certain areas of the Arctic Ocean – in many cases those archipelagoes where territorial control of one kind or another is managed by claimant states which rely upon sea ice provisions within the Law of the Sea to assert authority – for example Canada and Russia.

Yet these understandings suggest that ice and water are static, binary opposites and that each is endowed with stable territorial properties. Steinberg et al. (2020) argue, instead, that these binary definitions, especially that of sea ice, are rife with “ontological indeterminacies” (p. 86). These indeterminacies, in turn, raise clear challenges to classical geopolitical theory. They complexify a direct correlation between changing legal status and the corresponding right to control water regardless as to its frozen and liquid properties. The debate around the status of Section 8, Article 234 of the Law of the Sea Convention (UNCLOS) that deals with the special context of ice-covered waters is a case in point. Article 234 states 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, 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. (UNCLOS).

Yet some analysts assert that Article 234 of UNCLOS is really being used to justify actions by certain Arctic coastal states to adopt and enforce their own national regulations in the Arctic Ocean and its ancillary seas and passages. For example, Canada’s claim to the Arctic Archipelago and Northwest Passage and Russia’s claim Northern Sea Route. The US, in particular, is opposed to a broad application of the definition of terms of this Article, since its position regarding the status of the Northeast and Northwest Passages is at odds with Russia and Canada, respectively. It is in this sense that the melting status of ice poses new challenges in non-conventional ways. While the regulatory and legal frameworks that undergird the current right of coastal states to impose a protective regime on Arctic waters is consistent with both the Polar Code and the intent of Article 234, such regulatory frameworks are neither static nor uncontested in a changing Arctic (Bartenstein, 2018). What happens when these waters are no longer perceived by the world community to be ice-covered areas? Will Article 234 still apply (Schreiber, 2019)? Opinions are mixed.

Some experts suggest that it is important to separate the physical state of water (frozen/liquid) from the stable area covered by regulatory frameworks such as

Article 234 because the Article refers to a sensitive condition of place, rather than the condition of ice cover (Dremluga, 2017). Thus, the application of such regulatory law in the future could allow for more, rather than less oversight, particularly in the area of environmental and safety practice. This because “sea ice decline has many implications,” including increased accessibility to coastlines, but also “increased risk to mariners; stronger and more frequent storms; threats to coastal communities due to coastline and permafrost degradation and shifting subsistence patterns” (Sfraga, 2021, p. 7).

For these reasons, the implications of the polar thaw for geopolitical conflict are uncertain. Whether the region its regulatory framework and the territorial control that it supports will remain relatively stable, or witness a classical struggle for domination and mastery, or emerge with a strong tradition of multilateral, collaborative governance under the region's existing institutional embrace of consensus – remains to be seen.

8.4 From Ice to Water: New Security Frameworks

The idea that melting ice will result in conflict builds upon a *Realpolitik* assessment. In doing so it sidelines other institutional and strategic features of the region that could be useful in mitigating this outcome. The first is that North American states are members of the Arctic Council, an intergovernmental forum for regional cooperation that has met since the mid-1990s to discuss issues of mutual concern. Dominating discussions within this regional forum are ways to understand and address regional environmental threats, among them concerns regarding safety and protection of the Arctic's maritime regions. This unity of purpose and commonality of values, reflected in governing institutions and international fora across the Arctic strengthens the Arctic as a whole and the intra-Arctic bonds between the sovereign states of the Arctic region. While recent events, especially the Russian invasion of Ukraine have seen the Arctic Council suspended for the duration of the Russian Chair, peaceful cooperation has held thus far. Prospects for stability are also supplemented by a host of other agreements that create international cooperation on sea as well as land, in recognition of the growing importance of the maritime spaces that surround island chains and coastal regions. This includes a relatively recent search and rescue treaty and binding agreements concerning pollution control and prevention. Moreover, by strengthening ties within the Arctic states to their Indigenous communities, as well as their relationship with fellow Arctic states, the members of the Arctic Council greatly reduce the likelihood of experiencing new rounds of competitive geopolitics. Active participants in regional institutions such as the Arctic Council, the Barents Euro-Arctic Council, and the Arctic Coast Guard Forum, which already have established a solid foundation for enduring intra-Arctic collaboration, are especially well positioned to take the lead on these initiatives, with deep and broad traditions of indigenous engagement to build upon.

