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TED STEVENS CENTER
FOR ARCTIC SECURITY STUDIES

Journal of Arctic Security

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Dear JAS Readers,

As the Director of the Department of Defense's newest regional center with a focus on the Arctic region, it's my privilege and pleasure to introduce Volume 2 of the Journal of Arctic Studies (JAS) to the growing Arctic security community including policymakers, scholars, and practitioners.

JAS Volume 2 marks another milestone in the development of the Ted Steven Center for Arctic Security Studies as we contribute through research, education, and engagement to the growing body of knowledge on behalf of the Department of Defense. As you read on, you'll recognize that Volume 2 is dedicated to Defense with a "Capital D" verus other aspects of security and security cooperation. As global competition grows and deterrence is measured in demonstrated capabilities across the NATO alliance, this volume sets out to consider hard power and strategic competition in the Arctic. Reflecting on the second edition of our journal as both a milestone for the TSC and a resource to the DOD is a source of pride as well as a harbinger of more to come.

Since the release of JAS Volume 1 in August of 2023, the Ted Stevens Center for Arctic Security Studies has grown significantly in personnel and capability introducing new classes and deepening relationships with partners at home and overseas. Our School of **Arctic and Climate Security Studies** continued to professionalize Arctic service within the US DOD and increasingly with international partners furthering our education mission. The Strategic Engagement Division has conducted countless events both small and large such as locally hosted "coffee talks", podcasts, partnered events like the North American Arctic Security Workshop (NAASW) series, and flagship events such as the Anchorage Security and Defense Conference. Within the Research and Analysis Division, the growing staff has accomplished research workshops, special reports, and research support to events and curriculum. These security cooperation activites have all taken place while we established our culture, documented administrative procedures, and developed repeatable processes for the future. I could fill pages with accomplishments of the small but mighty staff of the Ted Stevens Center as we execute our campaign of "building while doing". Suffice it to say that today we are not the same organization that initiated an academic journal in 2023.

While building the Ted Stevens Center, we reflected on how best to develop JAS. What kind of journal serves our security cooperation mission? What does the journal mean to the Arctic community of interest? How can we develop an impactful academic journal from scratch? Frankly, Arctic security is a rather new topic of study, and as such, the opportunity for JAS to make impact is tremendous. As the only DOD journal dedicated to the Arctic region, we intend for the journal to serve as a repository of original research on a broad array of topics that are valuable to Arctic security practitioners. To achieve this, we are actively seeking more international contributions through our growing international contacts. We have identified two themes for 2025 – "Arctic governance" and "STEM in the Arctic" – to broaden our scope. We are continuously promoting publication with our students, fellows, staff, faculty, and academic network. At the same time, we have an eye on quality. Double-blind peer review is still our goal. Additionally, we continue to be selective about what we will publish, preferring graduate level original research over desk studies. All of these steps are within reach and reflect the potential for JAS to become a well-respected academic journal that serves the DOD, interagency, and international partners with useful analysis.

As with the Ted Stevens Center itself, the Volume 2 of the Journal of Arctic Security represents lofty aspirations, valuable progress,and continuous improvement. Likewise, the road from mere potential to tangible results is the product not only of the dedicated Ted Stevens Center staff, but also of our collaborators. To our contributing authors, thank you for your patience and perseverance throughout the editorial process. To our readers, thank you for your interest and your dedication to Arctic security. I sincerely hope you all find these papers on hard power topics valuable to your own study of the Arctic, and I hope it encourages you to think critically, add to your Arctic experience, and engage with the Arctic security community.

Very Respectfully,

Randy A. Kee, Maj Gen, USAF (Ret)

Director

Dear JAS Readers,

With much anticipation, we're pleased to present the second volume of the Journal of Arctic Studies. This edition represents current perspectives and analysis of the Arctic as a competitive space in the context of military security and great power competition. You'll notice distinct differences between the first edition of JAS and this one. Describing our journey since the first edition and explicating this edition will not only frame what you are about to read, but also shed some light on where the journal is heading in the future.

In the months since Volume 1 was released with the help of the Air University Press, we agonized over, deliberated about, and reconsidered alternative approaches to Volume 2. Filling the first edition with senior leader perspectives and feature articles was not difficult. We were thrilled with the contributions and the results. On the other hand, filling two or more volumes a year perpetually is daunting, and we are subject to the contributions that are submitted. As Volume 2 came together, we were very pleased with the scholarship and perseverance of our or contributors who gave us a swath of defense related topics to consider. As we foresee an era of great power competition, we chose to organize Volume 2 around hard power and strategic completion.

Transitioning from an inaugural edition to a recurring format also raised questions about the kinds of articles we would continue to publish. We produced a Writer's Guide with submission guidelines, citation standards, and style tips available online. To maintain our original goal of publishing an academic journal rather than a magazine, we gave preference to articles that represent original, data-driven research rather than Op-Ed pieces. Recognizing that some of the material that we received was not original research, but still held value to our readers, we have added a new category of material – Event Reports – that we may include in future editions when it fits the theme of the issue. New categories distinguish material that is worthwhile but not intended or fully developed as original research. As we develop, we will update the guidance to authors on our web page and work with our contributors to publish the best available material.

These decisions on the content and composition of Volume 2, presage a positive trend for the journal. In Volume 3 we plan to examine Arctic security more broadly and through different lenses such as human security and climate security. Volume 3 recognizes that a balance of power is only one of many factors determining stability. For 2025, calls for submission have been posted for Volume 4 on "Arctic Governance" and Volume 5 "STEM in the Arctic". Along with senior leader perspectives, event reports, and updated research in response to previous material, the articles offered on these themes will help us circumscribe the many facets of Arctic security as we see it.

We hope you enjoy this edition of JAS and what's in store for the future. Interest continues to grow in the Arctic as a rapidly changing and competitive space making it ripe for a journal dedicated to Arctic and climate security. JAS is dedicated to presenting unbiased data-driven research, building the Arctic security body of knowledge, and providing innovative research and insightful analysis for the Arctic security community of interest.

~Eds.

Upcoming DOD Arctic Strategy Will Engage NATO Allies

By
Iris A. Ferguson
Former Deputy Assistant Secretary of Defense for Arctic and Global Resilience

Iris A. Ferguson served as the Deputy Assistant Secretary of Defense for Arctic and Global Resilience. In this role, she served as the principal advisor to the Secretary of Defense and senior leadership for protecting US and Allied interests in the Arctic region; managing oceans policy and the freedom of navigation program; addressing the strategic risks of climate change; and ensuring the Department maintains competitive advantage through the energy transition.

In March 2024, troops from 13 NATO Allies gathered in Europe for one of this year's largest exercises, to test the Alliance's new regional plans and demonstrate NATO's deterrent power. But this exercise was not centered on the Alliance's border with Ukraine or in the Suwalki Gap chokepoint between Poland and the Baltic states—this was Exercise NORDIC RESPONSE, hosted by Norway, Sweden, and Finland with activities taking place across the European Arctic.

The combined joint training, one part of the larger NATO exercise Steadfast Defender, focused on defense of the Nordic region and showcased the interoperability and expertise of over 20,000 personnel and hundreds of platforms in the austere Arctic environment. The magnitude of the exercise is a demonstration of how the Alliance's enlargement to include Finland and Sweden, and changing security dynamics in the Arctic, are placing enhanced emphasis on the region's importance for the Alliance.

The Arctic is warming some three-times faster than the rest of the world, driving increased access and attention, including from the United States' competitors. These shifts risk destabilizing what has historically been a region of relatively low tension. In response, the US Department of Defense (DOD) will soon release a new Arctic Strategy to guide the Department's approach to the region. With global commitments and finite resources, a central pillar of the strategy is working with and through partners, especially our NATO Allies, to ensure the Arctic remains stable and secure.

With every Arctic nation but Russia now in NATO, the region is uniquely suited for advanced levels of cooperation. Finland and Sweden's accession to NATO has only strengthened this advantage and expanded the range of cooperation possible. The DOD Arctic Strategy seeks to capitalize on this strength and prioritizes three key areas of cooperation with our Allies in the region: presence, know-how, and capabilities.

First and foremost, our Allies are present in the region day in and day out. That presence is critical to maintaining defense and deterrence—from Alaska to Finland—and maintaining it entails significant, often costly, infrastructure. This infrastructure can aid US power projection in and to the region. Over the past year, the United Statesconcluded Defense Cooperation Agreements (DCA) with Denmark, Finland, and Sweden, and an amendment to our Supplementary DCA with Norway. These agreements strengthen our ability to operate alongside these Allies at a range of installations in their territories, adding options and flexibility when working with our Allies to uphold security in the Arctic.

Second, in the Arctic, the strategic environment becomes tactical quickly as it's a matter of survival, and our Allies recognize the extreme levels of know-how required to operate there. Local knowledge is not just nice to have, it's a prerequisite for mission success. Our Arctic Allies provide regular and robust information sharing about the operating environment, which not only helps us coordinate our efforts and detect threats, but also avoid miscalculation.

Nowhere is this more apparent than in the United States' unique relationship with Canada through NORAD, which monitors threats from and through the Arctic by providing aerospace warning, aerospace control, and maritime warning for North America. With wildly different temperatures, levels of humidity, and infrastructure across North American and European Arctic, training and exercising alongside our Arctic Allies becomes all the more important for learning the intricacies of operating in each other's environments—from how to navigate the terrain to what kind of socks to wear.

Finally, we will continue to partner with our Allies to develop and field the capabilities we need to operate in the region. Thankfully, our Allies are already highly capable and interoperable. The United States, Norway, Denmark, Finland and Canada all currently or are in the process of fielding the F-35. Later this month, Norway will launch a rocket into orbit, hosting a US payload to bring Arctic communications to many of our forces in the region.

These are just a few examples of the tremendous capability and interoperability that already exists between the Arctic Allies. There are far more opportunities on the horizon, across the land, sea, air, and space domains as NATO looks to refine its abilities to operate in the region.

The new DOD Arctic Strategy leans into this strength and ensures we leverage our cooperation to its full potential so that the Arctic region remains stable and secure.

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The Polar Tiger:

Climate Change, India, and US Arctic Security Policy in a Multipolar World

By
Zerin Osho & Eoin Jackson

Ms. Zerin Osho is the Director of the India Program at the Institute for Governance and Sustainable Development in Washington DC. In this current role, she focuses on the fast mitigation of short-lived climate pollutants such as black carbon, and methane. As a result of her research focus, Zerin has been closely involved in climate teleconnections between a melting Arctic and its impacts on the Indian summer monsoon. Zerin is putting together a landmark report on the challenges and opportunities, rights and obligations, and India's contributions to the Arctic.

Mr. Eoin Jackson is a PHD candidate at the London School of Economics and a former Legal Fellow at IGSD. He is the Irish Rapporteur for the Sabin Center for Climate Change Law and a co–Director of Law Students for Climate Accountability UK. His work and research have focused on climate litigation and Arctic law, policy, and science. Prior to IGSD, Eoin received an LLM from Harvard Law School, where he focused on international climate law and policy.

ABSTRACT

This article examines India's evolving role in Arctic policy and climate security, emphasizing the imperative for science-oriented cooperation between the United States and India in light of growing tensions and multipolar dynamics. The research explores India's increasing influence in the Arctic, analyzing its Observer status on the Arctic Council and the implications for US policy.

Addressing India's multifaceted interests in the Arctic, encompassing economic, political, and climate considerations, the article suggests leveraging these interests for collaborative efforts with the US to uphold a peaceful, stable, and cooperative Arctic regime. Security implications are scrutinized, focusing on the potential strategic alignment between India, Russia, and China, with emphasis on risks to US interests. The article advocates for constructive engagement by US policymakers with India to avoid issues caused by such alignment and highlights the absence of India in key US policy documents on the Arctic, even though India is featured in other key US security strategy documents.

The article underscores the vital connection between protecting the Arctic and global climate stability, framing the Arctic's dual role as a tipping point and feedback mechanism. It further explores the scientifically established link between Arctic sea ice loss and the Indian monsoons. The article outlines the implications of these teleconnections for the Indian economy, supporting the argument that Arctic protection is crucial for both the US and India.

Proposing science-led US-Indo cooperation in the Arctic, the article advocates for collaboration on understanding climate teleconnections, framing it as an opportunity to align mutual climate security objectives. This approach aims to strengthen bilateral relations and promote an Arctic governance model prioritizing climate protection. India's traditional non-alignment policy makes such cooperation feasible, offering the US an opportunity to advance its interests in a stable and peaceful Arctic. Overall, the article positions India's role as a strategic opportunity for the US to engage in Arctic governance with a science-based, climate-centric focus, ensuring long-term security considerations for both nations.

INTRODUCTION

India is emerging as a significant player in a multipolar world order, poised to become the third largest economy by 2030 (S & P Global, 2023). Unlike China and Russia, India has the flexibility to collaborate with states aligning with its interests, including in the Arctic. Additionally, India has gained prominence in climate negotiations and the Global South, as showcased by its successful Presidency of the G20 summit in 2023 (Economic Times, 2023).[1] This comes at a time when the US would benefit from more partners to support its own interests in the Arctic.

The article explores India's growing role in Arctic policy and governance and highlights opportunities for the US to pursue science-led cooperation with India. It notes how the latest developments in climate science have heightened Indian interests in the Arctic. This includes the teleconnections between the Arctic and the Indian Summer Monsoon (ISM), where Arctic sea ice loss affects the stability of the ISM, in turn threatens India's economy and food security. At the same time, the US has an urgent need to preserve the Arctic sea ice to prevent its own at-risk communities in Alaska from experiencing widespread devastation from climate change, and to prevent by self-amplifying climate feedbacks from pushing the Arctic past climate tipping points.

The article underscores the co-benefits of Arctic climate protection for both India and the U.S., providing a foundation for future cooperation. It argues that India could assist the US in countering further Arctic securitization by Russia and China. By jointly focusing on climate protection and leveraging common interests, the US and India can navigate evolving politics in the Arctic, ensuring long-term Arctic protection and security interests.

THE ARCTIC AND CLIMATE CHANGE

The Arctic is critical for climate stabilization, yet it is warming at four times the global average and may also be the weakest link in the chain of climate protection (Zaelke, 2023).[2] It serves as a dual indicator for long-term climate change that contains potential tipping points and self-amplifying feedback mechanisms (Zaelke, 2023).[3] Tipping points are thresholds in systems that trigger abrupt, often irreversible changes when crossed.[4] Understanding these sensitivities in the physical climate system, ecosystems, and human systems is vital for assessing risks associated with varying degrees of global warming.[5]

In the context of the Arctic, a feedback mechanism is evident as the diminishing extent of reflective sea ice increases the absorption of heat by the darker ocean (Mallett, et al., 2021; Zaelke, et al., 2023).[6] This triggers a selfamplifying feedback loop, causing more ice to melt (Zaelke, et al., 2023).[7] In this way, loss of sea ice—while not in and of itself a tipping point—can add to global heating and exert pressure on other parts of the Arctic that exhibitglobal or regional tipping thresholds, such as ice sheets and permafrost (International Cryosphere Climate Initiative, 2023).[8] Thawing permafrost can release substantial amounts of major greenhouse gas emissions from previously-frozen soil carbon. These emissions could rival the current output of the world's largest polluters[9] and contribute an additional 0.05–0.7 °C to end-of-century warming, emphasizing the critical role of Arctic preservation in broader climate protection (Armstrong McKay,2023; Permafrost Pathways, 2022; Schuur, et al., 2015).

TELECONNECTIONS IN THE ARCTIC AND INDIA

The effects of climate change on the Arctic have far reaching consequences for the Global South, particularly impacting India. The direct influence stems from the loss of Arctic sea ice and is mediated by mechanisms called 'teleconnections.' Recent research highlights a potential link between the loss of Arctic sea ice and the destabilization of the Indian Summer Monsoons (ISM) (Zaelke, et al., 2023).10 Observation-based studies indicate a correlation between Arctic sea ice loss and extreme rainfall events during the ISM (Chatterjee, et al., 2021).

1 See also (Crawford & Westfall, 2023; Cave, et al., 2023; Haqqani & Pande, 2023)

2 See also (Zaelke, et al., 2023).

3 See also (Molina, et al., 2018)

4 See also (Hoegh-Guldberg, et al., 2018; Abram, et al., 2019; Armstrong McKay, 2023) Note that not all scientists consider Arctic sea ice an irreversible tipping point, as it is still possible in their analysis for the sea ice to return if the Arctic cools.

5 See also (Hoegh-Guldberg, et al., 2018; Abram, et al., 2019)

6 See also (National Snow & Ice Data Center , 2022)

7See also (International Cryosphere Climate Initiative, 2023; Armstrong McKay, 2023)

8 "**The effects of amplifying feedbacks will be widespread, ranging from accelerated loss of ice and associated sealevel rise from Greenland; to losses of ice-dependent species; to greater permafrost thaw**, leading to even larger carbon emissions and infrastructure damage" (International Cryosphere Climate Initiative, 2023). [emphasis added].

9 See also (EPA, 2023; Wang, et al., 2023; Turetsky, et al., 2020)

10 See also (Chatterjee, et al., 2021; Coumou, et al., 2018)

Moreover, the melting of Arctic sea ice leads to increased solar radiation absorption in the Arctic Ocean raising water temperatures. During winter, the warmer water is released into the atmosphere, altering geopotential heights and circulation patterns. While tropical troposphere warming strengthens mid-latitude westerlies, Arctic amplification has the opposite effect, weakening gradients and westerlies. Weakening westerlies cause mid-latitude troughs to extend southward, contributing to extreme monsoon rains in the Himalayan foothills (Coumou, et al., 2018).

For India, these teleconnections translate to increased monsoon instability. The ISM, supplying over 70% of India's annual precipitation, directly impacts the agriculture sector—a pivotal part of the economy employing over half of the population and contributing to a fifth to the GDP, as well as being crucial for food security (Zaelke, et al., 2023).11 Protecting Arctic sea ice lessens the impact of these teleconnections and preserving monsoon stability and reducing risks to India's long-term interests, supporting its ambition to become the world's third-largest economy by 2030.

While a detailed exploration of the implications of the scientific link between the Arctic and the ISM will be covered in part II, it is crucial to highlight now that this scientific understanding underscores the importance of cooperation between the US and India. Such collaboration aligns with the long-term interests of both states in mitigating the adverse effects of climate change on critical sectors like agriculture and economic development.

THE IMPORTANCE OF ARCTIC CLIMATE PROTECTION FOR US INTERESTS

Safeguarding against the impacts of climate change in the Arctic is critical to US climate and security policy. Existing US Arctic policy underscores the potential consequences of Arctic sea ice loss, including rising global sea levels, coastal erosion, more frequent and severe wildfires, and damaged ecosystems (White House, 2022).These impacts pose significant threats to US interests with the potential for widespread social and economic disruption, affecting both the US and its key allies.

