Journal of Economics, Finance and Accounting Studies (JEFAS)
ISSN: 2709-0809
DOI: 10.32996/jefas
Journal Homepage: www.al-kindipublisher.com/index.php/jefas

JEFAS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

The Frozen Frontier: United States Arctic Strategy in a Shifting Economic Landscape

Sahaj Bhandari
The Academy for Mathematics, Science, and Engineering, Rockaway, New Jersey, USA
Corresponding Author: Sahaj Bhandari, **E-mail**: sb.sahaj.education@gmail.com

| ABSTRACT

The Arctic region has rapidly evolved into a focal point of 21st-century geopolitical competition, emerging as a critical arena for economic opportunity and global power projection due to its vast resource reserves, emerging trade routes, and increasing strategic relevance. This paper examines the dynamics of modern Arctic geopolitics, analyzing the growing involvement of major powers—namely, the United States, Russia, and China—with a particular focus on the United States' policy and expansion in the region. In contrast to Russia's militarized approach and China's economic engagement, the United States is shown to possess relatively limited capabilities in the region, hindered by an underdeveloped icebreaker fleet, infrastructure gaps, and diplomatic challenges arising from its increasingly isolationist posture. This analysis calls for a measured but assertive approach to Arctic expansion, grounded in enhanced polar capabilities, infrastructure investment, and multilateral cooperation to balance geopolitical risks. The paper concludes that such expansion is not only necessary to safeguard American strategic interests but is also key to counterbalancing adversarial advances and ensuring long-term energy security and access to trade routes, driving both economic growth and regional stability. The paper contends that America's long-term economic and geopolitical success in the Arctic rests upon decisive action, resilient infrastructure development, and the careful management of alliance dynamics and collective defense in the region.

| KEYWORDS

Arctic, Geoeconomics, Economic security, International relations, Climate change economics, Capital flows

| ARTICLE INFORMATION

ACCEPTED: 01 September 2025 **PUBLISHED:** 01 October 2025 **DOI:** 10.32996/jefas.2025.7.6.4

1. Introduction

The Arctic region has emerged as one of the most strategically significant regions of 21st-century geopolitical expansion, with nations worldwide vying for a share of the economic and geopolitical resources that the region provides. Previously underdeveloped, the Arctic has been the focus of increased attention as climate change transforms the region, opening new possibilities for economic development and resource access that could reshape the very face of international relations.

The United States has also seen an increased focus in the region. With the growing accessibility of resources, materials, and avenues—as well as a tantalizing opportunity to expand control to yet another geopolitical arena—United States Arctic policy in the twenty-first century has become increasingly expansionary with regard to the nation's economic and geopolitical presence in the region.

2. What is the Arctic?

The Arctic region is the northernmost polar region of Earth. Definitions of the Arctic region vary: some define the Arctic to be the region in the Northern Hemisphere where the average temperature in July is below 10ºC, while others define it by the northern limit of trees on land, which approximately follows the aforementioned 10ºC Isotherm (GRID-Arendal, 2010). The standard

definition, however, is that the Arctic is the region north of the Arctic Circle, a line approximately 65º 33'N of the equator; this is the definition that will be used in this essay, as it is the most commonly accepted (Wallace, 2020).

Eight nations lay claim to the Arctic: the United States, Canada, Denmark, Norway, Sweden, Finland, Iceland, and Russia. Five of these are states that border the Arctic Ocean: the United States, Canada, Denmark (primarily due to Greenland), Norway, and Russia. These states comprise an association known as the Arctic Five; however, this association has no independent geopolitical power (Kuersten, 2016).

The Arctic Circle consists of five types of territory: land, internal waters, territorial seas, exclusive economic zones, and international waters. The five littoral Arctic states hold claims to territorial seas; in particular, each surrounding Arctic nation is limited to a territorial sea of 12 nautical miles from their coast in which they have full sovereignty (Lawrence, 2018). These nations also hold exclusive economic zones (EEZs) of 200 nautical miles beyond their baselines, giving them exclusive rights to the exploration and usage of resources in those waters. International waters, colloquially known as the "high seas," do not lie under the jurisdiction of any singular country.

2.1 Resources

The Arctic Region is estimated to contain 90 billion barrels of undiscovered oil reserves and 1670 trillion cubic feet of natural gas reserves, representing approximately 30% of a significant portion of global supply (U.S. Geological Survey, 2008; Yale Environment 360, 2009). These resources, if utilized, would be able to meet global oil demand for the next three years and natural gas demand for fourteen years.

Importantly, the majority of this oil and gas is accessible to drilling, lying offshore and under no more than 1,500 feet of water. Though most of the natural gas supply lies within the Russian-controlled portion of the Arctic (thus limiting U.S. utilization without imports/purchases from arguably its largest global adversary), most of the untapped oil supply lies near Alaska and within the United States' portion of the region, enabling it to be leveraged by the United States (National Petroleum Council, 2015).

The economic value of these resources is substantial. Recent estimates suggest the Arctic provides approximately $281 billion annually from various resources, with this number expected to grow substantially with a global pivot to the region (Lu, 2025). However, the distribution of these resources is uneven, with Russia currently dominating Arctic petroleum production at over 90% market share (Arctic Review, n.d.). Thus, increasing resource extraction in the Arctic is of concern to the United States, both from an economic and geopolitical perspective. Indeed, Arctic expansion could significantly enhance U.S. energy independence and security as Russia's current dominance in Arctic energy production creates strategic vulnerabilities for global energy markets; the development of U.S. Arctic resources could provide alternative supply sources and reduce dependence on potentially unstable regions.

2.2 Infrastructure Development

Global warming has led to major Arctic sea routes becoming increasingly ice-free during key portions of the year; as a result, they have seen substantial investment and use in shipping and transportation. As a result, countries with significant Arctic presence—primarily Russia—have begun developing infrastructure in the Arctic to leverage it as yet another, possibly more efficient, avenue for global trade, with a 37% increase in unique ships entering the Arctic from 2013 to 2023 (Arctic Council, 2024).

There are three major sea routes in the Arctic: the Northern Sea Route (NSR), the Northwest Passage (NWP), and the Transpolar Sea Route (TSR). In the context of this analysis, the two most important are the NSR—because it is the most developed—and the NWP—because it lies near the American portion of the Arctic. Stretching approximately 5,600 kilometers from the Kara Sea to the Bering Strait, the NSR has the potential to offer significant advantages over traditional sea routes. Shipping from East Asia to Europe could reduce travel time by up to 40 percent compared to traditional routes through the Suez Canal or past the Cape of Good Hope; distance traveled similarly decreases by approximately 30 to 40 percent, translating into substantial fuel savings with vessels having the potential to save up to $80,000 per voyage (Hadrovic, 2020; Reilly, 2024; WWF Arctic, 2022). Though the icy waters still pose an economic and logistical challenge to navigate, the potential of the NSR is so great that over 3 million metric tons of cargo were transported along this route in 2024 (Yang, 2025). Most of these shipments involve commodities like crude oil, as well as other resources like iron, coal, and fertilizer. Though the NWP has not seen as much development, it still represents another potential route, albeit one with more complex ice challenges and sovereignty disputes. It is especially appealing for the U.S. because it does not primarily travel through the waters of a geopolitical adversary, though disputes remain with Canada regarding the use of the waterway.

Beyond the economic implications, Arctic trade route access and control represent a new frontier for great power competition (GPC). The region's strategic importance stems from its position as the shortest distance between major powers for both trade and military purposes, and nations are racing to capture first-mover advantages to secure what could become major global trade arteries in the coming years.