At one and the same time that regional cooperation has flourished, the definition of security itself has expanded to account for a world of water, and all of the marine environmental and ecological challenges encountered, if not a world island using Mackinder's terms. This brings us to the question of water itself. We have seen that geopolitical trends within the North American Arctic have oriented concern towards the status of waterways and the strategic location of insular and coastal areas in binary ways. But this is not the entire story. Matthews et al. (2021, p. 56) advocate a broader view of Arctic geopolitics, security and international relations, noting that "a growing body of research urges recognition of a more holistic perspective in which the interacting dimensions of the Arctic's 'soft security' characteristics, such as economic, food, health and environmental security are used to assess the region's overall resilience." In short, yet another part of the geopolitical equation has to do with how definitions of security have evolved since the end of the Cold War. The Arctic has become a theatre for speculation about conflict at the same time that other types of threats have emerged as security concerns (Heininen & Exner-Pirot, 2020). Many of these are environmental, in recognition of rapid changes to climate and its impact upon communities and ecosystems in the North, and of earlier pollution-related concerns that accompanied the dissolution of the USSR. In other words, "environment" itself has become a concern affecting human security, broadly defined, and has been a fixture of defence policy. An important feature of polar thaw thus has been adjustments to traditional definitions of security within the Arctic. There is growing recognition of the constituent and intertwined roles of human security and state security within the Arctic. The concept of human security has for decades privileged the role of state security within security narratives (Gjørv Hoogensen, 2005; Gjørv Hoogensen et al., 2013, 2020) and historically the prevailing language of security ignored the role and importance of non-state actors in the Northern regions. The introduction of concepts of environmental stability, sustainability and resilience has, however, moved the needle significantly.

While today security threats can still be identified in relation to Russia's seeming remilitarization of its Arctic region, or Beijing's apparent interest in this polar region (see Huebert, 2010), there is recognition that non-conventional security threats are growing in importance and indeed the greatest existential threat to human security in the region now exists in the form of climate change. At the root is the way in which climate change has changed conditions for human security. Today's existential threats are more likely to come in the form of rapid shifts in previously stable environments than from military aggression. This realization has accelerated a shifting geopolitical focus from the classical terrestrial heartlands to the coastal areas of the Arctic. Although the traditional understanding has not disappeared entirely, the role of armed forces for civilian support, and the definition of security have clearly expanded (Kee, 2019). Arctic cooperation now focuses as much upon marine pollution prevention and search and rescue capacity, as it does upon maintaining political stability. Moreover, the strategic importance of the Arctic's islands, coasts and maritime spaces identified within classical geopolitical theory, is now mirrored in concern with their heightened vulnerability to climate change and human security.

One key outcome of this change is that the idea of community has become an important component of Arctic security – not just as the object of security response in the face of disaster, but as an interested partner wishing to be engaged in the delivery of security. Gjørsv Hoogensen (2005, 2020) has identified this trend as security from the “bottom up.” But it also means that communities – and particularly Indigenous communities – have been able to take on a much larger role in the North – especially in regard to ecological knowledge production and environmental observations regarding climate change and environmental security (Krupnik & Jolly, 2002; Kee, 2019). Indigenous voices and communities, organizations and institutions now speak to the comprehensive nature of threats to human well-being in the face of environmental change.