The US directly experiences the physical repercussions of Arctic changes, notably in Alaskan communities facing disruptions to subsistence fishing, infrastructure damage from coastal erosion, and the displacement of indigenous communities due to flooding risks.12 Moreover, the release of greenhouse gas emissions from permafrost jeopardizes the global effort to stay within the 1.5 °C temperature limit, necessitating a substantial reduction in US emissions beyond current commitments outlined in the National Determined Contribution (NDC) (UNFCCC, 2021; Zaelke, et al., 2023). Protecting the Arctic becomes imperative to mitigate these impacts and maintain a chance of staying within permissible temperature guardrails, aligning with the long-term interests of the U.S., considering the catastrophic consequences of unchecked climate change (Zaelke, et al., 2023).

From a security perspective, the melting of Arctic sea ice opens up shipping lanes in the Northern Sea Route (NSR), providing Russia with strategic advantages. Russia's control of these routes enhances its influence on the global stage posing a threat to US interests in Arctic bases and heightening risks to Alaska (Cusick, 2024; Strawa, et al., 2020). Equally, increased militarization facilitated by the loss of sea ice may escalate tensions between Russia and NATO, particularly in the context of the tensions caused by Russia's invasion of Ukraine (Groesmeyer, et al., 2019).13 As the Arctic is further affected by climate change, Russia can move more forces into the zone, which in turn puts pressure on NATO to ramp up its own security presence (Gardener, 2023).14 Maintaining Arctic sea ice integrity is crucial to preventing Russia's further exploitation of new routes and bases, aligning with the long-term interests of the U.S. (Gardener, 2023)

While part III will delve into a detailed analysis of Arctic risks and policies, the immediate impacts of climate change on US interests emphasize the need for the US to explore new and ambitious pathways for bilateral cooperation on Arctic climate protection. This proactive approach is essential when formulating a robust Arctic policy that considers the broader implications of climate change on security and global stability.

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11 See also (Ministry of Agriculture & Farmers Welfare, 2021)
12 See also (Strawa, et al., 2020)
13 See also (Congressional Research Service, 2024)
14 See also (Groesmeyer, et al., 2019; Congressional Research Service, 2024)

INDIA'S ARCTIC ASPIRATIONS

India's engagement with the Arctic encompasses climate, research, political, security, as highlighted in its Arctic policy released in 2022. The policy recognizes the disruptive impact of melting Arctic ice on national development, island territories, and the welfare of its population, while also acknowledging opportunities in energy, mining, food security, and shipping. Concurrently, it acknowledges the transformative potential arising from the changing Arctic landscape, opening avenues for energy exploration, mining, food security, and shipping. India's strategic approach aims to ensure the sustainable exploitation of Arctic resources, aligning with international best practices (Government of India, 2022).

While India values Arctic preservation, it also considers short-term interests, such as trade route expansion due to ice melt. Notably, India refrains from explicitly aligning with specific nations in the pursuit of its Arctic objectives. The policy emphasizes collaborating with "all stakeholders" to pursue its interests in the Arctic (Government of India, 2022). This strategic flexibility, characteristic of India's historical approach to multialignment, signifies a willingness to align with the bloc most amenable to its interests, including the potential for alignment with the US on mutual interests (Lin, 2023).15

INDIA'S RESEARCH AND SCIENTIFIC INTEREST IN THE ARCTIC

India's enduring interest in Arctic affairs, despite geographical remoteness, traces back to its signing of the Svalbard Treaty in 1920. Over the years, India has been deeply involved in Arctic science and research studies, marking a significant milestone with the establishment of its first research station in 2008. India has opened a multisensor moored observatory, an atmospheric laboratory, and has had researchers observing Arctic glaciers for their mass balance in order to compare them with Himalayan glaciers (Singh, 2024).

A notable advancement, in December 2023, saw India launch its first winter expedition (Government of India, 2023). It signals India's intent to further expand its scientific presence in the Arctic and demonstrates its openness to working with other States in the region.

INDIA'S POLITICAL INTEREST IN THE ARCTIC

India also holds the status of an Observer on the Arctic Council, an intergovernmental forum consisting of the U.S., Canada, Iceland, Norway, Denmark, Finland, Sweden, and Russia that acts as the primary governance body of the Arctic region. While the Council was suspended following the Russian invasion of Ukraine, limited activities have resumed under the chairmanship of Norway (Canova & Pic, 2023). As an Observer on the Council, India can exert little formal influence over Arctic affairs, partially as a result of the governance structure of the Arctic Council, which only provides traditional Arctic States including the US with permanent representation (Bisen, 2023).

Despite this limitation, India actively participates in various Arctic Council's working groups, notably the Expert Group on Black Carbon and Methane (EGBCM)(Arctic Council, n.d.). More broadly, India has expanded its engagement in multilateral Arctic and polar discussions. In 2022, it attended the Eastern Economic Forum hosted by Russia, which included a discussion on the efforts of Russia to develop the NSR in the Arctic (this will be discussed in detail in part IV) (Special Eurasia, 2022). In 2023, it attended the Polar Summit in France which sought to encourage greater investment into polar research including research in the Arctic (Summit, 2023).

With its increasing political and security interests in the Arctic, alongside its influential role in the Global South, the Indian voice becomes crucial to propel the Global South to advocate for protection of the Arctic.

INDIA'S ECONOMIC INTEREST IN PROTECTING THE ARCTIC

India has a tangible interest in safeguarding against and mitigating the further loss of sea ice as it aligns with its long-term economic interests. The ISM provides over 80% of the India's annual precipitation and has a critical indirect effect on India's economy (Katzenberger, et al., 2021; World Bank, 2021). Given that agriculture constitutes approximately 20% of India's gross domestic product and employs nearly 50% of the country's workforce, the reliance on rainfed arable land is significant, accounting for 54% of India's cultivable terrain (Dhawan, 2017). The variability in monsoon rainfall, particularly critical for crops like rice, emerges as a substantial risk to food security and the livelihoods of those engaged in agriculture (Katzenberger, et al., 2021).

Indian crop production relies heavily on the Indian Summer Monsoons (ISM), which directly affects food prices. The connection between India's economy, the ISM, and monetary policy is reinforced by the impact of food prices on the Reserve Bank of India's interest rate decisions (Anand, et al., 2014). Consequently, events in the Arctic that disrupt the ISM, poses a significant risk to India's economy.

15 See also (ISPI, 2023)

CURRENT US ARCTIC SECURITY POLICY AND INDIA

Existing US Arctic policy appears to have largely overlooked the role of India, thereby risking US climate and broader security interests in the Arctic. This includes key documents shaping US Arctic policy such as the White House's 2022 National Arctic Strategy, the subsequent 2023 Implementation Plan, and the 2019 Arctic Strategy of the Department of Defense (to be updated in 2024). While India is mentioned prominently in other US strategies, such as the White House Indo-Pacific Strategy, its inclusion in Arctic strategic documents is notably absent.

US 2022 NATIONAL ARCTIC STRATEGY

In the 2022 National Arctic Strategy, the US articulates its interest in "mitigating and building resilience to climate change and ecosystem degradation" (White House, 2022) recognising both "difficulties as well as some new possibilities" (White House, 2022). The Strategy states that "despite the challenges to Arctic cooperation resulting from Russia's aggression in Ukraine, the United States will work to sustain institutions for Arctic cooperation, including the Arctic Council, and position these institutions to manage the impacts of increasing activity in the region" (White House, 2022). As a means of achieving this, the Strategy states "we will deepen our cooperation with Arctic Allies and partners: Canada, the Kingdom of Denmark (including Greenland), Finland, Iceland, Norway, and Sweden" (White House, 2022). Notably, the focus on these nations adheres to the conventional perception of Arctic states, with only a brief reference to non-traditional Arctic States, like China, within the context of increased global presence, investments, and activities in the Arctic (White House, 2022).

The Strategy also states that the US plans to "expand private sector-led investment and pursue sustainable economic development in the Arctic (White House, 2022)," as part of a broader effort to "work with allies and partners to increase responsible Arctic investment, including in critical minerals" (White House, 2022). This economic development aspect, while potentially risky due to its impact on the fragile Arctic climate and potential strategic implications vis-à-vis Russia, draws parallels with the Indian approach to the Arctic. In both cases, diverse interests competing for attention could pose challenges to Arctic preservation if short-term development gains precedence.

Prioritizing short-term development could accelerate loss of sea ice and hasten warming, posing threats to US communities in Alaska, complicate broader climate change mitigation efforts, and heighten security risks as it becomes easier for Russia to move warships and supplies through Arctic waters (Cusick, 2024). However, the Strategy leaves open the possibility for the US to place greater emphasis on its climate protection commitments, with the opportunity to identify partners like India with shared goals and collaborate on fulfilling these objectives.

IMPLEMENTATION PLAN FOR THE 2022 NATIONAL STRATEGY FOR THE ARCTIC REGION

The Implementation Plan for the 2022 National Strategy for the Arctic Region is more promising in terms of its commitment to climate protection. However, it continues to overlook India in its considerations. The plan outlines the U.S.'s intention to reduce emissions of carbon dioxide, methane, and black carbon through various initiatives, both bilateral and multilateral, to complement global mitigation efforts. It commits to "expand scientific cooperation among Arctic partners, including through the Arctic Council during the Norwegian chairmanship" focusing on understanding the science of Arctic tipping points, including those related to greenhouse gas emissions from permafrost thaw (White House, 2022). While these initiatives could benefit India, the US seems to be limiting its consideration of Arctic partners to traditional Arctic States, without appreciating the importance of India as a partner.

DEPARTMENT OF DEFENSE ARCTIC STRATEGY

The Department of Defense also has an Arctic Strategy, the most recent version of which was published in 2019, with a new version to be released in early 2024 (Evardson, 2023). The 2019 version highlights the threat posed to US interests by Russian and Chinese activities in the Arctic. Specifically, it notes the importance of "limiting the ability of China and Russia to leverage the region as a corridor for competition that advances their strategic objectives through malign or coercive behavior" (Office of the Under Secretary of Defense for Policy, 2019). The Department of Defense acknowledges Russia's strengthened presence in the Arctic, citing the creation of new units, refurbishment of airfields and infrastructure, and establishment of military bases along its Arctic coastline. Concerns also extend to Russia's efforts in establishing air defense and coastal missile systems, early warning radars, rescue centers, and a variety of sensors (Office of the Under Secretary of Defense for Policy, 2019).

Regarding China, the Department of Defense notes its "limited" operational presence in the region, but highlights China's attempts to exert influence over Arctic governance due to its stated interest in "access to natural resources and the opportunities offered by the Arctic sea routes for Chinese shipping" (Office of the Under Secretary of Defense for Policy, 2019). However, the Department of Defense Strategy does not acknowledge the potential role of India in collaborating with the US to counterbalance Russian influence and safeguard long-term US interests. This

omission overlooks the possibility of India being courted by Russia for Arctic policy collaboration, posing risks to US interests. Including analysis of the opportunity for U.S.-Indo Arctic collaboration within US Arctic strategy documents would not only enhance India's legitimate interests in the region but also bolster cooperation on climate protection, economic development, and security.

NATO ARCTIC POLICY AND INDIA

The lack of awareness regarding climate security in both the Arctic and India extends to NATO, a critical concern for broader US policy. As NATO'S leading partner, the US holds considerable influence over the bloc's focus. The absence of India's role in NATO's documents highlights a blind spot beyond domestic policy specifically in safeguarding the Arctic. In its 2023 Climate and Security Impact Assessment, NATO recognizes that "Russia has significantly increased its military activity in the Arctic in recent years, perceiving this region as vital to its security and economic development" (NATO, 2023). It also notes that "China is strengthening its maritime capabilities in the region, including by building new icebreakers to service Arctic shipping routes. China is also investing in energy exploration in the region" (NATO, 2023). However, India is not included in this assessment, despite the recognition of NATO that "easier access to the Arctic's natural resources, including sub-sea oil and gas reserves as well as fishing areas, may lead to increased economic activity in the region and may raise questions regarding ownership of resources" (NATO, 2023).

NATO's omission of India underscores the extent to which India's influence in the Arctic has been undervalued. By concentrating solely on traditional Arctic States for cooperation and considering Russia and China as threats, the US overlooks a crucial Indian dimension in its policy analysis.

INDIA, CHINA, RUSSIA – A RISKY ALLIANCE ON THE ARCTIC IN A MULTIPOLAR WORLD

The absence of bilateral cooperation on the Arctic between the US and India is making it easier for Russia to step into the vacuum and court India to support its efforts to expand further into its Arctic territories.

INDIA AND RUSSIA

Russia and India share a longstanding relationship, often described as 'all weather friends' (Bisen, 2023).16 Russian Foreign Minister, Sergey Lavrov, has described India as one of the most important poles of the emerging multipolar world order, and Russia has used its veto five times in the UN Security Council on issues concerning India (India Today, 2022). This well-established bond has paved the way for Russia to engage with India, aiming to build consensus on Arctic matters involving Russia, India, and China. Russia seeks collaboration with these two nations to garner the economic and political support essential for its ongoing commercial and military expansion into the Arctic (Khorrami, 2022). While this aligns with India's immediate interest in accessing expanded trade routes and exerting influence in Arctic affairs, it compromises its long-term climate and economic security.

Russia's response to sanctions may call for increasing work with both India and China, but not necessarily trilaterally given India's aversion to cooperation with China. Nonetheless, bilateral cooperation between Russia and India and Russia and China poses a significant risk to US interests.

RUSSIAN DEVELOPMENT IN THE ARCTIC AND INDIA

Russia's Arctic commercialization strategy includes intensified resource exploitation and the development of trade routes along the Northern Sea Route. It prioritizes leveraging the Northern Sea Route to transport strategic energy resources globally, anticipating a surge in throughput from 31.5 million tons in 2019 to 130 million tons by 2035. The policy also includes state support for investors making capital investments in infrastructure, implementing traditional economic activities, and advancing digital infrastructure (Mehdiyeva, 2021; Russia Maritime Naval Institute [RMNI], 2020). Measures extend to the continental shelf, including defining its outer border, creating economic models, advancing oil and gas field technologies, and the production of LNG. It further includes supporting the use of natural resources like fish, forests, and marine resources, constructing tourism infrastructure, icebreaker cruise ships, improving professional education, and facilitating relocation of individuals willing to relocate from other parts of Russia to the Arctic Zone (RMNI, 2020).

Russia has entered into negotiations with India and China for both States to supply icebreakers, particularly due to equipment sourcing difficulties in light of sanctions on Russia (Maritime Executive, 2023; Sputnik News, 2023). In addition, from 2021-2022, India increased its imports of Russian oil 33-fold, and Indian companies have signed

16 See also (Parthasarathy, 2019)

agreements with Russian counterparts, including natural gas producer Novatek and the state oil company Indian Oil & Natural Gas Corporation, focusing on Arctic offshore cooperation and exploration opportunities. Novatek intends to supply gas from its future gas chemical plant in the Arctic, which is currently on hold (Brodt, 2023; Dinakar Sethuraman, 2023; Interfax, 2023; Sharma, 2023). India's material support to Russia, not only threatens to exacerbate sea ice loss and Arctic climate stability, but poses a threat to both US and Indian climate and security interests.

RUSSIAN MILITARIZATION OF THE ARCTIC AND INDIA

Russia has significantly intensified its military presence in the Arctic, which includes collaboration with India. Russian strategy focuses on military security, protection, and defense in the Arctic Zone. Measures include enhancing forces' structure, combat readiness, armament, and basing infrastructure, and utilizing dual-use technologies and facilities for defense. These actions demonstrate Russia's commitment to border defense and readiness for potential combat scenarios (RMNI, 2020).

Russia's expansion and modernization of military bases and airfields in the Arctic, driven partly by its invasion of Ukraine, has led to more Russian bases than NATOs (Gronholt-Pedersen & Fouche, 2022). Russia and China were spotted patrolling waters near Alaska in August 2023 (Williams & Novak, 2023). Russia has the largest icebreaker fleet in the world and has equipped some of these icebreakers with military capabilities (Burgess, 2023). As noted by Center for Strategic International Studies (CSIS), Russia has also tested new Arctic-based military capabilities such as hypersonic cruise missiles and nuclear-powered undersea drones (Conley, Melino, & Alterman, 2020). This has led, according to CSIS senior US military leaders, to express growing concern about the prevalence of Russian cruise missiles in the Arctic and their “avenue of approach” to the US In turn, this is leading NATO to increase its own presence in the Arctic to counter Russia’s presence (Gronholt-Pedersen & Fouche, 2022).

Russia’s militarization of the Arctic accelerates sea ice loss and permafrost thaw and increases geopolitical tensions, undermining international cooperation on Arctic protection. Despite these risks, Russia is a critical supplier of arms to India, and conducts joint military drills with China and India (Al Jazeera, 2022; Ferris & Nouwens, 2023). India and China have access to the Russian military zone in the Arctic, and without US outreach, India may find itself further drawn into the Russian military sphere, making it more challenging for the US and its allies to keep the Arctic as a demilitarized region (Stackhouse, 2023).

Russia’s desire to expand regional influence in Asia, coupled with India’s growing Arctic aspirations suggest that bilateral cooperation on the Arctic between India and Russia is plausible. While Russia may seek to enhance ties with both India and China separately, India's cautious approach to collaboration with China limits the likelihood of a trilateral partnership. Given this scenario, the importance of cooperation between the United States and India in the Arctic cannot be overstated. Additionally, India's strategic interests in the region, including climate security and economic development, aligning with the US can bolster efforts to counterbalance Russian influence while promoting sustainable practices in the Arctic. Moreover, U.S.-India collaboration can facilitate scientific research, technological innovation, and policy development aimed at safeguarding the fragile Arctic ecosystem and mitigating the impacts of climate change on a global scale.

COUNTERING RUSSIAN INFLUENCE THROUGH US OUTREACH TO INDIA

To counter the risks of Russia's engagement with India, the United States should work collaboratively with India to stabilize the Arctic's climate and security situation. Neglecting this Indo-Russia dimension could allow Russia to sway India with short-term economic incentives, contrary to US interests. This should start through cooperation in science, research, and technology to align both countries' climate goals and promote Arctic protection.

SCIENCE-LED U.S.-INDO COOPERATION TO ADVANCE US AND INDIAN LONG-TERM INTERESTS

India has great capacity for multi-alignment and its role as a voice for the Global South can benefit U.S.-India Arctic policy (CFR, 2023; Lin, 2023). While the US has not taken account of India in its Arctic policy, both countries have been working on strengthening their broader research and security relationship, and this should now be expanded to cooperation in the Arctic.

SCIENCE-LED COOPERATION BETWEEN THE US AND INDIA

The US has taken steps to strengthen its relationship with India through the Roadmap for U.S.-India Defense Industrial Cooperation, fast tracking technology cooperation and co-production in areas such as land and air combat, intelligence, surveillance among others. This initiative will provide India access to cutting-edge technologies and support its defense modernization plans (DOD, 2023). India and the US have also already worked together on studying monsoon science through the Enhancing Knowledge of the Arabian Sea Marine environment through Science

and Advanced Training (EKAMSAT) program, which examines the interactions between monsoon predictions and the Arabian Sea (Indian Ministry of Earth Sciences, 2023).