2.3 Governance

The Arctic Council is the primary intergovernmental forum for Arctic cooperation, bringing together eight Arctic states (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States), six indigenous organizations as permanent participants, and numerous observer states and organizations. Despite its inclusion of most of the key players in the region, however, the council faces significant limitations for a number of reasons. Not only is the body structurally flawed with very little discretionary funding (with most projects funded on an *ad hoc* basis), it also lacks regulatory power and cannot impose legally binding rules on member states (Arctic Portal, n.d.; Exner-Pirot et al., 2019; Long, 2018). It also primarily operates on a consensus-based decision-making model; as a result, geopolitical motives and tensions limit its efficacy, especially when considering the fact that Russia's relationship with the other members has become increasingly fraught. Most significantly, however, past agreements developed under the council—as well as council work in general—have come in arenas of environmental protection and sustainable development rather than security, resource use, or territorial sovereignty.

Countries have also attempted to use the United Nations Convention on the Law of the Seas (UNCLOS) as the basis for extended territorial claims. In particular, the UNCLOS treaty, which came into effect in 1994, gives nations a ten-year post-ratification period to make claims on an extended continental shelf to give it exclusive rights to resources over a larger area. Such claims are evaluated by the United Nations' Commission on the Limits of the Continental Shelf (CLCS) to ensure scientific validity; however, the CLCS does not determine territorial borders, with delimitation disputes instead being resolved by individual nations with competing claims (Wallace, 2020). Thus far, Norway, Russia, Canada, and Denmark have launched research expeditions with the intention of extending their continental shelf beyond their EEZ. Norway, for instance, made an official submission in 2006 in accordance with UNCLOS (article 76, paragraph 8) to extend its seabed claim, while also ratifying an agreement in the Barents Sea with Russia to end a decades-long territorial dispute. Notably, while the United States has signed UNCLOS, they never ratified it; thus, the ten-year post-ratification period has not been in place for the nation yet.

3. Current Presence

Current United States presence in the Arctic remains relatively limited compared to its largest geopolitical adversaries—China and Russia.

3.1 China

China, strictly speaking, does not have any territory in the Arctic, though it has always maintained an interest in the region, viewing it as an important area that will gain geopolitical significance in the long term due to its vast resources and potential to decrease shipping costs. This interest, and the corresponding influence that comes with it, has especially grown in the twenty-first century, with the nation being granted observer status to the Arctic Council in 2013 and declaring itself a "near-Arctic state" (a term with no legal implications but nonetheless marking a strategy shift) in 2018 (Pezard, 2018).

Much of China's action in the Arctic has come from investments in infrastructure and energy operations with the Polar Silk Road, a term coined in 2017 to represent the Arctic component of the nation's overarching Belt and Road Initiative, the world's largest global infrastructure development project that includes over 140 participating countries. The nation has invested over $90 billion in infrastructure, energy, and mining projects north of the Arctic Circle (House Committee on Foreign Affairs, 2022). Much of its involvement has come with joint ventures and partnerships with Russia, as Sino-Russian involvement in the Arctic has enabled the furthering of its ambitions, as its major participation in liquified natural gas projects (such as Yamal LNG in Russia) and various joint ventures to develop transport, port, and energy infrastructure along Arctic routes have substantiated its presence in the region (Tirziu, 2025; Xiao and Ding, 2023).

Beyond energy, the nation has invested heavily in its polar fleet, commissioning new-generation research icebreakers. The *Xue Long* and *Xue Long 2* were the most significant vessels, with the *Jidi* icebreaker joining them in July 2024. These vessels can break through significant sea ice, thus being able to conduct long-term scientific missions and support the nation's growing interests in the region, with the *Xue Long 2* and *Jidi* both having conducted extensive expeditions across major stretches of the Russian Arctic coastline. Indeed, China has undergone extensive collaboration with Russia on logistics and shipping infrastructure to further its efforts to develop supporting port facilities along the route (Lamazhapov, Stensdal, & Heggelund, 2024; Zreik & Derendiaeva, 2025). China has also increased ship transits on the Northern Sea Route: Chinese shipping companies' voyages along the NSR nearly doubled between 2023 and 2024 (Nong, 2025). The conflict involving Russia and Ukraine has brought China and Russia closer in Arctic collaborations as well, due to the West increasingly turning away from Russia.

In the more Western portions of the Arctic, Beijing holds a steady presence as well. China maintains a research base in Svalbard, Norway, and has conducted more than ten scientific expeditions to the region (Doshi, Dale-Huang, & Zhang, 2021). These efforts focus on climate research, maritime navigation, and technological innovation (Puranen & Kopra, 2023). In addition, the nation has invested in mining operations, particularly with rare-earth minerals that are necessary to power global electronics. The nation has trade partnerships with Greenland and is a partial owner of a zinc mine in Alaska, while also having unsuccessfully tried to purchase a closed United States Navy base in Greenland.

Critically, this unsuccessful purchase may not be an isolated event; rather, it could be representative of a larger global trend. Because most of the nations in the Arctic regions are American allies and generally oppose Chinese influence (unlike the developing nations targeted by the rest of the BRI), the efficacy of the Polar Silk Road has stalled in recent years. Countries of the North American Arctic have generally passed on major Chinese investments. For example, Canada blocked a $150 million gold mine deal for fear of China being too close to Canadian military outposts; similarly, Greenland (a Danish territory) stalled plans for another Chinese mine due to environmental concerns and suspended a project to build an Arctic corridor connecting the Arctic to continental Europe (Irving, 2022; Pezard & Tingstad, 2025). Profitability issues have also plagued Chinese progress, causing the halt of oil exploration in the Dreki area and the iron ore Isua field in Greenland (Pezard & Tingstad, 2025). Such projects ought to be looked at closely by the United States when examining its own plans for expansion, as the United States can take lessons from China's financial issues.

Importantly, though China's involvement in the Arctic has been largely economic so far, Beijing has declared that it soon seeks to be a "major polar power," with many experts predicting that—like the rest of the Belt and Road Initiative—the nation's economic actions in the Arctic are intended to be a stepping stone to larger geopolitical leverage (Paul, 2025).

3.2 Russia

Russia is, by and large, the nation with the most involvement in Arctic affairs. Often branded the dominant Arctic state, the nation controls over half of the Arctic coastline and prioritizes the region for both economic development and military power. Over the past decade, Russia has intensified activities and investments aimed at securing its strategic, economic, and geopolitical interests in the Arctic, with it partaking in military, economic, and scientific expeditions and investments in the region.

Russia views the Arctic as a "zone of national and strategic interest," tying Arctic development to energy security, national defense, and territorial integrity. The period from 2010 to 2020 saw incremental military modernization coupled with cooperative rhetoric within the Arctic Council, a framework continued by the "Basic Principles of Russian Federation State Policy in the Arctic to 2035" (Basic Principles 2035) paper approved in 2020 that framed the region primarily as an economic zone (Klimenko, 2020).

However, Russia has intrinsically coupled this prioritization of economic development with national security. Since its annexation of Crimea in 2014, Russia has ramped up Arctic militarization, framing it as essential for sovereignty, resource security, and national defense (Mongilio, 2024). The "October 2020 Strategy for Development of the Arctic Zone to 2035" (Arctic 2035) doctrine introduced "sovereignty and territorial integrity" as a critical national interest in the region (Kluge & Paul, 2020; Meade, 2020; Russia Maritime Studies Institute & United States Naval War College, 2023). Indeed, Putin's recent Arctic Forums underscored Russia's intent to treat Arctic development as a sovereign right, asserting that sanctions will not deter long-term expansion (SpecialEurasia OSINT Team, 2025).

Russia's Arctic border spans approximately 14,000 miles and is lined with military infrastructure—including bases, naval facilities, air defense systems, and communication nodes. Since 2005, Moscow has reopened or built more than 50 Arctic military sites, modernized the Northern Fleet into an independent "military-administrative entity," and fielded layered air-and-missile defenses that form an A2/AD dome stretching from the Barents Sea to the Bering Strait (Laws, 2025; Nilsen, 2019). The nation has built or upgraded more than 475 military installations along its northern border in the past six years, including 32 permanently staffed Arctic military bases, though the war in Ukraine has drawn resources away from the region, leading to many outposts being depleted and staffed by skeleton units (Hedlund, 2023; Laws, 2025).