8.5 Environmental Security

Because of the speed at which change is occurring, and the dramatic region-wide consequences of environmental change, the nature and tone of debate about sustainability has shifted to one about resilience and survivability (Arctic Council, 2016). In the latter case, a new relationship between human and ecosystems is postulated. While sustainability speaks to keeping balance between social, economic and environmental spheres of activity, resilience speaks to surviving change which is neither balanced nor predictable. Measuring the ‘resilience’ of Arctic communities to climatic and environmental change is a significantly different activity from that of advocating for sustainability, although not impossible to reconcile (Vlasova et al., 2021). From both a sociological and environmental perspective, the dynamic nature of change – its suddenness and unpredictability – within the Arctic region refocuses our attention on water, in its liquid and frozen state. More frequent, unpredictable and violent storms are occurring within the region, ice melt is accelerating to the point of changing coastal subsistence patterns, and melting permafrost and coastal erosion and implosion all threaten communities and settlements.

This brings us specifically to the changing nature of environmental threat, and the rapidity at which change is unfolding, especially for coastal regions that are particularly vulnerable: “Two central hazards are generally associated with climate change and coastal areas: coastal flooding and erosion. These threaten settlement infrastructure, such as housing, ports, roads, energy generation and distribution infrastructure, strategic facilities, and more generally reduce the potential uses of coastal areas” (Larsen et al., 2021, p. 2 of 17).

This threat to security is indeed a very different one from Mackinder’s concept of heartland/pivot area, Spykman’s rimland, or Mahan’s strategic maritime space, as previously discussed. Climate change is refocusing the attention of governments and state security agencies to the safety of maritime spaces and coastal communities as well as to the strategic role of such regions in global geopolitics. Security is no longer exclusively concerned with defence, and indeed threats associated with extreme meteorological events are infusing security narratives and security

planning in the North American Arctic region (Nicol, 2020). While such factors include coastal erosion and melting permafrost damage to infrastructure, the impact of violent and extreme weather events and rapidly changing ecosystems will create increasing degrees of insecurity for human communities, meaning that it is not just the nature of threat that makes for an unconventional security regime (Kee, 2019; Sfraga, 2021) it is also the capacity for imagining or premediating security challenges where communities and non-state actors also find themselves on the front lines (Heininen & Nicol, 2016). While there still remain opinions suggesting that traditional security is the tantamount challenge, most Arctic scholars are now having an increasingly difficult time discerning the difference in urgency between traditional definitions of security and broader human security agendas (Gjørsv Hoogensen et al., 2013; Kee, 2019; Nicol, 2020). State defence activities and organizations are increasingly embracing more holistic understandings – as reflected in new dialogues concerning domain awareness, civilian-military engagement in disaster mitigation, and the phenomenon of “grey ships for civilian society” (see Kee, 2019; Treadwell & Holshouser, 2019). Indeed, the concept of domain awareness which now informs many North American defence activities, is increasingly referencing environmental conditions within the North American Arctic region and its maritime places.

8.6 Intersections

While initially the idea that melting multi-year ice would liberate resources and new spaces for geopolitical contestation shaped dialogue, more recently, the perception of conflict as an immediate outcome has receded. Indeed, the propensity is seen by some as acutely regional rather than circumpolar in nature (Østhagen, 2021). Nonetheless, security itself remains an important concept, but inherently reconceptualized to address both state and non-state agency and actors (Nicol, 2020). The changing conditions of the Arctic Ocean and surrounding coastal regions “advance the need for security and defense professionals to inclusively seek to account for environmental factors, in reducing risk to their own activities and to better accomplish their overall mission to secure and defend” (Kee, 2019, p. 19). At the heart of this is the need to understand where and how traditional and non-traditional security threats can overlap or reinforce each other – and the narratives that derive from their intersection. In other words, security no longer can be viewed as meaning simply the military security of the state. Rather, many new and unconventional referent objects – from the economy, to the environment, to military relations – now represent security challenges. As Kee (2019), Sfraga (2021) and others remind us, this new security relationship includes water and maritime regions. Indeed, in the North American Arctic, the concept of maritime domain awareness has emerged to cover this contingency, and the intersection between human security and state security is most profoundly taking place within its insular and coastal regions.