Initiating Arctic scientific collaboration to analyze teleconnections would be s a promising step to further strengthen U.S.-India cooperation. India's inaugural Arctic expedition illustrates this potential. Expanding Arctic cooperation benefits both countries: the US gains insights into the climate impacts of continued Arctic activities, while India enhances its international standing in Arctic governance through collaboration with the US This strategic alignment would bring India closer to the US on Arctic affairs, leaving China to be Russia's only major ally in the region.

CONCLUSION

The US and India share a vested interest in safeguarding the Arctic. For India, stringent regulation of commercial and military activities in the Arctic is crucial to averting exacerbated instability to its lifeline – the monsoon rains. Similarly, the US seeks to avoid exacerbating climate damage by refraining from expanding activities in the Arctic, while strategically challenging its rival, Russia, by curtailing its commercial and military influence. The geopolitical advantages of Arctic cooperation present mutual benefits for both, the US and India, provided a sciencebased approach centred on climate protection shapes their bilateral strategy on the Arctic.

India's emerging influence in the Arctic presents a unique opportunity for the US A climate-focused partnership is not just feasible, but imperative for the future of the Arctic and the shared interests of both nations. By embracing this path, the US and India can forge a powerful alliance for Arctic climate protection, leaving a lasting impact on the region and beyond.

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Japan as a Polar Great Power:

Historical Necessities for a Near-Arctic State

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ABSTRACT

While Western policy makers fixate on increasing strategic competition in the Arctic with Russia and the "Near-Arctic State" of the People's Republic of China (PRC), the role of Japan as both a geopolitical balance and a possible node in multi-polar competition in the region remains neglected. When compared to the eight members of the Arctic Council, plus the PRC, Japan has the third largest economy and deep-sea fishing industry, fourth largest population, and the third strongest naval capability. Given Japan's intense regional competition with the PRC and its standing territorial dispute with Russia in the strategically important Kuril Islands, Japan is poised by geopolitical necessity to become a "polar great power" alongside the US. This article examines the historical place of Japan in the Arctic, its current interests and influence, and its potential future role in strategic competition in the region.

INTRODUCTION

In the early hours of 03 June 1942, US Army Nurse 2LT Vada Miller (1920-2005) of Colby, Kansas awoke to the reverberations of violent explosions. Miller and her fellow nurses rushed out of their barracks to see Imperial Japanese Navy (IJN) aircraft wrecking-havoc on Dutch Harbor, Alaska. A dense barrage of air defense fire from the batteries of the 206th Coastal Artillery illuminated the early morning sky above the American Dutch Harbor Naval Operating Base and adjacent Ft. Mears. A second attack launched the following day dealt further heavy damage to the US facilities and aircraft. Miller and the rest of the Army nurses spent those long hours on the 3rd and 4th of June 1942, pulling US pilots out of wrecked aircraft and triaging the wounded all while under fire from IJN aircraft. Now principally known as a filming location for Alaskan King Crab fishermen in Discovery Channel's Deadliest Catch, the small harbor town on Amaknak in the Aleutian Islands guarded the western gates to the Bering Sea and the broader Arctic.

Following the raid, Washington decided that Dutch Harbor was too exposed and pulled most of its personnel back to Nome, Alaska – on the borders of the Arctic Circle. Miller was likewise re-assigned to Nome, which was emerging as a major conduit for US lend-lease shipments to the Soviet Union. More importantly, the repositioning was instituted to defend against an anticipated Japanese landing on mainland Alaska that would directly threaten the US homeland. For the next three years, Miller spent her free time in Nome trading Army rations with visiting Inuit groups for carved-walrus tusk decorations and gold nuggets from the Klondike, using sled dogs to commute to-and-from work during the winters, and basking in the Midnight Sun during the summers. In a turn of good fortune for this writer, Miller – my grandmother – met and later married base adjutant USAAF CPT Samuel Gladney (1918-1983).

The Japanese naval aviation raid on Dutch Harbor—as part of the Aleutian Islands Campaign —was designed to achieve two primary objectives. First, the attack by the Japanese task force consisting of the IJN's carriers Ryūjō and Jun'yō, codenamed Operation AL, sought to interdict US aviation capability that could have supported the US defense of Midway—the decisive engagement in the Central Pacific for Admiral Yamamoto's Combined Fleet. Second, the raid sought to disrupt US capability to defend the Aleutians themselves, specifically the islands of Kiska and Attu. These two islands, far west in the Aleutian chain were closer to Sapporo on Hokkaido than to Anchorage. Following Doolittle's Raid on Tokyo (18 April 1942), Tokyo decided that US air bases on Kiska and Attu would allow

US strategic bombers to range Japanese home territory in Hokkaido, the Kuril Islands and Sakhalin Island. Thus, in Tokyo, strategic necessity required that the western gates to the Bering Sea be shuttered.

The raid on Dutch Harbor precipitated the landing of Japanese troops on Kiska and Attu —the only Axis occupation of an American territory in the Second World War (Cloe, 2017). For the IJN the occupied western Aleutians would form the northern lynchpin of Japan's outer defensive perimeter in the Pacific (i.e. Attu/Kiska-Midway-Solomons). Indeed, the Japanese intervention paid-off for Tokyo, who would not deal with a major American threat from the north for the rest of the war. Indeed, the theater geometry of the Northern Pacific, that great oceanic conveyor belt that has linked East Asia with North America from the Bering Land Bridge of the late Pleistocene, to the Polynesian expansions, to the Manilla-Acapulco Galleon routes, to James Cook's expeditions, to the Pacific War, is geographically interwoven with that of the Arctic.

Thus, historic aspiring Pacific powers in Eastern Eurasia and North America have been forced by geostrategic necessity to become Polar Great Powers. For nearly a millennium of Japanese leadership, threats emanating towards Japan from the Arctic necessitated that Japan become both a "near-Arctic state" and, when necessary, an Arctic Great Power as it did in 1942. It was a requirement based on geography and the Japanese nation-state's historical particularism that influenced Japan's Arctic ambitions then and are influencing Tokyo's re-awakened attention in the region today.

UNDERSTANDING JAPAN AS AN HISTORIC ARCTIC GREAT POWER

The Land of the Rising Sun has long maintained a geopolitical understanding of the both the threats and opportunities emanating from the Arctic. The Japanese Kamakura Shogunate (1185-1333) was forced to whither the storm of that most ruthless of Arctic Eurasian powers—the Mongol Horde. Following their subjugation of northern China and Korea, the Khagan Kublai Khan (1260-1294) continued to press Mongol imperium into the corners of the eastern stretches of Eurasia. Mongol expeditions into Eastern and Central Siberia, the subjugation of the Song Dynasty in southern China, invasions of Burma and Vietnam, and—perhaps most ominously for the Kamakura Shoguns—expeditions in Sakhalin Island against the Ainu (1264-1286).

Following failed diplomatic overtures to force vassalage upon the Japanese, Kublai committed to a Mongol invasion of Kyūshū in 1274. A combined army of Mongols, Koreans, Han Chinese, and Manchurians (i.e. Jurchens) was assembled and a fleet constructed in southern Korea. Sailing in early November, the Mongol Army occupied Tsushima Island after subduing the small Japanese garrison and slaughtering most of the population. Within in a few weeks, the Mongols had similarly laid waste to Iki Island and were poised to land on Kyūshū. At Hakata Bay, the Shogunate Army was defeated and, only while preparing to make a last stand further inland, was the Mongol invasion called off after the death of one of its commanders. Upon their maritime withdrawal, the Mongol force encountered a typhoon—a kamikaze or "divine wind" (Britannica, 2016)—that inflicted substantial causalities upon the returning main body.

In the succeeding years, the Shogunate took great pains to defend against a return of the Mongol menace. Likewise, after further diplomatic efforts were rebuffed by the Shogunate, Kublai committed to finishing the affair decisively. A major, two–pronged invasion was planned for 1281 that consisted of multiple landings on Kyūshū from staging areas in southern Korea and the eastern Chinese coast. After initial engagements at Tsushima and Iki, the Korean-staged fleet re-attacked Hakata Bay, but were checked by the prepared Japanese defenses. While the two invasion fleets re-grouped to deliver the coup d' grâce to the hopelessly outnumbered Japanese defenders, the kamikaze again delivered the Japanese from the Mongol yoke. The anchored Mongol fleet off Takashima Island suffered devastation with the death toll reaching over 100,000 in many estimates. The defeat was so severe, that the Yuan Dynasty would never again attack the Japanese home islands— despite continued expeditions in the rest of non-subjugated Eastern Eurasia (such as Java in 1293).

While successive Japanese regimes would remain principally isolationist until US Commodore Matthew Perry's Expeditions (1852-1855) and the subsequent Meiji Restoration, the threat to the Japanese home islands posed by Great Powers approaching from the Arctic and Northeast Asia was not lost on the Japanese national psyche. Even before the Western Great Powers began encroaching in East Asia during the latter 19th Century, and the Meiji leadership saw the path to strength through modernization and expansion, Japanese imperial ambition first turned north. The hemiboreal Hokkaidō Hokkaidō Island— currently the second largest landmass in contemporary Japan whose northern half, like much of Siberia, falls within the taiga zone—was the first target of Japanese expansionism. During the Muromachi period (1336-1573), Hokkaidō and its native Ainu peoples were brought under the control of the Japanese daimyo or "feudal lord" clan of the Matsumae.

The Matsumae were march lords, formerly charged with protecting the northern approaches to the Japanese home islands in 1590. As the Matsumae expanded their imperium over Hokkaidō, they were the first Japanese to engage

with the Russian state as it consolidated control of the Russian Far East in the 18th century. The two converging territorial claims made Japan and Russia the first truly Arctic Great Power "competitors"—as both contested each other's claims to Sakhalin, the Kurils and the hinterlands of the Sea of Okhotsk. It was only in 1855, with the Treaty of Shimoda, that the respective Russo–Japanese claims were formerly fixed in the Kurils, while the division of Sakhalin was left to the future.

This drive towards northern expansion toward the Arctic continued to drive Japanese policy through the late Meiji Period. By the outbreak of the Russo-Japanese War in 1904, Japanese policy makers' principal geostrategic threat was that posed by a Russian advance from Sakhalin and the Kurils into Hokkaidō. Between 1894 and 1939, the policy of the Hokushin-ron —the "Northern Road" or "Northern Expansion Doctrine"—dominated strategic thought in Tokyo. The Japanese fought no less than seven major military campaigns in the Eastern and Northern stretches of Eurasia to address historical threats from its northern flank– the First Sino-Japanese War (1894-1895), the Boxer War (1900-1901), the 1st Russo-Japanese War (1904–1905), the Siberian Intervention during the Russian Civil War (1918-1922), the invasion of Manchuria (1931-1932), 2nd Sino–Japanese War (1937-1945), and the Soviet-Japanese conflicts in Mongolia and the Russian Far East (1932-1939).

It was not until 1945, with the Soviet Strategic Offensive in Manchuria, that Japanese gains along the Arctic approaches in Eastern Eurasia were decisively rolled back. By the time Japan surrendered to the Allies, the Soviets were in full control of Sakhalin and the Kurils and threatening Hokkaido. It was here, back at the frontiers of the late-Meiji period, that the territorial competition between the Soviet Union and Japan remained throughout the Cold War. Indeed, unlike the increasing worry over Chinese ambition in the East China Sea today, Tokyo's most existential threat was a Soviet attack into Hokkaido via Sakhalin and the Kurils.

This threat perception directly shaped the form and function of the nascent Japan Self-Defense Forces (JSDF) which grew under American patronage during the 1950's and 1960's. By the 1970's, angst over possible American regional drawdowns following the Vietnam War, the rapprochement with the People's Republic of China and the ending of the U.S.-Republic of China Mutual Defense Treaty (1954-1979) only heightened Tokyo's feeling of exposure to a Soviet attack from the north.

Combined with its growing economic and diplomatic clout on the world stage as part of the so-called "Japanese economic miracle", Tokyo increasingly moved to establish itself as a major power in the western approaches to the Bering Sea.

By the early 1980's, buoyed by its technological and economic prowess, Tokyo was producing top-of-the-line defense systems so it would be prepared to "fight tonight" in the critical northern approaches. Japanese companies like Nissan, Mitsubishi and Kawasaki were soon producing an array of advanced defense tech that was every bit a peer of the best systems fielded by NATO to defend the Fulda Gap from Soviet attack in Germany. By the late 1980's, the Japanese Northern Army was bristling with an array of state-of-the-art systems that could create an integrated Anti-Access/Area Denial (A2AD) zone stretching from the beaches of Hokkaido into the Arctic. Systems like the Type 79 Anti-Landing Craft / Anti-Tank Missile, the Type 99 Self-Propelled Howitzer, license-built M270 Multiple-Launch Rocket System, Type 90 Main Battle Tank, Type 88 Surface-to-Ship Missile were deployed throughout the Northern Army's area of operations. These capabilities, combined with those of the Japan Maritime Self-Defense Force (JMSDF) and Japan Air Self-Defense Force (JASDF) were a formidable force for power projection north into the Bering Sea. So capable was the JSDF in 1983, that Prime Minister Yasuhiro Nakasone (1918-2019) declared the so-called "Ron-Yasu" relationship with US President Ronald Reagan – that Japan, as an "unsinkable aircraft carrier" would secure the Western approaches to the United States from a Soviet nuclear bomber attack in the event of war (Oberdorfer, 1983; Parameswaran, 2019).

Not only was Tokyo's defense policy laser-focused on the Bering Sea approaches during the Cold War, but Japan played an active role in Arctic scientific, political and economic endeavors as well. From the 1950's onward, Tokyo remained fully engaged with Arctic scientific research. Regular research expeditions with American scientists were mounted to Danish Greenland and Japan, the first "non-Arctic state to establish an observation station" in the Arctic on Svalbard Island, Norway in 1991, and the first non-Arctic state to join the International Arctic Science Committee (IASC)/ (Hataya, 2023). It was this approach to scientific internationalism, as a means of maintaining access to the Arctic, that led Japan to establish the Arctic Environment Research Center a the new National Institute of Polar Research in Tokyo at the same time (Enomoto; Hataya, 2023).

But with the collapse of the Soviet Union in 1991, and the removal of the historic threat from the Bering Sea approaches, Japanese investment in the ability to project power into the Arctic abated – although its political and scientific engagement continued throughout the 1990's (Tonami, 2014). However, by 2010, shifting threat perceptions were once again drawing Tokyo's eyes north. In 2013, alongside China, India, Singapore and South Korea, Japan officially joined the Arctic Council (AC) as an observer state – demonstrating the re-focusing of its political muscle to securing its interests in the Arctic amid growing strategic competition (Lindgren & Lanteigne, 2023).

Today, besides its frozen conflict with a revanchist Russia in the Kurils and Sakhalin, Tokyo must contend with both a despotic North Korea to its northeast and an increasingly threatening Chinese titan to its east. Even with assurances from its treaty ally the United States, it seems that Tokyo is increasingly realigning itself as a militarily capable and economically assured third power in the North Pacific to unilaterally secure its own interests. And, from the geopolitical necessity of North Pacific power, it is already positioning itself as a "near-Arctic state", if not an outright Polar Great Power.

RE-EMERGING HISTORIC PARADIGMS – JAPAN'S ARCTIC (RE-)TURN

Today, Japan's official interest in the Arctic continues to grow as its historical threat horizons re-emerge. No doubt, Beijing's discursive campaign to tout itself as a "near-Arctic state" , combined with its declaration of a "Polar Silk Road", is being watched carefully in Tokyo (Sharma, 2021). However, despite China's increasing geopolitical efforts in the Arctic, and aside from the perennial threats of an unpredictable North Korea, it is the historical threat from the Russian bear that still haunts Japan's geopolitical perceptions of the region. There is little doubt that Russia's invasion of Ukraine in 2022, and Tokyo's backing of the latter, has undercut post-Soviet discussions on the return of the Kurils to Japan and the signing of a Russo-Japanese peace treaty to officially end World War II (Chang, 2022; Gavin, 2021; Puzanova, 2020). But as early as 2015, Japan was already hedging against the re-emergence of a direct Russian threat emanating from the northern approaches.

In Japan's Arctic Policy (2015), coming seven years before the first US National Strategy for the Arctic Region (2022) and four years before Canada's Arctic and Northern Policy Framework (2019), Tokyo clearly delineated the importance of maintaining the "Free and Open" aspect of the Arctic. The policy states that: "it is important to prevent moves to strengthen military presence in the region from leading to tension and confrontations…it is necessary to pay close attention to moves by the states concerned and also to promote cooperation with Arctic and other states" (Headquarters for Ocean Policy, 2015). While not openly calling-out Russian re-militarization in the region, it is obvious where Tokyo was pointing its not-so-subtle ambiguity.

Indeed, the requirement of retaining strategic freedom-of-action in the region, and the North Pacific more broadly, is the key feature in Japan's broader approach to the Arctic. Without this strategic access and placement, Japan's ability to achieve the other objectives of its Arctic policy will be severely curtailed, including: addressing "Global Environmental Issues", the protection of the Arctic's "Indigenous Peoples", expanding scientific internationalism with other "Arctic States", "Ensuring the Rule of Law" and freedom of navigation as laid out in the United Nations Law of the Sea (UNCLOS), the opening and accessibility of the "Arctic Sea Route", and the development of sustainable access to mineral and marine natural resources (Headquarters for Ocean Policy, 2015). Japan's road to the Arctic runs through the Kurils and, thus, being able to project power in spite of a growing Russian military presence and A2AD zone in the region will form a key element of Japan's national strategy in the coming decades (Barrash, 2022).

There is no doubt that Japan is a de facto Arctic power – or to use Beijing's sophistry, a "near-Arctic state". This is not a new phenomenon, like that of China, but rather an historical necessity based on Japan's geography. However, it is the speed over the last decade at which Japan is positioning itself to secure access to this historical and geopolitically existential region that is most notable. By most traditional measures of geopolitical power, Japan greatly outdistances all the other Arctic Council states aside from its treaty ally the United States and its principal geopolitical competitor China—though Japan can focus its geopolitical capital more on the Arctic than an inherently Eurasian land power and, when necessary, coordinate its efforts with those of the United States. When compared to rest of the Arctic Council in terms of nominal gross domestic product (GDP), Japan's GDP is more than double that of Canada, or Russia, or of all the Arctic Council's Scandinavian members combined (IMF, 2023).