Russia's naval capabilities in the region are known as the Northern Fleet (NF), which commands all land, sea, air, and missile assets north of the Arctic Circle. Described by Putin as the nation's most powerful fleet, the Northern Fleet is at the center of Russian defense in the region. The Northern Fleet currently maintains approximately 31 submarines, approximately 40% of the nation's overall fleet (Davis, 2025). As of January 2025, the nation boasts the world's largest icebreaker fleet by far, with 57 icebreakers, with members of the NATO alliance holding 47 icebreakers combined (Fleck, 2025).

Moscow's actions can be framed on both sides of the deterrence-escalation pedagogy. Russia is looking to protect its territorial assets—and the resources that come with them—and is taking actions to reassert its sovereignty over such regions. It now

depicts the Arctic both as a guarantor of sovereignty and a "strategic resource base," with civil infrastructure and population decline treated as security issues (Hosa & Komin, 2025). Russia blames Western states for declining Arctic Council cooperation; since the Ukraine conflict, Arctic cooperation has stalled, but Russia continues to position itself as the regional leader, challenging Western dominance while deepening cooperation with China on shipping and energy. At the Murmansk International Arctic Forum in March 2025, President Putin again asserted Russia's exclusive responsibility for NSR safety while accusing Western (primarily American) expansionism in the High North as the driver of conflicts in the region (Isachenkov, 2025). At the same time, however, critics have described Russia's actions in the Arctic as overly expansionary, with the nation's attempts to formally enlarge its Arctic claims being seen as effectively encroaching on other nations' claims (Jardine, 2022).

From an economic standpoint, Russia has prioritized the Northern Sea Route as a critical axis for its Arctic trade ambitions, aiming to transform it into a leading global shipping corridor and an enabler of resource exports to Asia and beyond. In early 2025, total Arctic seaport turnover decreased by 8.7% compared to the same period last year to 21.5 million tons in Q1, primarily due to global demand and sanctions, but key routes to China actually expanded, with Chinese shipping companies making up approximately 95% of the route's traffic—an overwhelming majority (Bellona, 2025; Nong, 2025). Though China reached record-high shipping volumes in 2024 (at 38 million tons), such volumes were a far cry from its goal of 80 million tons set in 2022, though the nation continues to maintain its goal of reaching 150 million metric tons by 2030 (Grau, 2023; Humpert, 2025a). Moscow also utilizes the region for its vast natural resources, with the ongoing Arctic LNG 2 and completed Yamal LNG projects anchoring Russia's export ambitions and allowing an eastward pivot of energy sales. Indeed, the NSR not only serves as a shortcut between Europe and Asia, but more significantly as a "strategic lifeline" for Russian energy exports to non-Western markets, especially vital as European buyers continue to retreat (Nong, 2025).

As a whole, Russia's current perspective on the Arctic is best represented by its 2022 Maritime Doctrine, which elevated the Arctic from second to first in regional ranking, labelling the NSR and continental shelf as "vital areas of national interest" and prioritizing the control and protection of its claims (Weber, 2022). Russia envisions the region as being filled with conflict, framing the United States and its NATO allies as threats seeking to expand their own influence while encroaching on Russia's ambitions, with the doctrine confirming that Russia views itself in a "total hybrid war with the Collective West" (Chiriac, 2022). Indeed, Moscow views the Arctic region as critical for its economic ambitions, serving as a lifeline that enables it to remain powerful despite Western sanctions; as a result, it increasingly sees Western actions in the region as threats, a perception that ought to be considered by the United States when planning for its own expansion.

3.3 The United States

The United States's involvement in the Arctic has significantly evolved over the last two decades. Modern American policy in the Arctic region began with President George W. Bush in January 2009, who issued the first comprehensive Arctic policy update in 15 years: National Security Presidential Directive 66 (NSPD-66). This directive marked a significant shift toward asserting U.S. sovereignty in the Arctic, declaring unambiguously that "The United States is an Arctic nation" (Bush, 2009). NSPD-66 established six overarching U.S. Arctic policies: meet national security and homeland security needs, protect the Arctic environment, ensure sustainable development, strengthen international cooperation, involve indigenous communities, and enhance scientific research. From a geopolitical perspective, the directive critically asserted "lawful claims of United States sovereignty, sovereign rights, and jurisdiction in the Arctic region" and directed agencies to "take all actions necessary to establish the outer limit of the continental shelf" (Bush, 2009).

The next major step in United States Arctic policy came with President Barack Obama, who released the first comprehensive National Strategy for the Arctic Region in 2013. This strategy was especially important because it represented a major evolution from previous policy directives by providing specific implementation guidance to advance United States security interests and strengthen international cooperation (Arctic Research Consortium of the United States, 2011). Indeed, the Obama strategy emphasized multilateral cooperation while maintaining essential U.S. interests, attempting to foster responsible stewardship of a region with increasing strategic importance.

Though the first Trump administration did not issue a new Arctic strategy, American strategy in the region changed once again as President Joseph R. Biden released the updated National Strategy for the Arctic Region in October 2022. In what would later trigger corresponding Russian policy shifts, this strategy was fundamentally shaped by heightened geopolitical competition shaped by Russia's invasion of Ukraine and emphasized how the war fundamentally altered Arctic relations (The White House, 2025a). Biden's approach attempted to prioritize fostering a cooperative Arctic region that limited conflict, specifically accounting for increasing strategic competition with Russia and China while maintaining cooperation where possible.

In July 2024, the United States Department of Defense (DoD) published an updated 2024 Arctic Strategy, reflecting the new National Defense Strategy and the war in Ukraine. In doing so, it explicitly tied Arctic defense to homeland and alliance security,

coupling Alaska, the North American Arctic, and NORAD aerospace capabilities with the European Arctic (Office of the Under Secretary of Defense for Policy, 2019). This strategy continued to acknowledge the increasing geopolitical relevance of the Arctic, warning that Arctic maritime chokepoints are becoming more navigable and strategically important and calling for strengthened collaboration with Western allies to deter Russian aggression.

President Donald Trump's Arctic policy has differed significantly from that of past presidents, largely due to differences in political ideology. Abandoning the past presidents' trend of increasing focus on sustainable development and the preservation of the Arctic environment, Trump has signed executive orders to maximize resource development in Alaska, specifically aiming to expand oil and gas exploration and eliminate environmental restrictions set by previous administrations, with the recently passed One Big Beautiful Bill Act giving the legal green light to increase drilling in Arctic refuges (The White House, 2025b). As a result, over 82% of Alaska's National Petroleum Reserve is now proposed to be opened for oil and gas development, with the administration prioritizing faster permits for fossil fuel projects and leveraging Alaska's liquefied natural gas potential over environmental preservation (Bye, 2025).

Trump's geopolitical policy in the region has also differed from that of his predecessors, eschewing multilateral approaches most markedly with his intent to purchase Greenland from Denmark. The leader has exhibited a strong willingness to acquire Greenland, despite outright rejections from Denmark and strong opposition within Greenland itself—even failing to rule out military force against a major American ally to pursue his goal. Such hardline policies are in line with the president's overall "America First" ideology, as Trump has openly criticized international climate agreements and advocated for a nationalistic approach to polar affairs while rejecting significant multilateral cooperation with NATO and Arctic Council allies (Muntean, 2025).