One particularly important new intersection now occurs at the defence-development interface. A warming Arctic means that the nature of security in the Arctic is rapidly transforming. A region that was on the periphery of political will and long neglected by central authorities, is now front and center to global politics. Previous neglect has exposed gaps in wellbeing that make the region more vulnerable to external actors who might seek to destabilize the diplomatic, strategic and political balance in the North. The historic struggle for the human terrain of the Arctic is thus of great importance to the future stability of the region, and requires forward thinking investment, respectful relationship-building and sustainment, and a continuous process of confidence-building measures to ensure that the legitimacy of the rule of the sovereign states of the Arctic remains intact and uncontested. Because northern Indigenous homelands have been imperfectly integrated with the political economies of the Arctic states, despite much progress and ongoing efforts in the last half century, this remains a near universal fault line across the Arctic, and a challenge faced by the seven Arctic states that have indigenous populations engaged in long-term processes of cultural renewal, economic development, and restoration of land rights. There is a growing consensus that defence activities can be better directed toward acknowledging how environmental threats and climate change pose broad and existentially relevant security challenges in ways consistent with an emerging human security agenda (NATO, 2010). This understanding reflects a convergence of modern security narratives post-9/11, and the particular circumstances of security in Arctic regions.

This defence-development interface is reflected not only in terms of broad regional narratives, but in domestic policies and practices, too. For example, 2010 US Department of Defence's 2010 Quadrennial Defense Review (US Department of Defence, 2010) observes that:

The effect of changing climate on the Department's operating environment is evident in the maritime commons in the Arctic. The opening of the Arctic waters in the decades ahead which will permit seasonal commerce and transit presents a unique opportunity to work collaboratively in multilateral forums to promote a balanced approach to improving human and environmental security in the region.

Today, it was common to speak of "domain awareness" as an important tool for successful defence activity, and indeed the notion of maritime domain awareness has become binimical with responsibilities of maritime security agencies including navies and coast guards in North America, clearly focusing the defence-development intersection on the regions coast and maritime zones. Policy documents hint that a focus on more explicit consideration of the intersection between maritime space and environmental change has become normative in defence and broader human security considerations across the region (see Heininen et al., 2020). Nicol (2020) argues that this is reflected in the increasing concern with regional security operators regarding community safety and well-being, while, Welsh (2020, p. 480) suggests: "Traditional geopolitics may not be at stake in the Arctic, but nontraditional geopolitics most certainly is, and the lesson would seem to be that we must move forward gingerly to maximize the benefits and minimize the costs."

Inherent in the changing recognition of the importance of human security in the North is both to the awareness of eminent threat to the infrastructure and food security of coastal communities in the wake of erosion, permafrost melt and violent weather, as well as what can only be called the decolonization of Arctic politics and knowledge systems.

8.7 Conclusions

Until recently, the water world of the North American Arctic has always been less understood than its world of snow and ice. The region's islands and coastlines were not completely mapped until the late nineteenth century, but even then, many areas remained poorly defined. Since then there has also been significant change – the creation of new marine straits and the new perception of strategic saliency and geopolitical importance of the region's islands has occurred.

Climate change has greatly accelerated a shift in both the strategic saliency of Arctic maritime spaces, and the existential nature of the threat itself. Models and predictions vary, but in general it is clear that already today, significant portions of North American's Arctic coastline and the Northwest Passage will remain ice free over summer months. It is likely that the Central Arctic Ocean will be ice-free during summer months by approximately 2050, while routes through the Northeast Passage and Northern Sea Route have opened even sooner with assistance from Russian nuclear-powered icebreakers (Stephenson & Pincus, 2017). All of this affects the accessibility of Arctic coastal regions and islands, and transforms their accessibility, and has consequences for strategic theories concerning both global maritime order and the changing position of the North American Arctic.

By understanding the shifting geopolitical significance marine geographical structures, and indeed by understanding the shifting meaning of geopolitics and security, and their enduring importance to a stable world order, we can better contextualize the emerging strategic importance of the Arctic region. Emerging from a framework which positioned the North American Arctic as a periphery, current geopolitical thinking has adjusted to both changing strategic frameworks of place, and changing understandings of security. Their intersection creates new frameworks for Arctic defence – both in realpolitik and human security perspectives, and more importantly, in the space of intersection between the two.