Japan is further seeking greater trade integration with both the European Union (EU) and the United Kingdom (UK) – which the continued thawing of the Northern Sea Route and Northeast Passage through the Arctic will increasingly enhance (Rasmussen, 2020). In 2019, the EU-Japan Economic Partnership Agreement came into effect and total trade in goods between the two amounted to €141.4 billion in 2022 (European Commission, 2022). Likewise, in 2020, the UK signed the UK–Japan Comprehensive Economic Partnership Agreement, with annual trade reaching £27.8 billion in 2023 (HM Dept. for Business and Trade, 2024). Increased accessibility via the Northwest Passage will also further expand U.S.-Japanese trade—already standing at $307.4 billion in 2022—by bypassing the Panama Canal enroute to the Eastern seaboard (Office of the US Trade Representative, 2022). In essence, Japan is ensuring that a geopolitical balance-of-power along the opening Arctic Sea Route will be maintained—with Japan, the United States, Canada, the UK, and EU controlling the entrances and exits and the North American route, while Russian primacy over the primary Eurasian leg will tacitly be accepted (Nanae, 2021). Japan's central role in the opening of the Northern Sea Route (NSR) is driving its own emergence as a geopolitical "pole" for the Arctic (Cima & Sticklor, 2014).

As an increasing multi-polar Arctic emerges, Japan is still working to maintain a cooperative aspect towards its relations with Russia in the region. This is particularly true of Tokyo's drive for energy security and diversification, as the possibility of Chinese interdiction of energy supplies via the South China Sea during wartime or general geopolitical instability in the Middle East increase. Indeed, as a result of the Russo-Ukrainian War, recent US sanctions against the joint Russo-Japan Sakhalin-2 Liquified Natural Gas (LNG) has put Tokyo increasingly at odds with Washington (Uranaka & Takemoto, 2023). Japan will likely remain a major shareholder in Russian-owned Sakhalin-1 and in the developing Sakhalin-2 project, while Washington has, so far, been willing to acquiesce to Japan's interests on the matter (Govternments of Japan and the United States, 2023). Thus, it appears that the historical realities of a "near-Arctic state" are forcing Japan to execute a classic geopolitical hedging effort to balance its relations with both Washington and Moscow—the two principle Arctic Powers.

In terms of food security, Japan is also heavily reliant on Pacific fisheries and its large commercial fishing fleet—respectively 73.5% and 60.9% of the US and Russian fleets operating in both the Atlantic and Pacific (World Bank, 2021). Given the exhaustion of much of the Pacific fisheries through illegal, unregulated and unreported (IUU) capture by competitors like the Chinese, Arctic fisheries are emerging as a zone of Great Power competition that Tokyo can ill-afford to ignore (Evans & Østhagen, 2023; Myers, Chang, Watkins, & Fu, 2022). Indeed, for over decade, Japan worked closely with like-minded Rules-based International Order (RBIO) partners, as well as strategic competitors like China and Russia, to develop the Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean Fisheries (MOFA, 2021)—banning all commercial fishing in the region until fishery populations recover (Schcreiber, 2021).

Yet, to compete with other would-be Great Powers in the Arctic, economic interests must be backed by the deterrent value of military capability. While the Arctic Council's Scandinavian members and Canada would be hard pressed to militarily enforce their claims in the region, the JMSDF maintains one of the world's premier naval forces (Mizokami, 2021). And unlike the United States, Russia or China who must contend with multiple maritime theaters through naval power disbursement, Japan can concentrate in the Northern Pacific. In fact, aside from the navies of the United States and China, Tokyo is projected by some to have the third most capable global force projection capability by 2027 (Salerno-Garthwaite, 2022).

Aside from the commissioning of a new heavy icebreaker alongside the JS Shirase, Japan has also developed its first amphibious capability since World War II. The JGSDF's "Amphibious Rapid Deployment Brigade" (ARDB), launched in 2018 and developed in close cooperation with the US Marine Corps, is one of the "most significant post-war reforms" of the JGSDF (Ishikura, 2021; Pitt, 2018). While ostensibly a capability for securing the Southwest Islands in the East China Sea, an amphibious capability could just as easily be employed in the sub-Arctic climates of the Kurils from the JMSDF's three Ōsumi-class Landing Ship Tank (LST) while supported by Tokyo's four light aircraft carriers (termed "helicopter destroyers") operating F-35Bs (Panella, 2024). This expanding amphibious capability, combined with the rapid expansion of Japanese precision long-range strike systems underwritten by a major defense budget expansion, means that Japan will soon be positioned to militarily secure their claims on the Kurils and their access to the Arctic if required by necessity (Yamaguchi, 2022, 2023, 2024; Yeo, 2023).

For the United States, who will be increasingly hard-pressed to defend both its own and its NATO allies' interests in the Arctic against China and Russia, Japan may soon become Washington's Arctic "Highly Capable Ally" of choice for strategic competition in the region. Indeed, Japan's own latent Arctic Great Power status is already being recognized by other Arctic Council states. In 2022, Ottawa signed a defense cooperation agreement with Tokyo with specific clauses addressing cooperation on IUU in the Northern Pacific and "maintaining maritime order in the Arctic" (Global Affairs Canada, 2022).

CONCLUSION

Ultimately, Japan cannot afford to be uninvolved in the Arctic. Historically, Japan always maintained geopolitical angst emanating from its northern flank. Whether Mongols, in the 13th century, or the Czars in the 18th-19th century, or the Soviets in the 20th century, or a revanchist Russia and China today, Japanese threat horizons are dominated by northern strategic risk specifically, and the concern regarding resources of an island nation more broadly. If the Arctic is closed by a competitor—or worse a competitor increases their military posture in the region in a place like the Russian-occupied Kurils—the direct approaches to the Japanese home islands will be threatened. Furthermore, such adversarial encroachment in the Arctic is increasing perceptions of strategic isolation – particularly those sea lines of communication (SLOC) reaching back to their only treaty ally, the United States. Japan's historical threat horizons remain essentially unchanged because of the geography of the Northern Pacific. There is no doubt that, as Nicholas Spykman surmised, geography is the most important influence in geopolitics because it is the most permanent (Spykman, 1983).

Likewise, based on the increasing geopolitical alignment of Japanese regional security interests with their constitutionally–directed alliance with the United States, something that has only increased in the last decade, the Japanese will be pulled north toward the Arctic to support alliance efforts to maintain their broader concept of a "Free and Open Indo-Pacific" in cooler climes (Japanese Ministry of Foreign Affairs, 2021). As it does for all its efforts in Northeast Asia, the United States will continue to rely on forward-postured military forces in Japan for securing its Arctic interests. This US necessity, combined with Japan's own security interests in the region, will further drive U.S.-Japan coordination and cooperation for securing their shared interests against Sino-Russian inroads in the Arctic.

There is little doubt that Washington's and Tokyo's overlapping security interests will drive burden-sharing as they both seek to contain Russian and Chinese Arctic ambitions. Indeed, it already seems that this return to Hokushin-ron, alongside its US allies is already underway. US Arctic-qualified soldiers from the 11th Airborne Division based in Alaska have just concluded a major bi-lateral exercise with Japan's Northern Army—"North Wind"—in the snow-swept expanses of Hokkaidō (Robson, 2024).

Japan is returning its strategic gaze to its north—to the Arctic—and preparing for the emerging challenges that face a Polar Great Power. Indeed, it appears that the Land of the Rising Sun and the Land of the Midnight Sun are converging, as they have throughout history, once again. In a possible twist of history, who knows if for the 100th anniversary of this article's opening battle the grandson of 2LT Vada Miller may be reading about joint U.S.-Japan Arctic exercises to deter Russia being conducted out of Dutch Harbor. It would be a strange site, indeed, to see allied F-35's emblazoned with the Stars and Stripes and Rising Sun roaring off into the Bering Sea to conduct bi-lateral combat air patrols—all while the nearby onion-domed Holy Ascension Russian Orthodox Church in Unalaska looks on.

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A Chilling Effect

How Russia's War in Ukraine is Impacting its Arctic Ambitions

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"Our country has consistently prioritized the harmonious, comprehensive development of the Arctic territories"
- Russian President Vladimir Putin, November 2022 (TASS, 2022)

INTRODUCTION

Russia has long sought to achieve 'Polar Great Power' status, with its Arctic policy reflecting an ambitious approach to economic and social development – as well as strengthening its regional military posture. The Arctic has historically been a strategically, culturally, and economically important area for Russia (Baev, 2021). However, it has experienced significant demographic and social decline over the preceding decades. Russia's Foundations of the Russian Federation State Policy in the Arctic for the Period up to 2035, first released in March 2020 and amended in February 2023, sought to confront these challenges and strengthen regional development. Indeed, Russian Arctic Policy prioritizes a national commitment to the Arctic and highlights that underdevelopment in the region could weaken national security objectives. Yet the invasion of Ukraine in February 2024 has complicated matters by depleting Russia of the very resources it requires to achieve its Arctic objectives.

While much has been written on the implications of the Ukrainian war on international cooperation in the Arctic, less attention has been given to the domestic consequences of the war. In a December 2023 Arctic Zone development meeting in Arkhangelsk, Russian President Vladimir Putin reaffirmed that development of the Russian Arctic is an undeniable priority for the country. Indeed, Putin further remarked on the strategic importance of the Russian Arctic Zone – connecting Arctic development to Russia's energy potential, logistics capabilities, and national defense (TASS, 2022). This paper will assess how the Ukrainian war is affecting Russia's ability to achieve the economic and societal development initiatives that underpin its current domestic Arctic policy. Findings indicate that the diversion of resources to Ukraine has undermined the Kremlin's ambitious Arctic development goals, particularly those promoting infrastructure improvements, economic growth, societal development, and quality of life initiatives. Indeed, the Russian Arctic has suffered as critical funding and resources are shifted away from regional development to Russia's insatiable war machine. Russia's invasion of Ukraine has further deprived the region of Western technology and investment, forcing Russia to turn to private enterprises and Chinese investment to fill the gaps.

RUSSIA'S APPROACH TO THE ARCTIC

For centuries, the Russian Arctic has held a tantalizing prospect of natural resources and trade. The Arctic Zone of the Russian Federation is officially defined as "the northern end of the European and Asian parts of the Russian Federation, located along the shores of the seas in the Arctic Ocean: Barents, Kara, Laptev, East Siberian and

Chukchi. It is Russia's longest maritime boundary" (Arctic Russia, 2023). Pursuit of trade and resources can be traced to the discovery of the Kara Sea in 1032, which led to gradual exploration and expansion of the Empire

(Johannessen, et al., 2007). As early as 1525, Russian diplomat Dmitry Gerasimov suggested a northern passage to connect the Atlantic and Pacific Oceans. Peter the Great sponsored numerous expeditions to explore the frozen region – and to find a maritime transit corridor. Stalin harbored Arctic ambitions, embarking on a program to develop the region's resources (Buchanan, 2023). The Northern Sea Route was finally opened by the Soviet Union in the early 1930s, enabling access to northern communities – and strategic military bases. The oil and naturalgas discoveries in the twentieth century provided the Soviet Union with financial means for domestic growth, military expansion, and to fund its foreign policy goals (Rumer, et al., 2021). But, despite the importance of the Arctic Zone, consisting of five million square kilometers – nearly a third of the nation – stretching across nine regions along the northern edge of the European and Asian parts of the country, a true state policy for the Arctic never existed (Arctic Russia, n.d.). Though much international attention was given to Secretary General Mikhail Gorbachev's 1987 'Zone of Peace' speech in Murmansk, the region was not a domestic priority in the subsequent years (Exner-Pirot, 2016).

Russia's interest in the Arctic region became more apparent to the international community once Putin ascended to the presidency at the turn of the millennium. Oil and gas were critical to Russia's economic growth during that time, helping to build domestic stability, increase Putin's influence, and generate respect in the international community (Rumer, et al., 2021). Interest in the resource rich Russian Arctic was quickly being rekindled, particularly as climate change enabled greater access in the region and Russian oil and gas resources elsewhere were being depleted (Arctic Russia, n.d.). Putin's 2007 Munich Security Conference speech – which criticized the post-Cold War European security architecture and rejected US leadership of a unipolar international system – was soon followed by the Artika expedition that planted a titanium Russian flag at a depth of 4,261 meters (13,980 feet) under the North Pole. Putin noted 'This is fully in line with Russia's strategic interests. I am proud our country remains the leader in conquering the Arctic (CNN, 2007)."

The growing economic and strategic importance of the region led the Russian government to adopt The Fundamentals of State Policy of the Russian Federation in the Arctic in the period up to 2020 and beyond in 2009. This policy outlined the main national interests, primary goals, main objectives, and mechanisms to guide the nation's approach in the Arctic (ARCTIS, n.d.). It further recognized the region as a source of significant revenue, mainly from natural resources and maritime transport. Indeed, by 2015 Arctic resources accounted for 10 to15 percent of the country's GDP and 20 to 25 percent of national exports (des Beauvais, 2015).

In March 2020, President Putin signed Russia's updated Foundations of the Russian Federation State Policy in the Arctic for the Period up to 2035 (Klimenko, 2020). This policy, and the complimentary Strategy for Development of the Arctic Zone of the Russian Federation and Provision of National Security for the Period up to 2035, were both amended in February 2023 to reflect the geopolitical reality stemming from ramifications of the Ukrainian invasion. Indeed, the amended documents removed discussions of multilateral cooperation (particularly the Arctic Council) and instead prioritize bilateral relations to enhance Russian Arctic interests. Further, the updates advocate greater self-reliance for Arctic industrial projects (Humpert, 2023).

Notably, national interests in the region are detailed as:

a) ensuring the sovereignty and territorial integrity of the Russian Federation;
b) preserving the Arctic as a territory of peace, stability, and mutually beneficial partnership;
c) increasing the quality of life and well-being of the population of the Arctic Zone of the Russian Federation;
d) developing the Arctic Zone of the Russian Federation as a strategic resource base, and its sustainable use to accelerate the economic growth of the Russian Federation;
e) developing the Northern Sea Route as the Russian Federation's competitive national transportation passage in the world market;
f) protecting the environment in the Arctic, preserving the native lands and traditional way of life of indigenous peoples residing in the Arctic Zone of the Russian Federation

Russia distinguishes between internal and external threats to the Arctic region, stating that threats to national security are those that pertain to economic and societal development, and challenges to national security are foreign states and actors. When detailing threats (internal) to national security, the following are included:

a) population decline in the Arctic Zone of the Russian Federation;
b) insufficient development of social, information, transportation, and communication infrastructure of the land territories of the Arctic Zone of the Russian Federation, including the indigenous minorities' traditional lands;
c) the slow pace of geological exploration of prospective mineral resource fields of the Arctic Zone of the Russian Federation;
d) the lack of state support mechanisms for business entities that ensures cost and risk reduction in the implementation of economic projects in the Arctic Zone of the Russian Federation;
e) failure to meet the deadlines for development of infrastructure along the Northern Sea Route, construction of icebreaker, rescue, and auxiliary fleets;
f) the slow pace of development of ground vehicles and aviation equipment for operation in the specific environment of the Arctic, as well as development of domestic technologies necessary for the development of the Arctic;
g) inability of the environmental monitoring network located in the Arctic Zone of the Russian Federation to adequately respond to environmental challenges (Kremlin 2020)[1]

A GRAND VISION

The Policy and Strategy serve as traditional ends-ways-means planning guidance. The Kremlin's vision for the region is ambitious, yet the diversion of resources from Arctic development places achievement of regional objectives at risk. Russia's Arctic policy clearly states its goals, with the first being the desire to improve the quality of life of the population of the Arctic Zone (Kremlin, 2020). Evaluation of whether the Kremlin is on track to achieve its domestic Arctic policy goals can be made through assessment of the stated tasks and infrastructure and societal development objectives.

The policy delineates required tasks, categorized as social, economic, infrastructure, science and technology, environmental protection, international cooperation, protection from natural and man-made emergencies, public safety, military security, and state border security development. Russia's societal development objectives include ensuring the availability of primary health care, education, and services in the field of culture, physical culture and sports in remote settlements; providing citizens with affordable, modern and high-quality housing, improving the quality of housing and communal services, improving the living conditions of people leading a nomadic and semi-nomadic lifestyle; creation of a system of state support for the delivery of fuel, food and other vital goods to settlements located in remote areas in order to ensure affordable prices for such goods for citizens and business entities; and providing year-round mainline, interregional and local (regional) air transportation at affordable prices (Kremlin, 2020).

Russia's Arctic policy lists thirteen infrastructure development objectives. Four of these objectives directly relate to improving quality of life in the Arctic and can thus be used to assess Russia's ability to achieve them as a means of evaluating Russia's progress on achieving its policy aims. These objectives are: construction of railways ensuring the export of products from the regions of the European and Asian parts of the country along the Northern Sea Route; expansion of the network of airports and landing sites; ensuring transport accessibility of settlements that are not connected to the public highway network; and improving the information and telecommunications infrastructure, allowing the provision of communication services to the population and business entities throughout the Arctic Zone of the Russian Federation, including the laying of underwater fiber-optic communication lines along the Northern Sea Route.

1 Note: the primary challenges to national security section details foreign states, whereas threats are limited to domestic considerations.

A LONELY ROAD AHEAD

The Russian Arctic Policy focuses heavily on societal development and quality of life due to the disturbing demographic trends in the region – and the nation. Russia has faced a national demographic crisis since the population peaked at 148.7 million in 1992. Since the collapse of the USSR through 2021, deaths in Russia surpassed births by 15.7 million and the ratio of deaths to births was 137:100 (Eberstadt, 2022). There are many reasons for this including: low birth rates (Eberstadt, 2022), which are exacerbated by the number of childbearing age women falling by 40% since 2010 (Demoscope Weekly, 2022); high mortality rates, especially from non-natural causes such as alcoholism, violence, and chronic and degenerative diseases; the emigration of 4.2 million (often well-educated and skilled) Russian citizens between 1991-2017, and the significant economic and political challenges caused by the collapse of the USSR (Adamson & DaVanzo, 1997; Aleshkovski, et al., 2018).

The war in Ukraine has amplified demographic decline. Indeed, Mikhail Denisenko, director of the Institute of Demography of the Higher School of Economics estimates that the mobilization of 300,000 men for one year will mean 25,000 fewer births in Russia (Kolesnikov, 2023). The war in Ukraine has created considerable uncertainty for the future, which will also decrease birthrates (Kolesnikov, 2023). Russia is further experiencing the war's negative impact on migration flows into and out of Russia. The UK Defense Ministry estimated that 1.3 million people left Russia in 2022 (Kiseleva & Safronova, 2023). The traditional source of unskilled laborers from Central Asia is drying up, as those migrants realize they are targets for recruitment and conscription by Russia's military (Schenk, 2023). The invasion may also evoke memories of subjugation to Moscow during the Soviet Union, stemming the desire of migrants to enter Russia (Schenk, 2023). Finally, the loss of military age males in Ukraine will significantly drain the national pool it is estimated that 315,000 Russian soldiers have been killed or wounded (Landay, 2023).