The current American presence in the Arctic is limited but expanding. The U.S. maintains 12 major military installations in Alaska, which provide close to 80% of DoD resourcing to the Arctic region (McCloud, 2024). Barring the Trump administration, American forces in the Arctic have historically sought closer integration with Canada and Nordic allies to enhance collective defense capabilities, regional shipping, icebreaker construction, and surveillance. The nation is often described as suffering from an icebreaker capability gap compared to its competitors, only operating 2 functional icebreakers (the USCGC Polar Star and USCGC Healy) in the Arctic region, compared to Russia's 57. To attempt to remedy this, the United States is working on building more icebreakers (Humpert, 2025b). Indeed, the Coast Guard is building new polar cutters, and the "Big Beautiful Bill" passed during the Trump administration authorized funding for 17 icebreakers and 21 cutters, though it could take 15 years to commission the larger ships—meaning that without external acquisitions, the United States will continue to suffer a capability gap compared to its competitors during what will likely be a pivotal decade for Arctic development (Perez, 2022). To ensure competitiveness, the United States Coast Guard acquired the commercial icebreaker Aiviq in 2024 to increase operational capacity while Trump also recently announced negotiations with Finland to purchase up to 15 icebreaker ships to expand U.S. presence and capabilities in ice-covered Arctic waters (Anderson, 2025).

The American Arctic holds significant oil resources. More than half of the undiscovered oil resources in the Arctic as a whole are believed to be in three provinces: Arctic Alaska, the Amerasian Basin, and East Greenland Rift Basins, as the US holds about 20% of the Arctic's estimated oil and gas reserves, second only to Russia (Stephen, 2011). Alaska's North Slope remains the highest-yielding oil field in the United States, and Alaska ranks as the second-largest state in oil production behind Texas. Though the Obama and Biden administrations made nearly 3 million acres off limits for oil and gas leasing—effectively closing off most U.S. Arctic waters to oil exploration—Trump's aforementioned executive orders and the One Big Beautiful Bill Act seek to expand oil drilling in the American Arctic. However, Arctic drilling remains financially challenging, requiring oil prices between $63-84 per barrel to break even according to Goldman Sachs commodity expert Michele Della Vigna in 2017 (Semanco, 2024). Still, the US Energy Information Administration (EIA) forecasts that Alaska crude oil production will average 422,000 barrels per day in 2025, rising to 438,000 barrels per day in 2026, marking the first annual production increase since 2017 and illustrating the increasing importance of the region in energy independence (U.S. Energy Information Administration, 2025).

Finally, current U.S. Arctic trade is modest in value, as Arctic shipping is not yet a primary route for U.S.-global trade. Still, Canadian and American maritime experts estimate up to 2% of global shipping could use these routes by 2030 and up to 5% by 2050 (Humpert, 2011). Indeed, bulk carrier tonnage on the NSR is poised for rapid growth: in the early 2020s, tonnage increased from 2 million to potentially 20 million tons, with oil and gas cargoes expected to hit 40 million tons per year by the decade's end (Humpert, 2011). Furthermore, the opening of sea lanes due to melting sea ice is likely to draw major infrastructure investment to the region, expanding shipping opportunities further (Basak, 2024).

4. Expansion Pathways

Given the immense capacity of resources and opportunity to leverage trade routes, it is evident that an economic expansion into the region has the propensity to reap massive rewards for the United States; at the same time, however, the United States ought

to weigh the aforementioned economic benefits with the risk of geopolitical repercussions when taking steps to expand. Indeed, the United States must pursue measured but decisive expansion of its Arctic presence, not through territorial expansion or a redefinition of its maritime boundaries, but rather through increased investment into polar capabilities, greater infrastructure development, and deeper multilateral engagement.

The foundation of American Arctic expansion must rest on dramatically enhanced military capabilities designed for sustained operations in extreme conditions. The most immediate priority involves expanding the icebreaker fleet to provide year-round access to Arctic waters. The current fleet of two operational icebreakers cannot support the expanded presence required for effective deterrence and domain awareness. Though contracts to build new icebreakers regularly reach valuations nearing $1 billion, investments to build, modernize, and acquire more of these vessels are imperative as they represent a prerequisite to maintain presence in the Arctic. Negotiations to purchase existing icebreakers continue as a matter of foremost national priority, while the development of new icebreakers as stipulated in the One Big Beautiful Bill Act will provide Arctic stability in the long-term. Importantly, the two methods of procurement must work in tandem; the scale of requirements demands acceleration and expansion beyond current programmatic timelines.

Communications infrastructure represents another critical vulnerability that expansion efforts must address; successful federal operations in the Arctic will require significant and persistent infrastructure investment due to the unforgiving conditions in the region. Indeed, the Arctic's unique geographic characteristics create communications challenges that require specialized solutions, including satellite coverage, underwater cable systems, and terrestrial networks designed for extreme conditions (Tingstad et al., 2023). Enhanced communications enable everything from navigation safety to military command to emergency response capabilities and will serve as the foundation for both efficient economic development and geopolitical defense in the region. Importantly, such infrastructure would also be dual-use: military installations can be used to support civilians, as utilities infrastructure, housing, hospitals, and sanitation systems can all be implemented to help Arctic communities, leading to self-sufficient growth in the long run (Conger, 2018).

In tandem with communications infrastructure, domain awareness systems provide the foundation for effective Arctic operations across all mission areas. The vast distances and harsh conditions of the Arctic require persistent surveillance capabilities that can operate autonomously for extended periods. These systems must integrate maritime, terrestrial, and aerial monitoring to provide comprehensive situational awareness across the entire American Arctic area of responsibility; domain awareness systems are critical with regard to their ability to manage unique threats before they expand into burgeoning issues (Regehr, 2014). Autonomous systems offer particular advantages in Arctic environments where human presence is costly and potentially dangerous, as unmanned aerial, maritime, and ground systems can provide persistent surveillance, environmental monitoring, and logistics support without requiring permanent human presence. As Arctic maritime activity increases, United States domain awareness capabilities become correspondingly more important; as the risk to aging systems continues to increase, our ability to detect and deter against threats decreases, with “the first step to improved Arctic domain awareness… [being] persistent Arctic presence” (Heiserman & Burke, 2022).

Investments in robust dual-use infrastructure systems are equally as important. Arctic transportation infrastructure serves dual purposes of economic development and strategic capability; such enhanced transportation networks enable resource development, support community needs, and provide military strategic mobility (U.S. Climate Resilience Toolkit, n.d.). Airport and road infrastructure must both be expanded upon to enable access to remote communities while simultaneously supporting military objectives.

Port development is perhaps the most critical of these dual-use investments, supporting commercial shipping and export of resources while also providing bases for icebreaker operations. However, it is important to note that—given the challenging conditions of the Arctic—costs for deepwater ports can exceed half a billion dollars, with this high cost empirically resulting in postponements of development; it is critical, however, that the federal government maintain stable funding to develop these ports as they are critical to sustaining American capabilities in the region (Newcomb, 2024). Indeed, transit time reductions of 30-50% compared to current shipping routes translate into significant cost savings and competitive advantages for American exporters, as reduced shipping times lower inventory carrying costs, improve supply chain responsiveness, and enable new business models that depend on rapid delivery, helping American manufacturers compete more effectively in global markets (Brownlee, 2024). More broadly, port development in Alaska could position the United States as a major transshipment hub for Arctic trade, as strategic port locations could capture cargo flows between Asia and Europe while providing staging areas for further Arctic development; revenue from port operations, logistics services, and related economic activity could generate substantial economic benefits for Alaska and the broader American economy (Arctic Ice Project, 2024). With a 1% increase in military spending being associated with a 0.4829% increase in foreign direct investment, military investment in the Arctic would draw further investment as well, enabling the region to potentially flourish in the long run (Thakur, 2021).