Overall, the security challenges to the top of the world today, combined with the new emphasis on defence interventions at the community level (for individuals rather than state survival), while not determined by melting ice alone, is heavily shaped by it. There are indeed three broad dimensions of these processes – which include a knowledge transformation in understanding Northern environments as dynamic and changing terrestrial environments; a related conceptual transformation, in understanding the corresponding relationship between human security and environment in relation to climate change and the transformation in the object of security from state to community; and finally transformation in the strategic valuing

of maritime spaces through geopolitical theory. These transformations occur in tandem with a melting Arctic and its emerging maritime environments. They are reflected in the development of geopolitical and security paradigms with an increasing focus upon a “liquid” North as well as the classical “terrestrial” North and its coastal communities. Indeed, in the North American Arctic, with the polar thaw, maritime geopolitical structures are re-emerging from the ice in their primordial insular form, transforming the Arctic region and potentially fostering its reconnection to the world ocean in classical geopolitical terms. And here, the reality of the regional stability and cooperation endures.

References

- Arctic Council. (2016). Arctic resilience report. In M. Carson & G. Peterson (Eds.), *Stockholm environment institute and Stockholm Resilience Centre*. <http://www.arctic-council.org/arr>
- Bartenstein, K. (2018). Between the polar code and article 234: The balance in Canada's Arctic shipping safety and pollution prevention regulations. *Ocean Development & International Law*, 15(4), 335–362. <https://doi.org/10.1080/00908320.2019.1617932>
- Canada. Crown-Indigenous Relations and Northern Affairs Canada. (2019). *Canada's Arctic and northern policy framework*. <https://www.rcaanc-cirnac.gc.ca/eng/1560523306861/1560523330587>
- Coates, K., Lackenbauer, P. W., Morrison, W. R., & Poelzer, G. (2008). *Arctic front: Defending Canada in the far north*. Thomas Allen Publishers.
- Dittmer, J., Moisiso, S., Ingram, A., & Dodds, K. (2011). Have you heard the one about the disappearing ice? Recasting Arctic geopolitics. *Political Geography*, 30(4), 202–214.
- Dodds, K. (2019). ‘Real Interest’? Understanding the 2018 agreement to prevent unregulated high seas fisheries in the Central Arctic Ocean. *Global Policy*, 10(4), 542–553.
- Dodds, K., & Nuttall, M. (2015). *The scramble for the poles: The geopolitics of the Arctic and Antarctic*. Polity Press.
- Dremluiga, R. (2017). A note on the application of article 234 of the law of the sea convention in light of climate change: Views from Russia. *Ocean Development and International Law*, 48(2), 128–135. <https://doi.org/10.1080/00908320.2017.1290486>
- Gjørvo Hoogensen, G. (2005). Bottoms up! A toast to regional security? *International Studies Review*, 7(2), 269–274.
- Gjørvo Hoogensen, G., Bazley, D. R., Golviznina, M., & Tanentzap, A. J. (2013). *Environmental and human security in the Arctic*. Routledge.
- Gjørvo Hoogensen, G., Lanteignem, M., & Sam-Aggrey, H. (2020). *Routledge handbook of Arctic security*. Routledge.
- Greaves, W. (2021). Climate change and security in Canada. *International Journal*, 76(2), 183–203.
- Heininen, L., & Exner-Pirot, H. (2020). *Climate change and Arctic security: Searching for a paradigm shift*. Palgrave Macmillan.
- Heininen, L., & Nicol, H. (2008). Canada and the new geopolitics of the North Pacific rim. *Northern Research Forum*. https://www.rha.is/static/files/NRF/OpenAssemblies/Anchorage2008/a/5th_nrf_anc_2008_heininen_nicol_canada_new_geopolitics_north_pacific_rim.pdf
- Heininen, L., & Nicol, H. (2016). Climate change and human security from a Northern point of view. *Centre on Foreign Policy and Federalism*. https://www.sju.ca/sites/default/files/2016-heininen-nicol-climate-change-hum-sec-northern_4.pdf
- Heininen, L. & Southcott, C. (2010). *Globalization and the Circumpolar North*. Fairbanks: University of Alaska Press.