The demographic decline is felt acutely in the Far North. Although Russian Arctic cities are vastly larger than other global Arctic population centers, this was largely due to the Soviet central planning system. The dissolution of the Soviet Union saw large-scale outmigration approaching 20% of the northern population due the liberalization of society, permitting free movement and transition to a market economy (Heleniak, et al., 2018). The largest population declines occurred in the Far East, with Kamchatka declining by one-third, Magadan by two-thirds, and Chukotka by almost 70% from 1990 to 2018 (Heleniak, 2002). During those same years, two of Russia's most important Arctic oblasts, Arkhangelsk and Murmansk, also experienced significant population decline with -26% and -36.5%, respectively. Only the Yamal-Nenets and Khanty-Mansi Oblasts gained population during the 1990-2018 timeframe, with a growth rate of 9.6% and 29.9% respectively. The main reason for this population growth is due to a sharp increase of oil and gas production in those oblasts (Heleniak, 2002). The Russian government has not published recent data on migrations from the north, but, "evidence is mounting that it is significant and almost certainly irreversible, at least in the short term (Goble, 2022)." In fact, some Arctic cities are losing 10% or more of their population every year, with smaller villages disappearing by the hundreds (Goble, 2022). Predominantly driven to other regions in search of better economic and societal conditions, Russians migrating from the north tend to be those with the means to do so (Heleniak, 2002).These are often young professionals and ethnic Russians, leaving only pensioners and indigenous peoples to face the challenging conditions (Goble, 2022).

ARCTIC CHALLENGES

Life in the north is indeed difficult – not only do residents face harsh weather conditions and significant periods of extreme cold and darkness, but their quality of life is far less than regions to the south. This is particularly problematic for demographic growth, which typically is positively correlated to economic growth and quality of life (Chapman, 2022). Transportation has been a significant problem in the region due to the underdeveloped infrastructure, vast distances, and high costs. The Arctic Policy strives to change this, in order to improve quality of life. Paradoxically the government sought to save money by closing 44 smaller airports in the region and cancelling plans to build highways and railways to connect remote villages, not long after President Putin signed Russia's Arctic Policy to 2035 in March 2020 (Goble, 2022; Pushkarev, 2021). Increasingly isolated, remote settlements are forced to pay even higher amounts for the most basic supplies.

Arctic populations are also particularly vulnerable to climate change, with coastal erosion and thawing permafrost having a devastating effect on infrastructure. In June 2020, more than 20,000 tons of diesel fuel seeped into the Ambarnaya River when thawing permafrost destabilized a storage tank (Kluge & Paul, 2020). The release of carbon dioxide and methane gases will further amplify warming trends. The thawing of long frozen bacteria and viruses also pose serious health hazards for humans and animals in the region (Iberdrola, n.d.). Climate change is likely to further negatively impact Russia's demographic outlook, forcing additional internal migration and urbanization.

WHERE'S THE MONEY?

Russia's Arctic Policy is ambitious – and it will be costly to achieve its stated objectives. Yet implementation of the policy comes amidst unprecedented economic sanctions. Russia is currently the most sanctioned country in the world, with more restrictions (13,000) than Iran, Cuba, and North Korea combined (Prokopenko, 2023).

The eight Arctic states worked to keep the region isolated from disagreements over Crimea in 2014, but this was not the case following the 2022 invasion (Staun, 2020). While some sanctions did affect the Arctic post-Crimea – particularly affecting oil and gas development as companies like Exxon-Mobil exited the region – the region largely remained insulated from broader global dynamics (Käpylä & Mikkola, 2019). The invasion of Ukraine brought forth a united front of additional sanctions from the West, as well as the cessation of cooperation in Arctic governance (Wall & Wegge, 2023).[2]

Russian officials consistently state that the sanctions imposed against it are ineffective, the truth is a bit murkier. There is no doubt that Russia is able to skirt some sanctions, with the use of third-party vendors and third-countries willing to intervene. Sino-Chinese economic trade has also increased, with the 'no limits' friendship between Beijing and Moscow. Additionally, many other countries – particularly in the Global South – have not joined sanction regimes, providing another gateway for illicit goods to flow into Russia (Nozhin & Bellamy, 2023). The Atlantic Council reported that in the first half of 2023, Russia imported over $900M per month of high-priority battlefield technology, despite export controls on it. Russia has demonstrated an ability to evade the G7 price cap on oil and is transporting 71% of it through a shadow ghost fleet (Donovan, et al., 2023).

While Russia has largely been able to transition to a wartime economy that focuses on sustaining the military-industrial complex, there will be significant consequences for future economic growth and societal development of the nation. Alexandra Prokopenko of the Berlin Centre for East European and International Studies notes "The problem is that the military-industrial complex in Russia has never been able to convert its know-how into some civilian areas. This means that the imbalance will grow and a "bubble" will inflate around the military-industrial complex (Nozhin & Bellamy, 2023)." The growth of the defense sector will be at the expense of domestic priorities, resulting in long-term economic challenges stemming from lack of investment in education, technology, healthcare, and infrastructure.

There is no doubt, however, that sanctions have taken a toll. Sanctions that targeted Russian oil companies have decreased revenue since coming into effect in December 2022 (European Council, 2024). By early 2023, the combination of price caps, import bans, and lower market prices began to reduce Russia's oil and gas revenues further (Nakhle, 2023). In January and February 2023, gas and oil revenues fell by almost 27% and 42%, respectively, compared to 2022 revenues (European Council, 2024). The declining trend continued throughout 2023, as revenues fell by 41% and production was cut by 25% through September (Fabrichnaya & Soldatkin, 2023; The Moscow Times, 2023). This is particularly impactful, as oil and gas account for roughly 18% of Russia's GDP and about a third of its state budget revenue (Nakhle, 2023). The one bright spot of Russian Arctic investments can be found in the Norilsk Industrial District, where 44% of the world's palladium and 22% of high-grade nickel are mined – with no sanctions currently in effect (Gontmakher, 2022).

Arctic development has been significantly impacted by sanctions. In 2021, the Arctic accounted for approximately 10% of the country's GDP and 20% of its exports, however, those number are now likely shrinking, though no official data is available (Rumer, et al., 2021). Sanctions are hurting Russia's ability to develop energy projects by limiting Russia's access to turbines and technology (Prokopenko, 2023). This nearly resulted in delays to the opening of Novatek's new Arctic LNG 2 project, with the American supplier unable to deliver gas turbines due to sanctions. Yet Chinese turbines – an adaptation of Ukrainian equipment from the 1980s – will fill the gap, albeit without the same efficiencies and reliability (Humpert, 2023a). This reflects a trending development where Western companies – once vital to exploration and drilling in the Russian Arctic – are shunning future investment (Gontmakher, 2022).

This can be attributed to the long-term deterioration of the investment climate in Russia, commencing from earlier sanctions imposed on Russia after its 2014 annexation of Crimea (Gontmakher, 2022). Also encouraging the deterioration of investment was the "green movement" of developed nations, who pledged to decrease their demand

2 Whereas 2014's invasion yielded limited economic sanctions that restricted access to Western financial markets and services for Russian state-owned banking, energy, and defense companies; placed embargos on exports to Russia of high-tech oil exploration and production equipment, and embargoed exports to Russia of designated military and dual-use goods, the 2022 sanctions were far more inclusive, with sanctions against sectors of the economy including finance, transport, defense, energy, technology, and trade; sanctions against individuals (1706 people) and entities (419) responsible for undermining Ukrainian sovereignty; assets of those sanctioned were frozen in EU and U.S. institutions; implementation of travel bans (EU specifically); restrictions on businesses such as import and export bans on goods going into and out of Russia; restrictions on economic cooperation; diplomatic and VISA controls; and restrictions on media activities (Christie, 2015). (Council of the EU)

for nonrenewable energy by 2030 (Gontmakher, 2022). Evgeny Gontmakher, a Russian economic expert at GIS Reports, notes "It can be assumed that no new major economic projects will happen in the Russian Arctic or the rest of the country in the foreseeable future (2022)."

Even more challenging for Russian economic planners is the cancellation of contracts with Western nations in compliance with sanctions – or those concerned about secondary sanctions. Gas production at Novatek's Arctic LNG 2 project dropped sharply in February 2024, likely due to shortages of gas tankers for the project. These Arc7 ice class tankers were originally to be constructed at a South Korean shipyard, but were cancelled with the onset of sanctions. It remains to be seen as to whether China will step in to fill the tanker gap to enable fuel shipments.

Looking more broadly, Russia's technology imports have decreased by roughly 30%. Data from Heli Simola, a senior economist at the Bank of Finland, shows that passenger car production decreased by 67%, excavators by 53%, and television receivers by 36%. Key quality of life indicators show declining trends, such as retail trade falling 6%, consumer prices increasing 14%, and the purchasing power parity for Russian citizens decreasing by roughly 2% from 2021 to 2022 (Simola, 2023). But quality of life is affected by more than economic conditions; it can also be affected by politics, healthcare, job satisfaction, and education. Russia's political system has only become more severe since the start of the war, cracking down on free speech and political dissidents, while making over 21,000 arrests as of December 2022 (OVD-Info, 2022). Slashing social programs to fund the war machine, combined with declining economic and social conditions, will continue to have a diminishing effect onquality of life.

Western sanctions are negatively impacting adherence to environmental and human rights standards, albeit inadvertently. Whereas Western firms generally adhered to strict environmental regulations and human rights standards, their departure has left a vacuum. Russia's employment of a 'ghost fleet' of questionable seaworthiness and lack of adherence to environmental protocols demonstrates disregard for the fragile ecosystem and the regional communities. Chinese firms that have filled the investment gap are notorious for poor environmental regulations and human rights standards, with the potential to have an outsized impact on the region.

ARCTIC DEVELOPMENT INITIATIVES VERSUS THE WAR MACHINE

Even prior to the war, Putin's ambitious Arctic policy faced numerous challenges from demographic trends, climate change, investment patterns, and infrastructure challenges. Depopulation – particularly of skilled workers – will make economic development more challenging at a time when Russia is increasingly reliant upon the resources found in its Arctic Zone. The Arctic Policy understands this, listing the reduction in population as the main threat to national security in the region (Kremlin, 2020). Though the policy outlines detailed goals and objectives for quality of life in the Russian Arctic, it is necessary to examine each in order to assess the feasibility of achievement.

Societal development objectives are reliant upon upgraded or new infrastructure, necessitating analysis of Russia's infrastructure development objectives in the Arctic. Expanding airport access, landing zone sites, and transport accessibility for villages not connected to highways is important for residents and military bases alike to access goods and services. Yet the Kremlin closed some small airports and cancelled plans for highways and rail lines to save money in 2021. Under the current fiscal environment – and the challenging weather and climate conditions of the far north – meeting infrastructure objectives in the Arctic will be difficult. Two-thirds of the roughly 1,800 settlements in Russia's Arctic have no road or railway connections and must be supplied by sea or air. In the past, Russia sent goods by sea during the summer navigation season, yet even that system is being tested as funds for additional icebreaker construction projects were redirected to the war in Ukraine. Domestic production of icebreakers and Arctic ships has decreased at a time when there is increasing reliance on the Northern Sea Route, particularly for shipment of natural resources to market. Additionally, Russia's plans for building a key railway to link many of these population centers has been postponed until at least 2027 (Goble, 2023b).

Problems are arising in the air as well – sanctions are preventing Russia from accessing critical components for proper aircraft maintenance, along with a severe shortage of technicians, negligence of management, and "Moscow's fundamental departure from the rules for servicing foreign-made aircraft" could ground much of Russia's civilian fleet over the next year according to defense analyst Hlib Parfonov (2023). Russia's air freight industry is also deteriorating, with some speculating that up to 25% of Russia's air freight fleet will be inoperable within the next five years. Russia has largely done a poor job of upgrading and maintaining freight aircraft vital to Arctic resupplies. Completing upgrades is unlikely due to the impact of sanctions, but also the estimated upgrade costs totaling billions of rubles (Parfonov, 2023). Improving transportation capability across the Arctic is one of Putin's main policy goals to support economic and societal development, yet mounting resourcing challenges will negatively impact the region (Goble, 2023c).

Mobilizations for the war in Ukraine have taken a disproportionate toll on the indigenous populations of the north (Goble, 2023a). Though it is difficult to determine exact statistics due to the lack of release of information from the Russian government, there is anecdotal evidence and indicators pointing to the devastating effects for Arctic communities (ICIPR, 2022; Zmyvalova, 2022). Indigenous populations have less information and resources to resist the draft, leaving them particularly vulnerable. The bleak employment opportunities in the North often drive enlistment as well (RFE/RFL, 2023). Their deaths are also felt more acutely by their small communities struggling to survive through traditional subsistence methods. Previous constitutional restrictions against drafting those engaged in traditional ways of life are no longer in effect, likely with devastating effects for Arctic communities (Goble, 2023d). Casualties of indigenous peoples may amplify regional demographic declines while also pressurizing insufficient healthcare and social services infrastructure, as those who do return home may suffer from injuries or long-term mental health issues. Further, the war is amplifying the existing regional challenges of higher inflation, food insecurity, and a lack of social services that were already problematic.

Though much of the outlook on northern investment is bleak, there remain some positive trends. Russia has already made significant progress improving the information and telecommunications infrastructure in the Arctic. As part of the improvement of the telecommunications infrastructure, Russia emphasized the expansion of digital services for businesses and communities (Sukhankin, 2021). Two examples show Russia's commitment to mexpanding their telecommunications capabilities – their plan to lay a 12,500 km fiberoptic cable from the northwestern port of Murmansk to Vladivostok, and Rosneft's plan to integrate the most up-to-date digital technologies to improve operations and extraction (Sukhankin, 2021; The Moscow Times, 2020). The cost of laying the cable is estimated to be around $889M; the project commenced in 2021, with a projected completion in 2026 (Stolyarov, 2021). It is likely that the project will require further investment whether through private companies or perhaps even China to be completed on time.

Rosneft's goals for integrating modern digital technology for operations and extraction are important for the wider Arctic region, as Rosneft plans to use the technology to analyze the geological structure of the soil and find better ways for drilling in different terrain (Sukhankin, 2021). This is important for two reasons: it can aid in better understanding permafrost thaw in the Arctic, which affects infrastructure and quality of life; and it can help Rosneft drill more efficiently for oil and gas. Ultimately this may reduce environmental pollution and impacts.

Building this "Polar Express" line will further help Russia achieve digital connectivity objectives in the Arctic. Before the war, both the EU and China were interested in this project because of its potential impact on economic trade and communication in the region (Sukhankin, 2021). While the EU is unlikely to partner with Russia, this may present another opportunity for China to further its own investment goals in a nation it increasingly looks to as a junior partner.

LOOMING SOCIETAL DEVELOPMENT OBJECTIVES

Russia's Arctic Policy also focuses heavily on societal development objectives, though these also tend to be reliant upon infrastructure development. Russia's first societal objective to ensure the availability of primary health care, quality preschool, primary general and basic general education, secondary vocational and higher education, services in the field of culture, physical culture and sports in settlements located in remote areas is significant because of the role that healthcare and education can play in a society's quality of life calculation. Even considering the national healthcare challenges –the mobilization of medical personnel to support war efforts further complicates already declining numbers of medical professionals– the situation is more acute in the Arctic.

Healthcare is a particular challenge due to lack of regional infrastructure that accentuates the shortage of care providers (Revich, 2008). In the Komi Republic, doctor staffing levels are at 36% (International Arctic Forum n.d.). Across Russia's Arctic, specialist staffing levels are at roughly 57% for doctors and 73% for nurses. Doctors and aid stations in remote villages are often isolated by hundreds of kilometers, mandating evacuation by helicopters if further care is required (Arctic Russia, 2023).

Climate change will further amplify challenges, with unpredictable weather raising the likelihood of severe injuries, and thawing permafrost potentially releasing toxins, viruses, or bacteria. Warming trends may further bring infectious and parasitic diseases to the region (Revich 2008). To tackle these challenges, the Russian government previously increased healthcare spending in the Arctic for the citizens' mandatory healthcare insurance (International Arctic Forum, n.d.).

The "Polar Express" fiberoptic internet line will expand telemedicine capabilities. More coordination is happening between oblasts in order for required medical evacuation to happen across boundaries (International Arctic Forum, n.d.). Yet even with these efforts, the quality of healthcare still lingers well below the national average. Significant investments will be needed to rectify the significant challenges posed by the limited infrastructure, vast distances, and expensive solutions.

Much like the healthcare system, the education system is inferior in the Arctic (Vasilyeva, et al., 2020). The Arctic region's education system generally scores one to two points lower on the 10-point assessment scale than the Russian average, mainly due to the region's low population density, socio-demographic situation, underdeveloped infrastructure, transportation accessibility, and natural and climatic conditions. Further, the education of teachers in the Arctic lags behind those in other regions, although it has been increasing since 2016 (Kornilov, et al., 2019). Russia's objective is to ensure the availability of quality education from preschool through secondary vocational and higher education. There are 74 education institutions and 13 nomadic schools in the Arctic. Just over half are underfilled as a result of declining population trends. Although there may be sufficient educational facilities in the region given the current population, it is clear that they continue to underperform (Kornilov, et al., 2019). The exodus of the most educated from the region will likely continue to impact educational quality.

Russia's next societal development objective is to provide citizens in the Arctic with affordable, modern, and high-quality housing (Kremlin, 2020). During a recent meeting on the development of core communities in the Russian Arctic, Putin recently remarked that progress has been made, with new housing increasing by 36% in the region last year (Presidential Administration of Russia, 2023).However, Putin also acknowledged that there are buildings that "are practically falling over, but for reasons unknown, have not made it to the list of structurally unsafe housing (Presidential Administration of Russia, 2023)." Alexey Maslakov, a scientist at Moscow State University, noted "There isn't a single settlement in Russia's Arctic where you wouldn't find a destroyed or deformed building (as cited in Shemetov, 2021)." While this is due in part to poor building practices and lack of maintenance, it is also being caused by permafrost thaw, which threatens both residential and commercial structures and the utility lines connected to them (Shemetov, 2021).

Permafrost covers 65% of Russia, to include the vast majority of its Arctic region (ResearchGate, 2021). Older infrastructure in particular is vulnerable, given the lack of consideration that the permafrost could one day thaw. Mikhail Zheleznyak, director of Yakutsk's Melnikov Permafrost Institute, estimates that Russia could face $97B in infrastructure damage by 2050 if the rate of warming continues. Across Russia, more than 15 million people live on permafrost foundations, and in some cities up to 80% of buildings are damaged due to its thaw (Shemetov, 2021; Rannard, 2022).

Russia's last two societal development objectives are also related to two of the infrastructure objectives previously discussed – delivery of fuel, food, and other vital goods to remote settlements, and providing year-round mainline, interregional and local air transportation at affordable prices (Kremlin, 2020). With nearly two-thirds of the roughly 1,800 settlements in Russia's Arctic having no road or railway connections, developing dependable sea or air supply lines becomes a necessity. While this is not a new concept, it requires considerable infrastructure funding to modernize. Plans to develop highways and railways have been postponed or cancelled due to dwindling resources. For projects still under consideration, permafrost thaw and coastal erosion pose new challenges – and expenses – to construction (Goble, 2022). Air resupply capabilities are dwindling due to antiquated systems that cannot be repaired due to a lack of parts governed by sanctions (Parfonov, 2023). The government has long subsidized air travel in the region but the increasing rate of air incidents is raising alarm as to the safety and viability of this method of travel.