Port development enables the access to, and use of, major shipping routes, most notably the Northwest Passage. However, given the dispute between the U.S. and Canada regarding the status of the route (with the United States claiming the route to primarily be international waters and Canada claiming it to be under its sovereignty), diplomacy is needed to enable access without straining international relations. Ottawa sees a potential Freedom of Navigation Operation (FONOP) in the region as threatening and encroaching on its sovereignty; however, its enforcement power against the largest military in the world is limited. Still, the solution with the least friction is to develop a diplomatic pathway with Canada that would enable access to the route without question. Access to major shipping routes is key, as American participation in Arctic shipping development ensures that these strategic advantages are not monopolized by competitors. Access to—and influence over—trade has served as a key pillar of U.S. hegemony post-WWII, and if the U.S. wants to maintain its position of power in the coming decades, it must ensure that it is not excluded in the next global frontier (Toprani, 2021).

In addition to access to trade, Arctic expansion offers the potential to substantially contribute to American energy security by diversifying supply sources and reducing dependence on foreign suppliers—many of whom are geopolitical adversaries. The Arctic's proven energy reserves provide strategic depth for American energy supplies while generating economic activity that supports broader national prosperity (American Petroleum Institute, n.d.).

Current American energy production in the Arctic already demonstrates the viability of expanded development. Alaska's North Slope produces approximately one-fifth of American oil output, proving that Arctic energy development can operate profitably even with existing technology and infrastructure; still, with much of Arctic reserves unexploited, expansion is needed to continue self-sufficiency in oil (Armstrong et al., 2025). The recently passed One Big Beautiful Bill Act has signaled an intent to expand drilling in the region; however, it is yet to be seen whether this will take place in practice. Revenue generation from Arctic energy development can fund further expansion while providing economic benefits to Alaska and the federal government. These effects expand multifold: royalty payments, tax revenues, and employment opportunities create positive economic multiplier effects that extend throughout the American economy (Bernhardt, 2023). The geopolitical value of energy independence and access to global trade is also crucial. Reduced dependence on energy imports decreases exposure to supply disruptions caused by political instability, natural disasters, or hostile actions by foreign powers, as Arctic energy development can provide strategic reserves that enhance national resilience during periods of crisis.

5. Geopolitical Concerns

5.1 UNCLOS

American non-participation in the United Nations Convention on the Law of the Sea (UNCLOS) creates legal and diplomatic complications for Arctic expansion efforts, particularly regarding territorial claims and resource extraction rights. The UNCLOS framework provides the primary legal structure for resolving maritime boundary disputes and establishing rights to extended continental shelf areas. The United States has conducted extensive research to map its potential extended continental shelf claims, including significant areas in the Arctic Ocean (Bloom & Greenwood, 2022). However, American non-party status prevents formal submission of these claims to the Commission on the Limits of the Continental Shelf, potentially limiting international recognition of American rights. Though the United States can assert rights based on customary international law (CIL), non-accession to the framework means that such assertions may be met with disputes from signatories to the convention.

Still, the practical impact of UNCLOS non-participation may be less severe than sometimes portrayed, particularly for areas clearly within American jurisdiction. Most Arctic resources lie within undisputed territorial waters and exclusive economic zones where American rights are well-established, meaning resource extraction prospects will generally pose no controversy. Still, more international prospects—such as access to trade routes like the Northwest Passage—are likely to remain controversial, implying that long-term diplomatic strategies should sustain efforts to achieve UNCLOS ratification while not allowing this issue to prevent necessary Arctic expansion (Collins et al., 2015). Ratification of the statute, as a whole, ought to be treated as a matter of national priority, providing the grounds to legitimize the United States' presence in the region.

5.2 Alliance Conflicts

In order to minimize disputes with key allies, American expansion in the Arctic should be focused primarily on a respect for other nations' sovereignty and joint endeavors with partner nations. Rather than ill-advised attempts to expand the nation's boundaries and thus alienate key allies—such as the proposed acquisition of Greenland that Denmark staunchly opposed—action in the Arctic expansion actually provides opportunities for enhanced cooperation with allies to strengthen collective security capabilities. Though fundamental disputes (such as that with Canada regarding access to the Beaufort Sea) will inevitably remain, it is in the nation's best interests to cooperate with its Arctic allies as much as possible to form a strong line of defense against what the West views as Russian expansionism in the region and the growing Sino-Russian partnership. With the rise of American isolationism, however, Washington appears to be doing the exact opposite by stepping away from key European allies, straying away from the long-followed doctrine of collective defense that has been the bulwark of Western deterrence strategies

in the post-WWII period. Put simply, this strategy will fail in the Arctic: unlike the nation's military advantage in most spheres of competition that enable it to be self-sufficient, the United States is significantly behind in terms of polar capabilities compared to Russia. As a result, this America-first strategy is unlikely to succeed in the Arctic without the backing of better-equipped allies; it is therefore critical to re-orient national Arctic policy to enable greater cooperation in the region with regard to both intelligence and physical infrastructure.

5.3 Escalation Risks

The most common argument heard from opponents of United States expansion into the Arctic region centers around the idea that such a move would be seen as escalatory by Russia and other global adversaries; with the Arctic representing an increasingly important portion of Russian military and economic ambitions, some argue that American expansion would be perceived as encroachment and an existential threat to the very underpinnings of the Russian state. Though this argument has some merits, it is largely naive: current Arctic security dynamics suggest that American inaction has not prevented Russian and Chinese expansion but has instead encouraged more aggressive behavior in the region, with no significant power able to deter Sino-Russian territorial ambition. Evidence suggests that Russian action in the region is opportunistic rather than reactionary, an argument that makes sense given the nation's increased reliance on, and thus desire for, Arctic resources (Savitz & Tingstad, 2023). Such a perspective, in turn, gives greater credence to the notion that American presence is needed to maintain balance in the region.

Indeed, escalation risks must be balanced against the dangers of strategic passivity that allows competitors to establish dominant positions. American weakness in the Arctic may encourage aggressive behavior by creating perceptions of American decline and inability to defend vital interests (Caldon, 2023). Measured expansion that demonstrates capability while avoiding unnecessarily provocative actions may in fact reduce escalation risks by establishing clear deterrent capabilities. Allied cooperation strengthens this deterrence multifold: regional organizations are close to 7 times more likely than unilateral actors to craft a diplomatic agreement that remains followed for at least 5 years (Velasco, 2013).

6. The Next Steps

The initial phase of Arctic expansion must focus on building foundational capabilities that enable subsequent expansion while addressing the most urgent strategic requirements. Icebreaker procurement and deployment represent the most critical near-term priority that enables all other Arctic expansion activities (Herrmann, 2019). Accelerated acquisition of additional icebreakers through enhanced funding and streamlined procurement processes can begin addressing the current capability gap while supporting immediate operational requirements; interim solutions including leasing, international cooperation, and commercial partnerships can provide additional capacity while permanent solutions are developed. More broadly, military infrastructure development should prioritize facilities such as forward operating bases, communications systems, and logistics infrastructure that are both environmentally sustainable and support expanded operations while providing strategic deterrent capabilities. Domain awareness and surveillance systems must also be instituted in the initial phases of expansion, providing foundational capabilities that have the capacity to not only support but also serve as the backbone of both military and civilian operations for years to come. Finally, capacity development must occur in parallel with international cooperation and diplomatic engagement in order to ensure that expansion is successful, as a lack of cooperation would likely leave the United States behind both its allies and adversaries in the region. This appears to be the most significant cause for concern in the status quo: though the nation has already stipulated greater funding for Arctic capabilities, the nation's current isolationist policies will likely impede collective action and thus the advancement of American capabilities in the region. Critically, the first steps to successful expansion into the region entail successful integration with allied capabilities, requiring a significant but necessary turn away from Washington's current international policies.

The second phase of Arctic expansion should focus on consolidating initial capabilities while expanding operations to address broader strategic requirements. More specifically, this phase should go beyond mere capability development—it should additionally emphasize operational effectiveness, cost efficiency, and especially integration with broader national security strategies, ensuring that the systems put in place operate not as individual entities, but rather as part of Washington's unified geopolitical approach.