- Heininen, L., Everett, K., Padrtova, B., & Reissell, A. (2020). *Arctic policies and strategies: Analysis, synthesis and trends*. International Institute for Applied Systems Analysis.
- Holmes, J. R. (2011). From Mahan to Corbett? The new U.S. joint operational access concept implies a shift in navy strategy in contested parts of the world. *The Diplomat*, 11. <https://thediplomat.com/2011/12/from-mahan-to-corbett/>
- Huebert, R. (2010). The newly emerging Arctic security environment. *Canadian Defence & Foreign Affairs Institute*. https://d3n8a8spro7vhmx.cloudfront.net/cdfai/pages/41/attachments/original/1413661956/The_Newly_Emerging_Arctic_Security_Environment.pdf?1413661956.
- Kee, R. (2019). Key issues to Arctic security. In D. Menezes & H. Nicol (Eds.), *The North American Arctic: Themes in regional security* (pp. 93–115). University College Press.
- Krupnik, I., & Jolly, D. (2002). *The earth is faster now: Indigenous observations of Arctic environmental change*. Arctic Research Consortium of the United States.
- Larsen, J. N., Schweitzer, P., Abass, K., Doloisio, N., Gartler, S., Ingeman-Nielsen, T., Ingimundarson, J. H., Jungsberg, L., Meyer, A., Rautio, A., Scheer, J., Timlin, U., Vanderlinden, J.-P., & Vullierme, M. (2021). Thawing permafrost in Arctic coastal communities: A framework for studying risks from climate change. *Sustainability*, 13(5), 26–51. <https://doi.org/10.3390/su13052651>
- Mackinder, H. (1904). The geographical pivot of history. *The Geographical Journal*, 23, 421–437.
- Mackinder, H. (1943). The round world and the winning of the peace. *Foreign Affairs*, 21, 595–605.
- Matthews, E., Kee, R., Roe, J., & Keesecker, C. (2021). Increasing maritime commerce in the Arctic. Proceedings of the marine safety and security council. *Coast Guard Journal of Safety and Security at Sea*, 78(1), 56–62.
- Maurer, J. H. (2016, August 11). The influence of thinkers and ideas on history: The case of Alfred Thayer Mahan. In *The American review of books, blogs and bull*. Foreign Policy Research Institute. <https://www.fpri.org/article/2016/08/influence-thinkers-ideas-history-case-alfred-thayer-mahan/>
- Nicol, H. N. (2015). *The fence and the bridge: Geopolitics and identity along the Canada–US border*. Wilfrid Laurier University Press.
- Nicol, H. (2020). The evolving north American security context: Can security be traditional? In K. Coates & C. Holroyd (Eds.), *The Palgrave handbook of Arctic policy and politics* (pp. 455–472). Palgrave Macmillan.
- Nicol, H., & Chater, A. (2021). *North America's Arctic borders: A world of change?* University of Ottawa Press.
- North Atlantic Treaty Organization (NATO). (2010). *Advanced research workshop (ARW) on environmental security in the Arctic Ocean*. Convened at the Scott Polar Research Institute. Workshop Summary. https://canadatogogether.hypotheses.org/files/2010/12/NATO-ARW_Summary_Environmental_-_Security_in_the_Arctic_-_Ocean_15NOV10.pdf
- Østhagen, A. (2021). The Arctic security region: Misconceptions and contradictions. *Polar Geography*, 44(1), 55–74. <https://doi.org/10.1080/1088937X.2021.1881645>
- Pollock, T. R. (1982). The Historical Elements of Mahanian Doctrine, *Naval War College Review*, 35(4), 44–49.
- Schreiber, M. (2019, April 4). Russia and Canada may lose their legal claim to Arctic seaways as ice melts, experts say. *Arctic Today*. <https://www.arctictoday.com/russia-and-canada-may-lose-their-legal-claim-to-arctic-seaways-as-ice-melts-experts-say/>
- Sfraga, M. (2021). Navigating the Arctic's seven C's: US coast guard advancing America's interests in the Arctic. Proceedings of the marine safety and security council. *Coast Guard Journal of Safety and Security at Sea*, 78(1), 6–11.
- Spykman, N. J. (1938a). Geography and foreign policy I. *American Political Science Review*, 32(1), 28–50.
- Spykman, N. J. (1938b). Geography and foreign policy II. *American Political Science Review*, 32(2), 213–236.
- Spykman, N. J. (1942a). *America's strategy in world politics: The United States and the balance of power*. Harcourt, Brace and Company.