THE CHILLING EFFECT OF A NO-LIMITS FRIENDSHIP

The toll of the Ukraine war has greatly impacted the Russian Arctic. Diverted financial resources have hit regional infrastructure and development goals. To fill the void, Russia has employed creative tactics to evade sanctions and has turned to private investment. Yet neither of these can compensate for the loss of investment from Western firms and the Kremlin. Russia seems prepared to give China greater control over its Arctic projects in exchange for badly needed funding. This is counter to earlier Russian policies which sought to limit China's role in the Arctic.

Russia is also seeking to attract private sector investment, with a recent Strider report noting the budget for the Ministry for the Development of the Russian Far East and Arctic (MDRFEA), the government body responsible for the socioeconomic development of the region, has increased almost 300% since 2016.The budget increase for MDRFEA has achieved results, with private-sector company and entrepreneur participation in these economic zones increasing from 230 in 2016 to over 4,000 in 2023. The impact of Chinese companies has been poignant. In the peri-

od from January 2022 until June 2023, 234 PRC-owned companies registered to operate in Russia's Arctic an 87% increase from the two years prior (Strider Technologies Inc., 2024). Chinese companies have clearly stepped in to provide key technologies and investment needed in the Arctic.

The possibility of Chinese investment carries risks for Russia. Such arrangements often yield less efficient or less reliable equipment, along with greater Chinese control over domestic matters. The withdrawal of Western companies from Arctic projects has opened the door for China's less scrupulous companies to gain a foothold. This is in contrast to earlier Russian hesitation of bringing China into the region (Russia initially blocked China's pursuit of observer status in the Arctic Council). The decision to turn to China stems from the necessity to continue development of critical projects such as Arctic LNG 2, the Northern Sea Route, and the Sosnogorsk-Indiga railway(Strider Technologies Inc., 2024).

Whereas the Kremlin welcomes Chinese money that can fill the coffers of regional governors no longer receiving full subsidies as funds are redirected to war efforts, there is growing concern about the increased Chinese presence across the region. With Chinese investment comes growing control over local government officials – and Chinese workers. Chinese migrants are close to, or soon will be, the largest ethnic group in some regions of the Far East, which will give China additional leverage within Russia. The Russian population in these regions continues to decline as they leave the area, allowing smaller groups of Chinese immigrants to have a greater impact.

The growing Sino-Russian relationship poses risk for Russia – but also for the wider Euro-Atlantic community. The withdrawal of Western firms will result in lower adherence to accepted environmental regulations, opening the interconnected region to a greater potential for environmental pollution or large-scale disaster that would undoubtedly affect the fragile – and interconnected – Arctic ecosystem. The Chinese perception of Russia as a resource colony could prove devastating for the broader Arctic environment. Further Chinese investment also could negatively impact the regional security situation, with China gaining a foothold in the High North from which to gain operational expertise, base surveillance operations, and support future Arctic patrols.

A LOSE-LOSE SITUATION

Russia's Arctic Policy (and the implementing Strategy) provides a clear framework for enhanced economic and societal development in the Russian Arctic Zone. This development is critically important for the region – and for the broader Russian economy. Yet the massive drain of resources from the north to fuel the war machine will lead to serious consequences for Arctic development. Although the Policy highlights the importance of Arctic development, it is clear that the diversion of resources, coupled with the impact of economic sanctions, reduced foreign investment, climate change, and regional demographic decline, will prevent key Arctic development initiatives from being realized.

The lack of resources has resulted in delaying a key rail network, closing regional airports, canceling plans for an Arctic highway, and reapportioning icebreaker construction resources and regional defense spending – all of which will negatively impact infrastructure development goals. The inability to reach infrastructure development goals will limit Russia's ability to achieve societal goals, due to a continued lack of access to healthcare, education, affordable housing and goods, and accessible, reliable, and affordable transportation.

Russia has sought to offset resourcing challenges through increasing private sector and Chinese investment. Thus far, those efforts have yielded some success by enabling continuation of development projects. Yet it is a risky strategy, with the Kremlin vulnerable to the whims of private companies. It further heightens the risk of Russia becoming a junior partner to China. The Western Arctic nations may also suffer if unscrupulous development practices result in a major environmental disaster such as an oil spill. The current absence of dialogue between Russia and the West makes preventing or even controlling such a disaster rather difficult. The broader Arctic region is a highly connected yet fragile ecosystem, and a disaster in the Russian Arctic would likely affect the entire region.

Without the full investment from the Kremlin, the Arctic Zone will almost certainly continue to experience degraded infrastructure. Failure to meet infrastructure development goals will subsequently inhibit Russia's ability to meet societal development goals due to a continued lack of access to quality education, healthcare, affordable housing and goods, and accessible, affordable, and reliable transportation. Conscription trends targeting indigenous populations and northern communities will further rob the region of the population base that is fundamental to successful Arctic development. It is clear that Russia's war in Ukraine has dramatically altered its ability to achieve economic and societal development initiatives – and it will negatively impact Russia's pursuit of 'Arctic Superpower' status.

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China's Quest for Power in the Arctic:

Protecting Navigational Freedom and Safeguarding Fishery Resources

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ABSTRACT

In the era of Great Power competition, China and the United States are vying for power across the globe. As the climate changes, China, a non-Arctic nation, demonstrates a consistent interest in the strategic Arctic region (Lackenbauer & Koch, 2021). This study explores the depth of China's Arctic strategy and its impact on the United States' maritime security. Using an exploratory case study analysis, evidence confirms China's actions are discreet and consistent with its aggressive behavior in the South China Sea. From China's status as a permanent observer on the Arctic Council to its numerous multi-national agreements with Arctic states, China uses economic and diplomatic instruments of power to project influence across the Arctic region (Lelyveld, 2019). The study concludes that China's Arctic strategy has resounding impacts on United States' maritime security and identifies two critical recommendations to improve America's ability to protect the region. First, China has a long-range fishing fleet and a need to expand its fishing operations worldwide. Simultaneously, the US should employ capable military assets to effectively fight illegal, unregulated, and underreported (IUU) fishing in the Arctic (USCG, 2020). Second, China is signing partnerships to control international Arctic maritime routes. The United States should prioritize the protection of oceanic freedom of navigation (FON) principles above the Arctic Circle (Riddle, 2014). To implement these recommendations, the study proposes a more robust freedom of navigation program in the Arctic and an increase of polar military assets, such as icebreakers and shoreside infrastructure.

INTRODUCTION

The Arctic is known as Earth's last Great Frontier due to its vast, minimally explored territory and largely untouched natural resources (Alaska Coastline, 2024). As a rules-based world order takes shape, the Arctic Region is becoming an increasingly tactical hub for Great Power Competition. Although China is not an Arctic nation, the large country is aggressively projecting power into the evolving Arctic region (Doshi, Dale-Huang, & Zhang, 2021). China's efforts above the Arctic Circle include pursuing "natural resources, access to shipping routes, and the ability to influence Arctic and Antarctic bodies" (Clark & Sloman, 2017). In 2018, the Chinese government formally released its first Arctic Strategy (Biedermann, 2020). Meanwhile, the rapidly changing Arctic climate is increasing navigational accessibility to the region. According to one projection, by mid-century, ice-free Arctic transits are forecasted to decrease shipping time between major oceans by approximately four to ten days, reducing costs by a minimum of $200K per maritime journey (Herrmann, 2019). As maritime access to the region becomes easier, the competition to claim fishery resources in Central Arctic Ocean will continue to grow. This study will compare China's regional actions to the large nation's corresponding Arctic strategy with a focus on the importance of protecting freedom of navigation principles and of safeguarding fishery resources above the Arctic Circle.

REGIONAL AND GLOBAL EXPANSION

Since the 1970s, China has incrementally sought opportunities to gain power in the vital waterways of the South China Sea, home to critical maritime routes for commerce movement, and rich with reserves of natural gas, oil, and active fisheries. China's aggressive regional tactics in the South China Sea include Exclusive Economic Zone (EEZ) encroachments, attempts to exclude other nations' warships from operating in the free waters of the region, and hostile uncorroborated territorial claims. In 2015, China built artificial islands in international waters and subsequently militarized these islands. In a continued attempt to gain overt control of the South China Sea region, China continues to escalate its anti-access/area denial (A2/AD) tactics as the nation overreaches international norms, aggressively projects power, and dismantles stability in the local region (Kuok, 2019).

The Chinese government intentionally makes it difficult for other nations to navigate unrestrictedly in the South China Sea. Ms. Lynn Kuok, a researcher at the University of Cambridge, contends, China's "actions in the South China Sea, where it has aggressively pursued its territorial and maritime claims, undermine the rules-based order" (2019). Ultimately, Ms. Kuok believes China's actions significantly weaken the long-standing international sea regulations (Kuok, 2019). China's policy and dominance in the region also provides it with maritime strategic dominance in the critical Indo-Pacific shipping region (Macaraig & Fenton, 2021). In his analysis of President Biden's 2021 National Security Strategic Guidance, retired Army Colonel, Dr. Hinck states, "if China controls the South China Sea, then China will be able to hold hostage more than 30 percent of the world trade" (2021). At the regional level, China's actions in the South China Sea demonstrate intentional disrespect for international order (Kuok, 2019). On the world stage, China's continued expansion around the world demonstrate the nation's desire to increase its stronghold on a global level.

CHINA'S ARCTIC STRATEGY

In 2018, China proposed its first Arctic strategic guidance. In this strategy, the Chinese Government declared itself as "a near-Arctic State" with an essential stake in the Arctic region despite the nearest access point being nearly one thousand nautical miles from China (Biedermann, 2020). In this document, China highlights the importance of protecting the region environmentally while abiding by international law (Zoltai, 2021). Although seemingly unobtrusive, regional experts believe China's strategy is the foundation, and the first step, to China's

quest for power in the Arctic region. In the same strategy document, the Chinese government introduced the concept of the "Polar Silk Road," an element of the 2013 Belt and Road Initiative (BRI) (Biedermann, 2020). The BRI is an expansion strategy and "widely acknowledged as a central diplomatic and economic policy of the Chinese government" (Jiang, 2022). The "Polar Silk Road" is forecasted to connect China and the Nordic States through Russian territorial seas using the Northern Sea Route (Lackenbauer & Koch, 2021).

China's jurisdictional rights in the Arctic region align with non-Arctic nations in the unique Arctic governing structure (Biedermann, 2020). In 2013, China, a non-Arctic nation, obtained a coveted permanent observer position on the Arctic Council alongside eight Arctic Nations and six observer states (Chang & Khan, 2021). This council of nations is the only governing body in the region, and the involved parties have worked together to maintain peace. The Chinese government's confirmation as a permanent observer on the Council was a significant achievement to enacting China's Arctic strategy. China recognizes the benefits of having access to the Arctic and seeks influence in this geographic region despite having no official legal nexus (Lackenbauer & Koch, 2021).

ARCTIC FISHERY ACCESS

China's history of overfishing its EEZ and its current distant-water fishing fleet raises concern for fishing in the Arctic. Not only does China have a massive fishing fleet, but the nation is the consumer of over one-third of the world's fish (Urbina, 2020). Thus, "Chinese demand for fish has grown significantly with the rapid rise in income of many of the Chinese population, as well as the collapse of fish stock resources in its near-shores" (Chang & Khan, 2021). Due to decades of unregulated fishing in its waters, China's fishing supply is depleted (Chang & Khan, 2021). At the same time, the demand for more fish continues to rise with China's growing population. Therefore, it could be inferred that one of China's goals is to gain fishing rights in the High Seas waters of the Arctic Ocean (Zoltai, 2021). China has done so in the South China Sea, is operating fishing vessels across the globe, and may continue to expand fishing operations into the Arctic.

Simultaneously, as the climate warms, fish are migrating into the pristine waters of the Arctic Ocean, making it a prime location to fish (Pezard, et al., 2022). Fisheries experts claim the Bering and Barents Seas have the world's most plentiful fishing stock. Today, the Barents Sea is covered in ice most of the year, making it difficult to fish;

however, climate change is quickly affecting oceanic weather in this region. Both seas are inaccessible for Chinese fishing because they reside inside the Russian, Norwegian, and American EEZ (Biedermann, 2020). Although China does not have access to these regions, they have begun to seek avenues to gain rights to fisheries in the high seas region of the Arctic (Zoltai, 2021).

Arctic fisheries are enforced by the “Arctic Five” (the United States, Russia, the Kingdom of Denmark, Canada, and Norway). In 2018, ten nations with common interests in the Arctic region (including the “Arctic Five”) collaborated to sign the Central Arctic Ocean Fishing Agreement (CAOFA), which went into effect in 2021 (Biedermann, 2020). The CAOFA is scheduled to remain in effect until 2037 and "its purpose is to prevent any country from fishing in the high seas portion of the Central Arctic Ocean” (Pezard, et al., 2022). After the ocean is adequately assessed by scientific researchers for environmental sustainability and enforcement protocols are in place, the CAOFA fishing ban will be reassessed by the signatory nations for an extension or objections to the current agreement (Pezard, et al., 2022). China's involvement on the CAOFA signals interest from the Chinese government's to influence fisheries governance in the Arctic region.

As of 2022, China does not have known fishing vessels in the Arctic. However, based on the Chinese fleet's presence in the Antarctic, China may also be capable of fishing in the Arctic. Also important to note, China is heavily invested in commercial fishing industries in the Arctic from both a monetary and an industry perspective. China is an importer of Greenlandic fish and a processor for the Alaskan fishing industry (Pezard, et al., 2022). Diplomatically, China partnered with Iceland to create “a trans-shipment center for Chinese commodities and raw materials” (Biedermann, 2020). This center will provide China with direct access to natural resources and fishery stocks in the Icelandic EEZ of the Arctic (Biedermann, 2020). China's mounting involvement in the Arctic fisheries ranges from diplomatic agreements, environmental research policy and plans, and involvement in the commercial fishing industry. These items demonstrate intent from the Chinese government to stake a claim to the fishinggrounds in the Arctic region.

CHINA'S ARCTIC ASSETS

China has two polar-class, open-ocean icebreakers and a third heavy icebreaker in construction, which is scheduled for commissioning in 2025 (Pezard, et al., 2022). In comparison, the United States also has a total of two polar-class, heavy icebreakers (Riddle, 2014). That said, the Fiscal Year 2024 Homeland Security Appropriations Act secured $125 million to procure a commercial icebreaker, a process which is currently ongoing (Blenkey, 2024). Despite having no Arctic coastline, China’s fleet of large icebreakers is equivalent in size to that of the US. China also touts a fleet of small-scale icebreakers (Riddle, 2014). According to US Coast Guard CDR Riddle, "with a 7,000-mile range, these icebreakers would require refueling but could also be used in the Arctic or near-Arctic in collaboration with a refueling ship” (2014). Finally, behind Russia, China will become the world's second country to commission a nuclear-powered icebreaker (Biedermann, 2020). As a nation without an Arctic nexus, China has a robust fleet of icebreaking vessels that can access to the remote region.

Additionally, the Arctic Ocean is a strategic hub between Great Power nations, Russia and the United States. Military strategists believe "nuclear deterrence, sea-denial, commerce defense, and political leverage" are strategic objectives of great power competitors in the Arctic. Along with a fleet of icebreakers, China has two classes of submarines capable of operating above the Arctic Circle, the 09 Jin-Class and the Yuan-Class S20 attack submarine. Submarines can be hidden by ice coverage in the Arctic, which results in adversarial nations' inability to detect them from the air, surface, and space domain (Pezard, et al., 2022). China’s robust ice-breaking fleet and ice-capable military assets suggest China is progressively constructing a powerful force that is capable of advanced Arctic operations.

COUNTER ARGUMENT – BENEFITS TO CHINA'S STRATEGY IN THE ARCTIC

As a nation, China projects its involvement in the Arctic frontier as overwhelmingly positive, respectful of international law, and critical to preserving the environment (Doshi, Dale-Huang, & Zhang, 2021). For instance, Dr. Zoltai, a professor at the Graduate Institute of Strategic Studies, states that "as a responsible large power, China's commitment to the peaceful development of the Arctic through the Polar Silk Road” may have positive implications in the Arctic Region (2021). China's 2018 Arctic strategy claimed that China's role is to protect the environment and that the nation is "firmly committed to international law and conventions in force in the Arctic” (2021). Outwardly, China's involvement aligns with international norms (Zoltai, 2021).

More specifically, as a Great Power, China provides financial and economic resources to Arctic states through economic agreements to increase infrastructure in the region. China's financial support promotes the development of the BRI and progress towards operating year-round passages through the Northern Sea Route as the climate changes (Biedermann, 2020). For example, "Finland received the fifth largest Chinese foreign direct investment

worth $8.4 billion between 2000-2016" (Zoltai, 2021). Norway and Iceland are also the recipients of substantial Chinese capital investments (Biedermann, 2020). Similarly, China is investing millions of dollars to support Russia's increase in its seagoing assets and critical infrastructure along the Northern Sea Route. These routes would be financially untenable without the support of China, which is clearly invested in Russia's development in the Arctic (Zoltai, 2021). From the economic standpoint of less wealthy states, China's involvement in the Arctic is financially beneficial to the wealth of Arctic nations.

Next, China's 2018 Arctic policy highlights that its robust involvement in the Arctic is to peacefully and diligently protect the environment (Zoltai, 2021). The Chinese government has a wealth of resources and economic assets to fund climate research in the Arctic (Biedermann, 2020). China announced that global climate changes would cause a devastating front-line impact on the Chinese shores if not addressed. The paper continued that it may result in the displacement of tens of millions of people and an inability to produce commerce to sustain the Chinese population. Thus, it can be inferred that China's involvement in the Arctic and its stance on actively protecting the environment would benefit the well-being of other nations if China's stated intentions are honest. China frames its strategy to increase prosperity for other nations, safely increase shipping access to the region, and safeguard the environment (Zoltai, 2021).

NATIONAL SECURITY ANALYSIS

While research confirms China's robust and far-reaching involvement in Arctic operations, the United States is also taking measures to protect Arctic Maritime Security. Nearly a decade ago, the 2013 United States National Security Strategy for the Arctic Region set forth guidance to use military vessels and aircraft to achieve a stronger presence in the Arctic. It also discussed the importance of funding Arctic infrastructure and icebreaking ships to protect American resources (The White House, 2013). This strategy highlighted the relevance of the Arctic region and "of preserving all of the rights, freedoms, and uses of the sea and airspace recognized under international law" (The White House, 2013). In 2021 DHS Strategic Approach for Arctic Homeland Security recognizes "China's ... attempts to undermine our alliances and partnerships, and their aggressive military modernization efforts [that] pose an undeniable threat to global security and prosperity" (DHS, 2021).