At the economic level, this period would see expanded investments in resource extraction and trade route infrastructure. The phased development of oil, gas, and mineral resources can provide revenue streams while minimizing environmental risks through careful planning and advanced technologies, as carbon-free electricity, microgrid installations, and net zero emissions are all a part of U.S. military strategy in the region (Birnbaum & Root, 2022). Furthermore, transportation infrastructure development becomes increasingly important as activity levels expand and economic opportunities develop; port facilities, airports, roads, and communications systems ought to all expand during this period to support both military and civilian operations and provide economic benefits to communities in the region. Though the early stages of development would likely

be challenging with companies' lack of experience in the region, the use of public-private partnerships can leverage government investments to attract private capital and enable faster economic growth as time progresses.

In the long run, the United States seeks to establish itself as the dominant Arctic power, surpassing Russian capabilities to enable a stable and profitable presence in the region (Department of the Navy, 2014). This phase should continue to develop comprehensive capabilities and ensure the integration of efficient systems that are able to adapt to changing strategic and environmental concerns. Comprehensive, integrated infrastructure networks will support both geopolitical and economic developments by creating synergistic effects that reduce costs, enhance capabilities, and attract private investment that simultaneously supports strategic objectives, enabling the region to expand economically and serve as a transportation hub for American companies. From a governance perspective, United States polar leadership ought to occur alongside multilateral cooperation with Arctic allies to address shared security challenges; strategic integration can ensure that Arctic capabilities contribute effectively to broader national and international deterrence strategies while adapting to evolving threats and opportunities (Laje, 2024; United States Department of Defense, 2024). To ensure long-term success, the United States' Arctic policy should center around strategic cooperation with international allies to advance its own national objectives—much as it has for American foreign policy globally for the post-WWII period.

7. Conclusion

American expansion into the Arctic region has the potential to provide vast economic and geopolitical benefits with regard to resource access and international trade—though it must be done with caution. A careful, multilateral approach is the key for the United States to expand and leverage its polar capabilities, with collective action and strategic and timely investments being crucial for the nation to reap the vast rewards that the region will likely yield in the coming years.

Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.
Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

[1] 90 Billion Barrels of Oil and 1,670 Trillion Cubic Feet of Natural Gas Assessed in the Arctic. (2008, July 22). In *USGS*. United States Geological Survey. https://www.usgs.gov/media/audio/90-billion-barrels-oil-and-1670-trillion-cubic-feet-natural-gas-assessed-arctic
[2] 2024 Arctic Strategy. (2024). In *United States Department of Defense*. https://media.defense.gov/2024/Jul/22/2003507411/-1/-1/0/DOD-ARCTIC-STRATEGY-2024.PDF
[3] *A Wave of Investment - WWF Arctic*. (2022, May 10). WWF Arctic. https://www.arcticwwf.org/the-circle/stories/a-wave-of-investment/
[4] Anderson, Z. (2025, June 25). Trump's Arctic Ambitions Extend Beyond Greenland. He's Also Looking to Buy Icebreakers. *USA TODAY*. https://www.usatoday.com/story/news/politics/2025/06/25/donald-trump-greenland-finland-arctic-icebreakers-vance-denmark/84351306007/
[5] *Arctic Development and Transport | U.S. Climate Resilience Toolkit*. (n.d.). https://toolkit.climate.gov/arctic-development-and-transport
[6] Arctic Ice Project. (2024, April 12). *What will happen if new shipping routes open up in the Arctic*. https://www.arcticiceproject.org/what-will-happen-if-new-shipping-routes-open-up-in-the-arctic/
[7] Arctic Oil and Gas Reserves Are Extensive and Accessible, Study Says. (2009, May 29). *Yale E360*. https://e360.yale.edu/digest/arctic-oil-and-gas-reserves--are-extensive-and-accessible-study-says
[8] Arctic Research Consortium of the United States. (2011). *White House announces national strategy for the Arctic region*. *Witness the Arctic*. https://www.arcus.org/witness-the-arctic/2013/2/article/19962
[9] Arctic Shipping Update: 37% Increase in Ships in the Arctic Over 10 Years. (2024, January 31). *Arctic Council*. https://arctic-council.org/news/increase-in-arctic-shipping/
[10] Armstrong, T. E., Dunbar, M. J., Dumond, D. E., Ostenso, N. A., Ingold, T., Dunbar, M., Barr, W., & Bird, J. B. (2025, July 28). Arctic. *Encyclopaedia Britannica*. https://www.britannica.com/place/Arctic
[11] Basak, A. (2024, October 5). The Arctic trilemma: The United States must compete for the Transpolar Sea Route. *Georgetown Security Studies Review*. https://georgetownsecuritystudiesreview.org/2024/10/05/arctic-trilemma
[12] Bellona. (2025, June 25). Monthly Highlights From the Russian Arctic, April 2025. *Bellona*. https://etc.bellona.org/2025/06/25/monthly-highlights-from-the-russian-arctic-april-2025/
[13] Bernhardt, D. (2023, June 27). ICYMI: Harnessing Arctic Energy for a Secure, Prosperous Future. *United States Department of the Interior*. https://www.doi.gov/pressreleases/icymi-harnessing-arctic-energy-secure-prosperous-future
[14] Birnbaum, M., & Root, T. (2022, February 10). The U.S. Army Has Released Its First-ever Climate Strategy. Here's What That Means. *The Washington Post*. https://www.washingtonpost.com/climate-solutions/2022/02/10/army-military-green-climate-strategy/
[15] Bloom, E., Greenwood, J. (2022). Securing U.S. Territorial Rights in the Arctic: New Actions to Protect America's Continental Shelf. In *Brookings Institution*. https://www.brookings.edu/wp-content/uploads/2022/07/FP_20220707_protecting_us_ecs_rights_bloom_greenwood_v2.pdf