- Spykman, N. J. (1942b). Frontiers, security, and international organization. *Geographical Review*, 32(3), 436–447.
- Spykman, N. J. (1944). *The geography of the peace*. Harcourt.
- Spykman, N. J., & Rollins, A. A. (1939a). Geographical objectives in foreign policy I. *American Political Science Review*, 33(June), 391–410.
- Spykman, N. J., & Rollins, A. A. (1939b). Geographical objectives in foreign policy II. *American Political Science Review*, 33(August), 591–614.
- Steinberg, P. E., & Williams-Reed, E. (2017). In a world of land and water, where does ice fit in?. *A report from the ICE LAW Project*. <https://lauda.ulapland.fi/bitstream/handle/10024/63201/Steinberg.Phillip%3B%20Williams-Reed.Eris.pdf?sequence=1&isAllowed=y>
- Steinberg, P. E., Kristoffersen, B., & Shake, K. L. (2020). Edges and flows. In I. Braverman & E. R. Johnson (Eds.), *Blue legalities: The life and laws of the sea* (pp. 85–106). Duke University Press.
- Stephenson, S. R., & Pincus, R. (2017). Challenges of sea ice prediction for Arctic marine policy and planning. In H. N. Nicol & P. W. Lackenbauer (Eds.), *The networked north: Borders and borderlands in the Canadian Arctic region* (pp. 77–92). Canadian Arctic Resources Committee.
- Treadwell, M., & Holshouser, T. D. (2019). Bridging the gap: Fostering military-civilian collaboration to improve marine, aviation and telecommunications infrastructure in the US Arctic. In D. Menezes & H. Nicol (Eds.), *The north American Arctic: Themes in regional security* (pp. 155–167). University College Press.
- UNCLOS. United Nations Convention on the Law of the Sea. (n.d.). Available online at https://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf
- United States. Department of Defense. (2010). Quadrennial defense review. https://history.defense.gov/Portals/70/Documents/quadrennial/QDR2010.pdf?ver=vVJYRVwNdnGb_00ixF0UfQ%3d%3d
- Vlasova, T., Petrov, A. N., & Volkov, S. (2021). Rethinking sustainability monitoring in the Arctic by linking resilience and sustainable development in socially-oriented observations: A perspective. *Sustainability*, 13(1), 177. <https://doi.org/10.3390/su13010177>
- Vuković, N. (2020). Do we need revision of the key geopolitical paradigms?. *Medjunarodni Problemi (International Problems)*, 72(1), 15–36. Institute of International Politics and Economics.
- Welsh, D. A. (2020). The Arctic and geopolitics. In K. Coates & C. Holroyd (Eds.), *The Palgrave handbook of Arctic policy and politics* (pp. 473–386). Palgrave Macmillan.
- Zellen, B. S. (2021). Stepping stones to a secure Arctic: Strategic importance of arctic island chains grows in lockstep with rise in polar temperatures, state rivalry. *Coast Guard Journal of Safety & Security at Sea: Proceedings of the Marine Safety & Security Council*, 78(1), 26–30.