In 2020, the Department of the Navy published a Tri-Maritime Strategy document, Advantage at Sea, to create a unified and powerful Naval service consisting of the Navy, Marine Corps, and Coast Guard, to maintain dominance in the maritime warfighting domain. This document aligns with DHS's strategy and highlights a growing concern with the protection of the Arctic region. The Tri-Maritime Strategy Advantage at Sea also labeled China as a high-priority concern due to the nation's upwardly trending economic and military competence and aggressive regional power projection (DOD, 2020). For over a decade, United States strategy documents represent an urgent need to protect the Arctic.

Studying China's involvement in the Arctic and correlating it to US national strategy region exposed two topics that impact maritime security in the Arctic operating environment. First, the United States should focus more resources on the protection of the fishery stock in the increasingly accessible Arctic region. Second, the United States must prioritize the use of military assets to preserve freedom of navigation principles above the Arctic Circle per international maritime law.

ILLEGAL, UNREPORTED, AND UNREGULATED FISHING ENFORCEMENT

The 2020 United States Coast Guard Strategic Outlook for Illegal, Unreported, and Unregulated (IUU) Fishing highlights IUU fishing as a leading threat to global maritime security (USCG, 2020). For decades China mismanaged the fishing stock in its EEZ. This negligence resulted in depleted fish availability and China's need to seek other options while expanding their nets to a global scale (Chang & Khan, 2021). Within the last two decades, China encroached on the EEZs of nations in the Indo-Pacific region staking claims in other nations' fishing grounds. China and Taiwan make up over 60% of the world's long-range fishing fleets, and China has demonstrated little regard for international norms (USCG, 2020).

Former Coast Guard Commandant Admiral Karl Schultz stated, "if IUU fishing continues unchecked, we can expect deterioration of fragile coastal states and increased tension among foreign-fishing nations, threatening geopolitical stability around the world" (USCG, 2020). Every nation is responsible for holding their fishing fleets accountable for IUU fishing (USCG, 2020). In China's case, there is a documented history of their disregarding international norms and promoting invasive and unsafe fishery operations throughout the South China Sea and the Western Pacific (Felton, 2022). As fish stocks migrate above the Arctic Circle, The United States must be prepared to enforce fishing regulations throughout the region.

As the climate continues to change, China is becoming more involved in the Arctic fishing industry. "Changing ice conditions are enabling expanded economic activity, including commercial fisheries, in areas where they had not previously been possible" (Pezard, et al., 2022). Scientists predict that fish stocks will shift north; without adequate enforcement resources, this shift will make it challenging to enforce Arctic fishing and ensure fishing in prohibited waters is protected (Pezard, et al., 2022). As a non-Arctic state with a reputation for negligent fishing, China's fisheries behavior and growing access to resources in the Arctic pose a concern for maritime security.

PROTECTING FREEDOM OF NAVIGATION

The United States upholds freedom of navigation as a maritime security priority (Riddle, 2014). Due to China's aggressive policy, the South China Sea is a major disputed region in the world regarding freedom of navigation principles (The Graduate School of Global Affairs, Tufts University, 2017). As it becomes more involved in the Arctic, strategists anticipate that China will begin to implement similar A2/AD tactics in the Arctic, which could lead to attempts to restrict access to Arctic sea routes (Doshi, et al., 2021). Notably, the large nation is quickly introducing a robust fleet of Arctic-capable vessels while signing partnerships with Arctic nations (Chaisse, 2022).

One reoccurring example of China's deep connection with Arctic states is its relationship with Iceland. "Iceland, which is in a key strategic location at the entrance to the Arctic sea-lanes from the North Atlantic Ocean, is home to an unusually large Chinese embassy" (Riddle, 2014). The China-Iceland partnership provides China with access to navigational routes at the boundary between the Arctic and the Atlantic Ocean (Riddle, 2014). In the future, as China and Iceland continue to expand this partnership, China could gain enough access to control, and even deny, other nations' freedom of navigation through Arctic sea lanes.

In the absence of other available data, China's history is the best predictor of their future intentions in the Arctic region. China's historical actions demonstrate non-compliance with international law if the law does not align with its own nation's interests. China's far-reaching contributions to the Arctic as a non-Arctic state aligns with the powerful nation's A2/AD tactics and regional policy in the South China Sea (Kuok, 2019). Key examples of China's robust participation in the Arctic include economic and diplomatic collaboration with Arctic States, a rulemaking position on the only Arctic governing body, and signatory authority on the CAOFA. Dr. Zoltai confirmed the importance of the Arctic region and stated, "Arctic regions, together with the oceans, and cyberspace and space are strategic areas in which China has great ambitions and wants to become a rulemaking or even a leading player" (2021).

RECOMMENDATIONS

The case study identified two areas to improve the current defense of maritime security in the Arctic region: the ability to enforce fishery violations and the protection of freedom of navigation in alignment with international law. Establishing a sustainable presence in the Arctic region is something for the United States to consider to close these gaps. This presence could include a robust freedom of navigation program above the Arctic circle, military vessels capable of transiting the region, the infrastructure to support and solid partnerships with other Arctic nations (GAO, 2012).

Although Arctic ice is rapidly melting, the need for icebreakers continues to increase. Mr. Kee, a senior advisor at the Ted Stevens Arctic Security Center, stated, "the Arctic is a maritime region, and icebreaking provides you year-round access to be able to go in the region" (as cited in Lopez, 2022). He continued to stress that icebreakers provide a consistent presence which no other asset can provide to the strategic Arctic Region. If the United States is unable to operate unrestrictedly in the Arctic, the government will be unable to provide enforcement to IUU fisheries or be able to conduct Freedom of Navigation patrols throughout the region. As of 2022, "six polar icebreakers capable of operating the Arctic are authorized for bolstering the Coast Guard's icebreaking fleet" (as cited in Lopez, 2022). It may take up to a decade to commission these vessels (Lopez, 2022). In the interim, the United States only has two icebreakers to protect the entire region. Both of these assets have exceeded their service life and need frequent maintenance (Kime, 2022). In 2024, United States Congress secured funding to purchase a commercial icebreaker to sustain near-term operations above the Arctic Circle (Blenkey, 2024). As China continues to bolster its Arctic-capable fleet for immediate access, a commercial icebreaker will be a critical bridging asset to establish a consistent American presence in the region until the new icebreakers are commissioned (Kime, 2022). These assets could conduct scientific research and ensure the up-and-coming fleet is adequately prepared to assume regional operations.

At the same time, support from a commercial icebreaker would give the Coast Guard's current polar icebreakers more availability to conduct freedom of navigation transits. Freedom of navigation transits "reinforce internationally recognized rights and freedoms by challenging excessive maritime claims" (Coffey & Menosky, 2020). As China

continues to sign agreements with Arctic Nations through the Belt and Road Initiative, maintaining freedom of navigation is of the highest importance. In 2020, a US Naval ship transited the Barents Sea, near Russia, to reinforce freedom of navigation operations in the ice-free waters of the Arctic region. This transit was the first US Navy Arctic patrol since the 1980s, during the Cold War (Coffey & Menosky, 2020). Integrating US Navy FON transits with Coast Guard icebreakers would reaffirm the Unites States' firm stance on FON operations above the Arctic Circle and signal America's stance in the region to other great powers. Using icebreakers would allow the FON patrols to proceed deeper into the harsh, polar environmental conditions, further enforcing United States' power and ability to sustain operations in the region.

A Government Accountability Office (GAO) Report to Congressional Committees in 2012 stated the state of the Arctic basing infrastructure was sufficient through 2020. As the United States builds a more modern and powerful Arctic fleet, it is recommended to bolster shoreside maritime military infrastructure and presence in the Arctic region to sustain maritime security operations above the Arctic Circle. These assets could also be a hub to conduct Arctic Search and Rescue and to collect intelligence. During an interview with Coast Guard CDR Cody Dunagan, an IUU fishery expert, he stated, "the enforcement of IUU fisheries in the Arctic is becoming more important as the climate changes. Today, we do not have the adequate shoreside infrastructure required to enforce sustained operations in the region" (Dunagan, personal communication, 2022). Approving funding and preparing Western Alaska and the Arctic for increased shoreside military assets is a critical step toward protecting maritime security.

CONCLUSION

This article highlighted the history of China's A2/AD tactics in the South China Sea and correlated these aggressive actions with China's intent to control and influence the Arctic Region. In 2016, as a permanent observer on the Arctic Council, China began influencing regional governance (Chang & Khan, 2021). Since the early 2000s, using economic and diplomatic instruments of power, China has continued to gain access and control of the region using multi-lateral agreements with Arctic nations (Biedermann, 2020). Incrementally, China may begin applying similar A2/AD tactics to the Arctic that it used to pursue control of the South China Sea (Doshi, et al., 2021). Ultimately, the more access China secures in the Arctic region using these tactics, the higher the likelihood it will seek to procure ownership of the resources that inhabit the region.

As the great powers continue to gravitate towards the Arctic region, increasing the American military presence through maritime military assets, commercial icebreakers, and critical shoreside infrastructure is essential to enforce IUU fishing and reaffirm America's firm stance on the right to freedom of navigation under the Law of the Sea convention.

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Norway's High North Deterrence Challenge:

Norway Requires a Reevaluation of its Deterrence and Reassurance Posture to Preempt the Developing Security Dilemma

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INTRODUCTION

The 2022 invasion of Ukraine confirmed Norway's fears of Vladimir Putin's willingness to continue Russia's illegal territorial incursions of Ukraine, thereby upending the post-World War II security order (Norwegian Armed Forces, 2023). Moscow seeks to break the political and cultural will of Ukraine through brutal tactics at unimaginable scales (Jones, 2022). Putin's disregard for international norms and legal principles serves as a warning to Norway of the potential for future violence (Bones, et al. 2023; Wegge, et al., 2023). He demonstrates a clear willingness to use all means to achieve his desired end states, even if they take years to achieve (Bielieskov, 2024; Fraioli, 2022; Human Rights Watch, 2022; Khan QC, 2022; Thompson, 2024). This pattern of aggression has exacerbated already tense relations between Oslo and Moscow as Putin pursues his established strategic priority of regaining Russia's former great power status. In this evolving geopolitical context, Norway should reevaluate its current security posture in this changed security environment.

Russia's ongoing invasion of Ukraine does not appear to have limited Putin's prioritization of Arctic regional objectives (Friis, et al., 2023; Raastad, 2023). Moscow's Arctic ambitions in the High North are largely two-fold.

First, Russia seeks to maintain great power dominance in the region by increasing its economic prowess from the resources available in its Arctic continental shelf and prioritizing establishment of the Northern Sea Route. Second, Russia remains committed to protecting its Arctic sovereignty and security interests. While Russia is conventionally weakened, its perceived vulnerability contributes to the development of a security dilemma brought to the fore by an increasingly strong North Atlantic Treaty Organization (NATO). Until Russia regains its conventional strength, Putin is almost certain to rely more on the threat of using its nuclear capabilities to deter the United States and NATO (Friis, et al., 2023; Osborn, 2023 ; Pifer, et al., 2023). Moreover, Putin's weaponization of diplomacy, economics, and energy have exposed Russia's attempts to sow division within NATO and weaken the current global security order (Aron, 2023; Aucott, 2024; Fischer, 2023).

In this fundamentally new phase in global security, Norway should reconsider its national security posture to ensure its ability to safeguard its sovereignty, territorial integrity, and political freedom of action in the Russo-Ukrainian war context (Norwegian Ministry of Foreign Affairs, 2022; Wilhelmsen & Gjerde, 2018). This requires a continuation of Norway's established deterrence and reassurance policy towards Russia, while also addressing critical military capability shortfalls in the High North to confront plausible future military challenges. Specifically, Norway ought to reevaluate its force posture to deter and respond to hybrid threats below the threshold of armed conflict and, furthermore, maintain sufficient readiness for limited territorial incursions by Russia in the High North, including required support to NATO operations in and around the High North.

The remainder of this article is divided into the following sections. Section 1 examines the Russian problem set, including Moscow's view of the current global security order and stated Arctic ambitions. Section 2 offers critical reflections on the strategic and political priorities of Norway in the evolved geostrategic security environment; assesses the plausible future military challenges and implications in the High North; and discusses how Norway

might reconsider its established deterrence and reassurance policy for strategic stability in the High North. Section 3 considers the capabilities required to deter and respond to hybrid threats below the threshold of armed conflict and also maintain sufficient readiness for limited territorial incursions by Russia, all while fielding the necessary capabilities required to support NATO operations in the High North. The purpose of this article is to support further academic and policy discussions of Norway's force posture and to confront current and future military challenges in the High North. This article, however, does not address the appropriate force posture of NATO in its entirety nor the United States as these should bother be considered independently and then combined.

SECTION 1: RUSSIAN PROBLEM SET

While Russia is unlikely to seek global hegemonic status, its regional priorities complicate Norway's High North security priorities. Oslo is increasingly seen as part of the aggressive Western coalition seeking to undermine Russia's sovereignty and security, rather than as Russia's neighbor with aligned interests (Norwegian Armed Forces, 2023). From Putin's perspective, Oslo and the west seek to undermine Russia's established strategic priorities for the Arctic, including regaining its former great power status through Arctic resources (Friis, et al., 2023). Russia has made no secret of its discontent with the global order and its plan to reshape the power dynamics in favor of Putin's great ambitions as a power equal to, or greater than, the United States. Yet, Putin maintains a deep-rooted belief in a zero-sum game of power and security that necessitates the use of force to protect its sovereignty, stability, and economic development; thus, setting Russia and NATO on a seemingly unavoidable confrontation course. Russia, therefore, continues to balance its regional security priorities with its broader global ambitions to maintain strategic stability and protectionism. Although not new, Russia's ongoing economic decline paired with Putin's willingness to use force increase the potential for Russia to use force in order to stabilize what it perceives as vulnerabilities to NATO and western strength. Ongoing economic decline in Russia will further exacerbate Putin's perceived security and sovereignty vulnerabilities.

Putin's Arctic ambitions are strategically pivotal to overcoming many of the challenges he perceives as immediate and long-term threats to Russia, namely those posed by NATO. In seeking to achieve these regional ambitions, Putin plans to develop new economic opportunities by prioritizing rapid development of the Northern Sea Route. However, western opponents allege Moscow attempts to militarize the Arctic. Russia's fears of existential vulnerabilities in the High North requires Moscow's emphasis of deterrence to perceived Western expansion and United States / NATO's intent to puncture Russia's sovereignty. Despite Moscow's perceptions of NATO aggression, Russian actions appear focused more on protecting its territory and second-strike nuclear deterrent than offensive intent and related capabilities.

STRATEGIC AMBITIONS OF RUSSIA

Russia has made no secret of its discontent with the global order and its plan to reshape the power dynamics in favor of Putin's great ambitions (Conley, et al., 2016; Valdai International Discussion Club , 2023). Senior-most decision makers in Moscow believe the current global security order is in a moment of transition from a Western-centric, United States-unipolar system to a global multipolar system whereby Russia will ascend to power that is greater than, or equal to that of the United States (Charap, et al., 2021). Putin not only views this shift as inevitable, but as the pivotal moment for Russia to reverse the loss of status of the Union of Soviet Socialist Republics (USSR) (Latypova, 2024). In attempt to regain great power status for Russia, Putin's priorities are to: (1) protect Russia's sovereignty and territorial integrity, (2) increase strategic stability and protectionism, and (3) expand sustainable economic development (Ministry of Foreign Affairs of the Russian Federation, 2023).

Although Moscow expects its ascendance to great power status to occur through cooperation in a multipolar setting, Putin believes Russia can advance its interests only at the expense of the United States in a zero-sum game of power and security (Folland, 2022; Watts, et al.). In this context, Moscow expects its adversaries will increasingly place greater emphasis on subversion and warfare to confront Russia and limits its perceived right to return to pre-Cold War great power status. Therefore, Moscow's ambitions to great power status in a multipolar system is only possible by force and protection of national sovereignty (Folland, 2022; Putin, 2023). Russia recognizes its need for a strong military and security apparatus to protect its sovereignty while confronted by a perceived immediate threat from the United States and NATO, both regionally and globally. However, there is little evidence to suggest Russia seeks a global, expeditionary military capability; its focus has largely been regional priorities, including the security and economic importance of the Arctic (Charap, et al., 2021). Moscow's plans to solidify its regional influence and control through military strength are not new. What has changed is Putin's willingness to use military and non-military means to achieve his established goals of rebuilding Russia's regional sphere of control rather than working through established international forums. Putin believes by creating additional spheres of control, Moscow will increase its protection from potential NATO aggression. However, as Finland and Sweden join NATO, Russia's eastern and western borders will be almost entirely surrounded by NATO states, thereby presenting an even greater

military challenge than before the Russian invasion of Ukraine. Putin's self-created instability has eroded Russia's regional security interest in the Arctic. This seemingly forces Putin to enact brash military and economic policies which increase Moscow's perceived protection from NATO threats, even at the cost of increasing regional and global stability (Faulconbridge & Astakhova, 2024).

Russia's declining economy continues to threaten the stability and security of Russia, requiring Putin to prioritize opportunities that reverse the ongoing recession (CIA, 2024; World Bank, 2024). Since 2014, the West has levied sanctions against 70% of Russian banking assets with hundreds of billions of Russia's Central Bank reserves remaining frozen (European Council, 2024). Russia's national debt has doubled from approximately 10,000 billion Russian rubles in January 2020 to over 20,000 billion Russian rubles in July 2023 (Statista, 2023). Russia's oil and gas exports remained consistent, yet its revenues continue to plumet as Europe moves away from Russian supplied gas and the G7 implemented price caps on Russian crude oil (Grozovski, 2023; International Energy Agency, 2023; Kurmanaev & Reed, 2023; Reuters, 2024). Senior United States government diplomats have committed the United States to "do everything we can…" to cause Russia's oil and gas exports to fall by 40-50% by 2030, which in 2021 accounted for 45% of Russia's federal budget (International Energy Agency, 2022; Wilson & Cook, n.d.; WITS, 2024). By some counts, 90% of Russia's gas production and 60% of its oil production occur within the Arctic (Fischer, 2023). As Putin continues to implement additional responses to what is perceived as "unfriendly" acts by the United States and the West, he is likely to seek new opportunities to regain economic security within his broader global ambitions (Marrow & Soldatkin, 2022).

Russia's continued attempts to undermine the global security order and shared legal principles complicate Norway's High North security priorities. While Norway and Russia have maintained "1000 years of peace", Putin's global ambitions increase the likelihood of confrontation with Norway in the High North (Jonassen, 2023). At Putin's direction, Russia's activities to achieve its priorities of (1) protecting sovereignty, (2) increasing strategic stability, and (3) expanding economic development, have the potential to increase bilateral and multilateral tensions in the High North. However, while often discounted, Moscow is incentivized to maintain peace and stability in the Arctic and expand areas of shared interest with Norway such as fisheries protection, search and rescue, and holistic Arctic economic development (Wegge, et al., 2023). Yet Moscow continues to conduct destabilizing activities in a self-perceived protectionist posture which exacerbate Norway's concerns. Thus, creating early components of a security dilemma between Russia and Norway (Jervis, 1978).