[16] Brownlee, G. (2024). Cold Calculations: Economic Prospects for Arctic Shipping Routes. In *International Trade and Economic Diplomacy*. Middlebury Institute of International Studies. https://www.middlebury.edu/institute/sites/default/files/2024-07/cold-calculations-arctic-shipping-routes_miis_ited-working-paper_june2024.pdf?fv=vMZXNi3A
[17] Bye, H. (2025, January 22). Trump Signs Order to Maximize Resource Development in Alaska. *High North News*. https://www.highnorthnews.com/en/trump-signs-order-maximize-resource-development-alaska
[18] Caldon, J. (2023, April 13). *Why the US Is Losing the Race for the Arctic and What to Do About It | Center for International Maritime Security*. Center for International Maritime Security. https://cimsec.org/why-the-us-is-losing-the-race-for-the-arctic-and-what-to-do-about-it/
[19] *China Regional Snapshot: Arctic*. (2022, October 25). House Committee on Foreign Affairs. https://foreignaffairs.house.gov/china-regional-snapshot-arctic/
[20] Chiriac, O. (2022, November 28). *The 2022 Maritime Doctrine of the Russian Federation: Mobilization, Maritime Law, and Socio-Economic Warfare*. Center for International Maritime Security. https://cimsec.org/the-2022-maritime-doctrine-of-the-russian-federation-mobilization-maritime-law-and-socio-economic-warfare/
[21] Collins, J., Sfraga, M., A. Virginia, R., & Yalowitz, K. (2015, April 21). *How America Can Step up Its Leadership Role in the Arctic*. Carnegie Endowment for International Peace. https://carnegieendowment.org/posts/2015/04/how-america-can-step-up-its-leadership-role-in-the-arctic?lang=en
[22] Conger, J. (2018, October 4). *An Overview of the DOD Installations Enterprise*. The Heritage Foundation. https://www.heritage.org/military-strength-topical-essays/2019-essays/overview-the-dod-installations-enterprise
[23] Davis, A. (2025, May 30). Russia Prepares to Add Newest Nuclear-Powered Submarine to the Northern Fleet. *The Jamestown Foundation*. https://jamestown.org/program/russia-prepares-to-add-newest-nuclear-powered-submarine-to-the-northern-fleet/
[24] Department of the Navy. (2014). *The United States Navy Arctic Roadmap for 2014 to 2030*. The Center for Climate & Security. https://climateandsecurity.org/wp-content/uploads/2021/07/US-NAVY-ARCTIC-ROADMAP_2014-2030.pdf
[25] Doshi, R., Dale-Huang, A., & Zhang, G. (2021). *Northern expedition: China's Arctic ambition and activism*. Foreign Policy at Brookings. https://www.brookings.edu/articles/northern-expedition-chinas-arctic-ambition-and-activism/
[26] *EIA Forecasts Alaska Crude Oil Production Will Grow in 2026 for the First Time Since 2017 - U.S. Energy Information Administration (EIA)*. (2025, March 19). U.S. Energy Information Administration. https://www.eia.gov/todayinenergy/detail.php?id=64784
[27] Exner-Pirot, H., Ackrén, M., Loukacheva, N., Nicol, H., Nilsson, A., & Spence, J. (2019). Form and Function: The Future of the Arctic Council. In *The Arctic Institute Center for Circumpolar Security Studies*. The Arctic Institute. https://www.thearcticinstitute.org/form-function-future-arctic-council/
[28] Fleck, A. (2025, January 24). Russia Has the World's Largest Icebreaker Fleet. *Statista Daily Data*. https://www.statista.com/chart/33823/icebreakers-and-ice-capable-patrol-ships/
[29] Gadzala Tirziu, A. (2025, April 3). China's Cultural Conquest of the Arctic. *Geopolitical Intelligence Services*. https://www.gisreportsonline.com/r/china-arctic-culture/
[30] *Gas And Oil Production in the Arctic*. (n.d.). Arctic Review. https://arctic.review/economy/oil-and-gas/
[31] Grau, L. (2023, March 1). *Russian Arctic Seaports Expand Activity Despite War in Ukraine*. TRADOC G2. https://oe.tradoc.army.mil/product/russian-arctic-seaports-expand-activity-despite-war-in-ukraine/
[32] Hadrovic, E. (2020, May 18). Geopolitical power play in Arctic shipping. *Geopolitical Intelligence Services*. https://www.gisreportsonline.com/r/arctic-trade/
[33] Hedlund, S. (2023, April 17). The Arctic in Russia's Crosshairs. *Geopolitical Intelligence Services*. https://www.gisreportsonline.com/r/the-arctic/
[34] Heiserman, K. M., & Burke, R. (2022, December 12). White Hulls in the North: The Case for Tapping Unused Federal Resources in the Arctic. *Modern War Institute* -. https://mwi.westpoint.edu/white-hulls-in-the-north-the-case-for-tapping-unused-federal-resources-in-the-arctic/
[35] Herrmann, V. (2019, November 19). WANTED: A Sustained, Engaged, and Committed American Arctic Nation. *The Arctic Institute - Center for Circumpolar Security Studies*. https://www.thearcticinstitute.org/wanted-sustained-engaged-committed-american-arctic-nation/
[36] Hosa, J., & Komin, M. (2025). The bear beneath the ice: Russia's ambitions in the Arctic. *European Council on Foreign Relations*. https://ecfr.eu/publication/the-bear-beneath-the-ice-russias-ambitions-in-the-arctic
[37] Humpert, M. (2011, September 15). The Future of the Northern Sea Route - a "Golden Waterway" or a Niche Trade Route. *The Arctic Institute Center for Circumpolar Security Studies*. https://www.thearcticinstitute.org/future-northern-sea-route-golden-waterway-niche/
[38] Humpert, M. (2025a, January 2). Russia Sets New Arctic Shipping Record, Transports 38Mt in 2024 via Northern Sea Route. *gCaptain*. https://gcaptain.com/russia-sets-new-arctic-shipping-record-transports-38mt-in-2024-via-northern-sea-route/
[39] Humpert, M. (2025b, January 2). U.S. Coast Guard Starts Construction of First New Heavy Icebreaker in 50 Years. *High North News*. https://www.highnorthnews.com/en/us-coast-guard-starts-construction-first-new-heavy-icebreaker-50-years
[40] Irving, D. (2022, December 29). What does China's Arctic presence mean to the United States. *RAND Corporation*. https://www.rand.org/pubs/articles/2022/12/what-does-chinas-arctic-presence-mean-to-the-united-states.html
[41] Isachenkov, V. (2025, March 27). *Putin Says US Push for Greenland Rooted in History, Vows to Uphold Russian Interest in the Arctic | AP News*. AP News. https://apnews.com/article/russia-putin-arctic-trump-greenland-2dbd00625c2c0c3bd94a2c96c7015b69
[42] Jardine, S. (2022, October 21). *Russia Enlarges Its Arctic Claims Right up to the Borders of Greenland and Canada*. London Politica. https://londonpolitica.com/geopolitics-on-the-periphery-1/russia-enlarges-its-arctic-claims-right-up-to-the-borders-of-greenland-and-canada
[43] Klimenko, E. (2020, April 6). Russia's New Arctic Policy Document Signals Continuity Rather Than Change. *Stockholm International Peace Research Institute*. https://www.sipri.org/commentary/essay/2020/russias-new-arctic-policy-document-signals-continuity-rather-change
[44] Kluge, J., & Paul, M. (2020). Russia's Arctic Strategy Through 2035: Grand Plans and Pragmatic Constraints. *Stiftung Wissenschaft Und Politik*. https://doi.org/10.18449/2020C57
[45] Kuersten, A. (2016). *The Arctic Five Versus the Arctic Council*. Arctic Yearbook. https://arcticyearbook.com/arctic-yearbook/2016/2016-briefing-notes/205-the-arctic-five-versus-the-arctic-council

[46] Laje, D. (2024, July 22). *2024 Arctic Strategy: Military Capabilities, Alliances and Geopolitical Challenges*. AFCEA International. https://www.afcea.org/signal-media/2024-arctic-strategy-military-capabilities-alliances-and-geopolitical-challenges

[47] Lamazhapov, E., Stensdal, I., & Heggelund, G. (2024, November 13). China's Polar Silk Road: Long Game or Failed Strategy? *The Arctic Institute Center for Circumpolar Security Studies*. https://www.thearcticinstitute.org/china-polar-silk-road-long-game-failed-strategy/

[48] Lawrence, C. A. (2018). Arctic Territories. *The Dupuy Institute*. https://dupuyinstitute.org/2018/01/09/arctic-territories/

[49] Laws, J. (2025, February 3). Map Shows Locations of NATO and Russian Military Bases in the Arctic. *Newsweek*. https://www.newsweek.com/nato-russias-military-bases-arctic-map-2022961

[50] Long, Z. (2018, November 29). Arctic Governance. *Council on Foreign Relations*. https://www.cfr.org/report/arctic-governance

[51] Lu, M. (2025, June 15). *Visualized: The Economic Value of the Arctic*. Visual Capitalist. https://www.visualcapitalist.com/visualized-the-economic-value-of-the-arctic/

[52] *Marine Governance*. (n.d.). https://arcticportal.org/shipping-portlet/governance

[53] McCloud, G. (2024, March 8). *How Many Military Bases Are There in Alaska?* TheGunZone. https://thegunzone.com/how-many-military-bases-are-there-in-alaska/

[54] Meade, J. R. (2020). Russia's new Arctic policy 2035: Implications for great power tension over the Northern Sea Route. *INSIGHT: Sharing Academic Research*.

[55] Mongilio, H. (2024, October 29). *Russia's Arctic Rise*. U.S. Naval Institute News. https://news.usni.org/2024/10/29/russias-arctic-rise

[56] Muntean, W., III. (2025, April 29). Forecasts and Recommendations About the Second Trump Administration Policies Toward the Two Polar Regions. *Commentary*. https://www.csis.org/analysis/forecasts-and-recommendations-about-second-trump-administration-policies-toward-two-polar

[57] National Petroleum Council. (2015). *Arctic Potential: Realizing the Promise of U.S. Arctic Oil and Gas Resources*. https://www.npc.org/AR-2015-3-27_NPC-Council_Meeting-FINAL.pdf

[58] Newcomb, T. (2024, November 1). Bid Prices Put Nome, Alaska Arctic Port Project on Hold. *Engineering News Record Northwest*. https://www.enr.com/articles/59648-bid-prices-put-nome-alaska-arctic-port-project-on-hold

[59] Nilsen, T. (2019, September 22). Northern Fleet Puts S-400 Air Defence System on Combat Duty at Novaya Zemlya. *The Barents Observer*. https://www.thebarentsobserver.com/security/northern-fleet-puts-s400-air-defence-system-on-combat-duty-at-novaya-zemlya/156806

[60] Nong, H. (2025, June 19). *Russia's Arctic Bet: Can Asia Deliver on NSR Ambitions?* The Diplomat. https://thediplomat.com/2025/06/russias-arctic-bet-can-asia-deliver-on-nsr-ambitions/

[61] Office of the Under Secretary of Defense for Policy. (2019). Department of Defense Arctic Strategy. In *United States Department of Defense* [Report]. https://media.defense.gov/2019/jun/06/2002141657/-1/-1/1/2019-dod-arctic-strategy.pdf

[62] Paul, M. (2025). China's Arctic Turn. *Stiftung Wissenschaft Und Politik*. https://doi.org/10.18449/2025C08

[63] Perez, Z. (2022, August 19). US Coast Guard Calls for Larger Icebreaker Fleet to Compete in the Arctic. *Defense News*. https://www.defensenews.com/naval/2022/07/14/us-coast-guard-calls-for-larger-icebreaker-fleet-to-compete-in-the-arctic/

[64] Pezard, S., & Tingstad, A. (2025, February 6). *Is The Polar Silk Road a Highway or Is It at an Impasse? China's Arctic Policy Seven Years On*. RAND. https://www.rand.org/pubs/commentary/2025/02/is-the-polar-silk-road-a-highway-or-is-it-at-an-impasse.html

[65] *Promise of U.S. Arctic Oil & Natural Gas Resources*. (n.d.). https://www.api.org/oil-and-natural-gas/wells-to-consumer/exploration-and-production/alaska/promise-of-us-arctic-oil-gas-resources

[66] Puranen, M., & Kopra, S. (2023). China's Arctic strategy – A comprehensive approach in times of great power rivalry. *Scandinavian Journal of Military Studies, 6*(1), 239–253. https://doi.org/10.31374/sjms.196

[67] Regehr, E. (2014). Arctic maritime domain awareness: A domestic and strategic imperative. *Simons Papers in Security and Development, 36*. https://summit.sfu.ca/item/13543

[68] Reilly, J. (2024, June 27). *Arctic Shipping: The Once Unattainable Becomes Increasingly Normalized*. Spire: Global Data and Analytics. https://spire.com/blog/maritime/arctic-shipping-the-once-unattainable-becomes-increasingly-normalized/

[69] Russia Maritime Studies Institute & United States Naval War College. (2023). Strategy for Development of the Arctic Zone of the Russian Federation and Provision of National Security for the Period up to 2035 (Revised). In A. Davis & E. Holland (Trans.), *United States Naval War College* [Report]. https://usnwc.edu/_images/portals/0/NWCDepartments/Russia-Maritime-Studies-Institute/16MAR23_20201026_ENG_RUS_Arctic-Strategy2035_FINAL_16MAR238f95.pdf

[70] Savitz, S., & Tingstad, A. (2023, December 21). *The U.S. Military Needs to Build Arctic Capabilities and Capacity*. RAND. https://www.rand.org/pubs/commentary/2023/12/the-us-military-needs-to-build-arctic-capabilities.html

[71] Semanco, A. (2024, December 11). *Drilling in the Arctic Refuge: A Financial Disaster and a Threat to Our Future*. Alaska Wilderness League. https://alaskawild.org/blog/drilling-in-the-arctic-refuge-a-financial-disaster-and-a-threat-to-our-future/

[72] SpecialEurasia OSINT Team. (2025, March 29). *Russia's Arctic Forum 2025 Underlined Moscow's Strategy in the Region*. SpecialEurasia. https://www.specialeurasia.com/2025/03/29/russias-arctic-forum-2025/

[73] Stephen, K. (2011, August 18). U.S. Waking up to Arctic Resources? *The Arctic Institute - Center for Circumpolar Security Studies*. https://www.thearcticinstitute.org/us-waking-arctic-resources/

[74] Thakur, A. (2021). *The effect of government military spending on foreign direct investment* [Master's thesis, University of Texas]. Texas ScholarWorks. http://dx.doi.org/10.26153/tsw/38067

[75] *The Arctic, as Defined by Summer Temperature*. (2010). GRID-Arendal. https://www.grida.no/resources/7743

[76] The Department of the Air Force. (2020). Arctic Strategy. In *United States Air Force*. https://www.af.mil/Portals/1/documents/2020SAF/July/ArcticStrategy.pdf

[77] The White House. (2025a). Implementation Report for the 2022 National Strategy for the Arctic Region. In *2022 National Strategy for the Arctic Region* [Report]. https://bidenwhitehouse.archives.gov/wp-content/uploads/2025/01/NSAR-2022-Implementation-Report-.pdf

[78] The White House. (2025b, January 20). *Unleashing Alaska's Extraordinary Resource Potential*. https://www.whitehouse.gov/presidential-actions/2025/01/unleashing-alaskas-extraordinary-resource-potential/

[79] Tingstad, A., Savitz, S., Sacks, B. J., Shokh, Y., Chindea, I. A., Stephenson, S. R., Wilson, M. T., *et al.* (2023). *Report on the Arctic capabilities of the U.S. Armed Forces*. RAND Corporation. https://www.rand.org/pubs/research_reports/RRA1513-1.html
[80] Toprani, A. (2021). Hydrocarbons and hegemony. *Joint Forces Quarterly, 103*, 29–36. https://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-103/jfq-103.pdf
[81] Velasco, J. (2013). *Regional Organizations and the Durability of Peace* [University of Central Florida]. https://stars.library.ucf.edu/cgi/viewcontent.cgi?article=3701&context=etd
[82] W. Bush, G. (2009, January 9). *National Security Presidential Directive and Homeland Security Presidential Directive*. Federation of American Scientists Intelligence Research Program. https://irp.fas.org/offdocs/nspd/nspd-66.htm
[83] Wallace, I. (2020, September 25). *Territorial Claims in the Arctic Circle: An Explainer — the Observer*. The Observer. https://theobserver-qiaa.org/territorial-claims-in-the-arctic-circle-an-explainer
[84] Weber, Y. (2022). Russia's New Maritime Doctrine. *Marine Corps University*, *13*(4). https://www.usmcu.edu/Outreach/Marine-Corps-University-Press/MES-Publications/MES-Insights/Russias-New-Maritime-Doctrine/
[85] Xiao, A., & Ding, Y. (2023, June 6). *Evolution of Chinas Belt and Road Initiative: Polar Silk Road*. Invesco. https://www.invesco.com/apac/en/institutional/insights/fixed-income/evolution-chinas-belt-and-road-initiative.html
[86] Yang, C. (2025, June 13). How China Is Driving a Surge in Shipping Traffic Along Arctic Sea Routes. *South China Morning Post*. https://www.scmp.com/economy/china-economy/article/3314324/how-china-driving-surge-shipping-traffic-along-arctic-sea-routes
[87] Zreik, M., & Derendiaeva, O. (2025). The Polar Silk Road: China's strategic engagement and its implications for Arctic governance. *Polar Geography, 48*(1), 1–21. https://doi.org/10.1080/1088937X.2025.2477000