RUSSIA'S ARCTIC PRIORITIES

Russia's strategic interests in the Arctic are pivotal to overcoming many of the challenges Putin perceives as immediate and long-term threats to Russia (Baev, 2021). Putin views the Arctic as a "strategic resource base" in the struggle to reach his global ambitions while protecting Russia's sovereignty and security interest (Davis & Vest, 2020). Of the eight Arctic states, Russia has the largest territory, stretching across 24,150 kilometers, approximately 53 percent of the total Arctic Ocean coastline (Arctic Council, 2023). For years, Russia's long northern coast had been naturally protected by persistent and seasonal ice coverage. However, with rising Arctic temperatures, Russia faces increasing economic opportunity coupled with heightened fears of military confrontation by the United States and NATO (Arctic Council, 2023). Russian policies in the Arctic have prioritized opportunities for economic growth while emphasizing national sovereignty protection (Heininen, et al., 2014). Moscow's increasing investment in the Arctic create an imbalance between Russia and the United States / NATO. However, as Russia continues significant, military investments in the Arctic, Putin intentionally or unintentionally increases tension with NATO due to this military imbalance leading to increased NATO and United States military attention and investments in the High North. This imbalance contributes to the early formation of a security dilemma if the military investment and activity balance does not remain relatively controlled as it has been for years. While policy scholars in Washington may argue Russia's rapid infrastructure improvements in the Arctic represent broader military ambitions for the region, one must remember the reality of Russia's Arctic ambitions as prioritizing economic opportunities (e.g., petroleum and other natural resource extraction and exports) while protecting its territorial integrity, not as a means of creating an additional theater in which to fight NATO in (Davis & Vest, 2020; Williams, et al., 2020). However, Russia's protectionist posture of its national sovereignty in the High North does not preclude it from intentionally or unintentionally creating the initial components of a security dilemma as both Russia and NATO seek to achieve advantages in the Arctic military balance. Putin has prioritized the creation of conditions for major economic projects in the Arctic – namely natural resource extraction and establishment of new transit routes between Europe and Asia via the Russian controlled Northern Sea Route (NSR) (Davis & Vest, 2020). Although Putin believes Russia's accession as a global leader is only possible at the expense of the West in a zero-sum competition, Putin's desires for rapid economic development in the Arctic is only possible in a safe and cooperative Arctic (Reach, 2021). The NSR's 40% shorter transit route between Europe and Asia as compared to the Suez Canal route creates opportunities for new economic growth from international trade shipping while also giving Russia more control over critical global commons (Bouchalis, 2017; L.G., 2018; Yermakov & Yermakova, 2021). Perhaps most important to Russia, China closely mon-

itors the emerging NSR opportunities as a central component of its global Belt and Road Initiative, calling it the Polar Silk Road, which currently relies on various risky rail, road, and maritime transit routes (e.g., the 2021 grounding of the container vessel Ever Given in the Suez Canal causing significant global disruptions to global trade.) (Brigham, 2021; Humpert, 2023; Yee & Glanz, 2021).

While Putin has prioritized the development of the Northern Sea Route, Russia continues to face territorial disputes with the West over certain territorial boundaries along the Northern Sea Route (Overfield, 2022; Todorov, 2023). Article 236 of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) applies only to a relatively small component of the route (i.e., Kara Gate, and the Vilkitskii, Sannikov, and Laptev Straits) all of which are reasonably considered Russian internal territorial waters notwithstanding Washington's rejections of the underlying claims (Overfield, 2022). Similarly, as commercial activity increases in the Arctic, UNCLOS requires Russia to "...promote the establishment, operation, and maintenance of an adequate and effective search and rescue service..." along its Arctic coast (UN General Assembly, 1982). While Russia continues to rebuild its dilapidated Soviet-era infrastructure with highly advanced icebreakers for, in part, search and rescue services in the Arctic, select regional scholars in Washington and Oslo have viewed Russia's Arctic investments as malevolent rather than legitimate approaches to increase its economic security and defend territorial integrity (Williams, et al., 2020). For example, Russia's Northern Fleet has deployed the advanced S-400 surface-to-air-missile (SAM) to Novaya Zemlya, according to open source imagery analysis, as well as deployments of P-800 Oniks anti-ship cruise missiles, Kalibr-NK land-attack cruise missiles, Pantsir-SA and Tor M2-DT short-range base defense, and K-300P Bastion-P coastal defense systems (Williams, et al., 2020). While many of these systems have been characterized by Russia as purely defensive, nonetheless they remain capable of offensive kinetic attacks for denying access to international sea lines of communication through the Arctic.

Considering the importance of economic security to Russia and the perceived vulnerabilities NATO seeks to exploit against Russia's sovereignty and territorial integrity, Russian actions in the Arctic appear defensive rather than offensive (Norwegian Government, 2021; Strauss & Wegge, 2023). In Moscow's view, Russia remains vulnerable to attacks emanating in or through the Arctic Ocean and High North. The United States and NATO maintain substantial conventional air and maritime capabilities, as well as strategic air and naval assets, in the region creating a vulnerable northern flank for Russia. The Commander of the Northern Fleet believes NATO activities and force posture in the High North are reaching levels not seen since World War II (Alberti, 2021). Crucially, Moscow further interprets NATO's increasing force posture as an immediate threat to its second-strike nuclear deterrent and thus a threat to the survival of Russia (Zysk, 2020). While Western states continue to downplay Moscow's concerns, the NATO alliance has committed to enhancing its deterrent in the High North with regular visits by United States nuclear bombers and ballistic missile submarines (Bye, 2023; Friis, et al., 2023; Nilsen, 2016; Starr, 2021). In 2018, the United States sent an entire United States carrier strike group to the Arctic; and in early 2024, the British shared plans to deploy the HMS Prince of Wales, one of two British aircraft carriers, to the Arctic Circle for Norway's large-scale winter exercise – NORDIC RESPONSE (Eckstein, 2018; Nilsen, 2024a). Additionally, Norway hosted, and continues to expand, the largest ever NATO exercise in the High North, COLD RESPONSE 2022 (Masters, 2018; NATO, 2022). Finally, against the persistent complaints from Moscow, the United States and UK seemingly conduct regular bomber and intelligence collection flights deep inside Russia's claimed exclusive economic zone in the Arctic, venturing within miles of ports for Russia's second-strike nuclear deterrent (Nilsen, 2022b; Nilsen, 2022c). While the United States and NATO maintain these deployments are for training and establishing presence as a form of deterrence, one ought to consider the provocative nature and perceptions on the part of Moscow of these exercises.

Russia's alleged existential vulnerabilities in the Arctic mandates Moscow prioritize deterrence of perceived Western expansion and aggression. This competition has created the early components of a regional security dilemma in which Russia feels compelled to rely on its nuclear capabilities for deterrence while conventionally weak in the Arctic. This reliance on nuclear deterrence has almost certainly increased since 2022 due to significant Russian losses in Ukraine (Friis, et al., 2023). Of the 1,550 deployable strategic nuclear weapons, Russia deploys a majority of its second-strike nuclear deterrent in the Arctic with the Russian Northern Fleet. Since 2014, Moscow has prioritized funding for the modernization of its ballistic missile submarine fleet with the Borei class (Evers & Kee, 2021; Nuclear Threat Initiative, 2018; Nuclear Threat Initiative, 2023). In addition, Russia's significant quantity of nonstrategic nuclear weapons are interoperable with delivery systems either permanently or rotationally stationed in the Arctic (Wegge, et al., 2023). Although there is little evidence of Russian plans to use nuclear weapons in the Arctic, under extreme circumstances where NATO forces can hold Russia's Arctic-based global nuclear deterrent at risk. Therefore, in this extreme scenario, Moscow could opt to use a significant conventional strike capabilities or nonstrategic nuclear weapon to deter NATO acts of aggression or to create conditions in the Arctic essential to protecting its second-strike nuclear deterrent (Fischer, 2023).

Despite western claims of Russian aggression in the Arctic, Russia's actions appear focused on protecting its territory and second-strike nuclear deterrent rather than consistent with offensive intent. Supporting Russia's Arctic-based global nuclear deterrent is the Northern Fleet. Elevated to the role of Joint Operational Strategic Command for Arctic Operations in 2014, the Northern Fleet is tasked to protect Russia's Arctic-based second-strike nuclear capability; defend Russia's sovereignty in the Arctic; and, support other Russian geographic fleets (Edvardsen, 2024; Gubin, 2022). Putin sees the Northern Fleet as a critical security priority in order to develop sufficient defenses before United States-led Western forces challenge Russia's sovereignty and security in the Arctic (Zysk, 2020). Russia's further establishment of general-purpose forces in the Arctic, under the control of the Northern Fleet, provides regional capabilities to confront any NATO aggression, such as hostile territorial seizures or rapid military assaults targeting Russia's nuclear deterrent (Davis & Vest, 2020). Moscow's sensitivity to NATO's expansion in the Arctic are exacerbated by the Globus 3 radar in Vardø, just miles from Russia's ballistic missile submarine ports; NATO's routine anti-submarine warfare operations in the Norwegian and Barents Sea; and, the maritime chokepoints of the Greenland-Iceland-United Kingdom (GIUK) Gap and Bear Island to Svalbard (Bear Gap)/ (Fischer, 2023). Military leaders in Russia believe strengthening the Northern Fleet is the only way to counter NATO's expanding military presence in the High North and perceived malign behavior meant to subvert Russia's sovereignty (Pucchkov, 2020). Therefore, the concentration of Russian military assets in the High North support Russia's territorial defense, and counterbalance the perceived imbalance posed by NATO's aggression in the Arctic (Conley, et al., 2020; Heininen, et al., 2014).

SECTION 2: NORWEGIAN SECURITY POSTURE

Russia's war in Ukraine has shaken Norway's confidence in Moscow's willingness to be a responsible actor in the post-World War II international order. This leads to increased questions if Russia will maintain the High North – Arctic as a region of low tension (NATO Strategic Warfare Development Command, 2023). In this new phase in global security, Norway should reevaluate its security posture to achieve its strategic end states of safeguarding Norway's sovereignty, territorial integrity, and political freedom of action. Norway should then recalibrate its economic and political considerations in the High North by balancing its economic and security interests against those that may appear destabilizing to Russia in what Putin believes is a zero-sum competition of power and security. Due to the strategic importance of the High North to Norway's economy, ensuring it remains peaceful, stable, and predictable remains essential to both Norway and Russia.

Following Russia's military actions in Ukraine, leaders in Oslo fear Norway's deterrent posture is not appropriately tailored to the post Russo-Ukraine War context, reviving debates on the appropriate balance between Norway's longstanding policy of deterrence and reassurance. Like the United States, Norway supports the post-World War II liberal framework established by the West, whereas Moscow follows a far more realist approach.

This divergence creates opportunities for genuine miscommunication and misperceptions of each country's respective deterrents. To deny Russia any basis for believing aggression could advance its military or strategic objectives in the High North, Norway should adopt an independent and flexible deterrence approach. While the United States provides Norway with a nuclear deterrent against Russian aggression, there remains little flexibility in response options further necessitating Norway develop and maintain a credible, independent, and flexible deterrent.

Norway should maintain balance between its NATO-backed deterrent and demonstrating a clear, consistent reassurance policy to address the developing security dilemma in the High North. Because Norway's deterrent is largely an extension of the U.S. deterrent, Norway should consider taking a more involved role as a responsible mediator in the High North to ensure the United States and NATO do not exacerbate Russia's perceived vulnerabilities. Thus, Norway's established policy of deterrence and reassurance remains critical to reducing tensions in the High North but requires enhanced flexibility to mitigate the developing security dilemma.

ECONOMIC AND POLITICAL CONSIDERATIONS

As Norway continues to invest in economic opportunities in the High North, Russia will almost certainly perceive such investments as Norway's attempts to gain an advantage in the zero-sum resource competition (Gross, 2020). Norway holds the largest sovereign oil wealth fund and maintains significant fishing and resource extraction industries (CIA, 2024). Its top exports are LNG, crude oil, and fish (Observatory of Economic Complexity, 2024). While Norway supplies 30% of Europe's gas demand, Russia's gas exports to Europe dropped from 40% in 2021 to 8% in 2023 (Consilium, 2024; EIA, 2022; IEA, 2024; Norwegian Petroleum, 2024). Similarly, Norway continues a year after year 25%-35% growth in fishery exports since 2021, while Russia reportedly has a consistent decrease in total fishery exports (Evans & Østhagen, 2023; Flanders Investment and Trade, 2021; Nilsen, Norwegian King Crab Export Hits Record Thanks to Russia Sanctions, 2024; Norwegian Seafood Council, 2024). In 2022, Russia's total exports decreased by 14% (Lyngaas, 2023). These trends reflect a more isolated Russia dependent on emerging economic

opportunities in the Arctic to sustain its global ambitions. Without considering the growing military security dilemma in the Arctic, Russia and Norway already face tense economic competition over Arctic resources which could contribute to the developing security dilemma in the High North.

Because the High North remains essential to Norway's nearand long-term economic interests, Norway continues to seek opportunities for expansion while maintaining a peaceful, stable, and cooperative Arctic (Norwegian Ministries, 2017). Oslo's immediate priorities are to preserve the inviolability of international law and sustain Norway's bilateral and multilateral security guarantees (Norwegian Ministries, 2017; Saxi, 2023). While Norway and Russia have maintained "1000 years of peace", the Russia problem set has increased the likelihood of confrontation with Norway in the High North. Despite this, Norway seeks to cooperate with Russia on increasing requisite infrastructure, emergency preparedness, and environmental protections to ensure the High North remains a strategic resource for both countries (Norwegian Ministries, 2017).

Notwithstanding Russia's continued war in Ukraine, Norway continues to recognize the importance of cooperation with Russia on these critical issues despite its current limits on political and military engagements with Moscow. Norway views cooperation with Russia as necessary to "...solve common challenges in the north" (Norwegian Ministries, 2017). However, Oslo is not pursuing cooperation blindly. Rather, Oslo recognizes the importance of a credible deterrent and reassurance policy to maintain balance with Russia, which otherwise may resort to more aggressive, competitive tactics to gain an upper hand in the High North. Oslo should now consider the geostrategic environment in the High North to construct a flexible deterrent and reassurance posture vis-a-vis Russia to protect Norway's sovereignty, territorial integrity, and freedom of action.

DETERRENT POSTURE

Following Russia's annexation of Crimea in 2014, leaders in Oslo feared the balance between Norway's conventional deterrent and cooperative reassurance measures were "too reactive and one-sidedly focused," in favor of reassurance rather than deterrence (Saxi, 2023). This concern sparked revived debates within Oslo of the appropriate mix between Norway's conventional deterrent against potential Russian attacks against Norway, reinforced by United States-NATO extended nuclear deterrence, and a deliberate reassurance policy to prevent miscalculation by Moscow. In the case of the High North, Oslo should consider Putin's realist perspective of security when developing its deterrent posture against Russia (Melvin, 2022). Specifically, Oslo should evaluate whether Moscow is perceiving Norway's deterrent consistent with its intended effects. Because Norway's deterrent rests on the extended deterrence of the United States, Oslo might further consider the implications of United States enhancements to its deterrent posture.

Like Washington, Oslo largely supports the post-World War II liberal framework established by the West, whereas Moscow does not. International Relations theorist John Mearsheimer argues a liberal state "...might genuinely believe that its policy is benign or even noble, while another state, operating according to realist principles, might view the same policy as threatening" (Mearsheimer, 2018). He further argues liberal and illiberal states increasingly resort to violence in order to settle differences (Mearsheimer, 2018). In the case of the High North, the Norwegian and United States military capacity increasingly exacerbates Russia's perceived vulnerabilities resulting in a growing security dilemma whereby Russia will subsequently seek to increase its own military capacity in the Arctic and High North to prevent unacceptable risks to Russia's sovereignty.

To undermine Russia's perceived benefit for the use of force, Norway's deterrent should be independently controlled and flexible, as well as aligned with the global deterrent effects NATO and the United States (Black, et al., 2020; Strauss & Wegge, 2023). Former Prime Minister Johan Jørgen Holst described Norway's required deterrent as the means to prevent "expansionist designs and equally important to avoid provocations which might generate Soviet incentives for preemptive or compensatory actions on the Northern flank" (Holst, 1966). From a military perspective, this requires a suite of flexible capabilities to both limit Russia's immediate military advances and generate sufficient situational awareness to trigger an Article 5 declaration by NATO to reinforce Norway's defense (Wegge, et al., 2023). Therefore, in this context, flexible deterrence should be means which provide Oslo with sufficient credible, conventional deterrence options for a suite of challenges emanating from Russia. This may include deterring Moscow's willingness to use force or engage in malign activities, as well as quickly regain control of escalating situations without relying on the United States and NATO's deterrent capabilities.

Table 1

Scenario Name	Security Type	Plausibility*	Consequences
DELIBERATE ESCALATION – Moscow views NATO's growing military posture along its border as a threat to its sovereignty, resulting in deliberate escalation and territorial incursions into a Baltic state in order to protect its security.	Conflict	Somewhat Implausible	High
CHAOS ENSUES – Russian fomented protests continue to grow in a Baltic state whereby ethnic pro-Russian nationalists are injured and chaos ensues. Compelled by Russian domestic pressure, Moscow intervenes militarily to establish pro-Russian self-governing regions to defend the ethnic Russians.	Crisis/ Conflict	Plausible	High
HORIZONTAL ESCALATION – During increased tensions between the United States and Russia, NATO deploys forces to Norway to deter Russia from opening a new theater and to challenge Russia's SSBNs by conducting anti-submarine warfare (ASW) operations. Russia responds with targeted missile strikes against threats to its SSBNs and increased surface naval activity to protect the GIUK and Bear Island Gaps.	Conflict	Highly Plausible	High
ACCIDENTAL ESCALATION – While NATO conducts the largest ever exercise in the Arctic, Russia conducts multiple weapons tests in the vicinity. During the test, a malfunction occurs and accidentally strikes a NATO surface vessel. Tensions rise.	Crisis	Highly Plausible	Medium
TRAINING MISHAP – During regular at-sea training, Russia's newest submarine experienced an unknown catastrophic failure while NATO vessels were in its vicinity. To protect his image, Russia's President blames NATO and rapid escalation occurs.	Crisis	Highly Plausible	Medium
FISHERY ENFORCEMENT GONE WRONG – Within Norway's declared maritime boundary for fishery and law enforcement, Russian civilian vessels conduct illegal fishing and other activities. Norway's Coast Guard stops, boards, and begins to seize equipment and property. Russia's Northern Fleet sends a surface vessel to the area as a show of force and displeasure with Norway's handling of the fishing situation.	Competition / Crisis	Has Occurred	Low
SEARCH AND RESCUE – A Russian oil tanker experiences catastrophic equipment failure and risks an oil spill in rough water off the coast of Norway. The crew requires immediate rescue, and the tanker must be safely brought to a port.	Competition	Has Occurred	Medium

* Plausibility is based on author's best judgements at time of writing in consideration of available sources cited throughout this article for a 2035-time horizon. Many factors of the environment can and will change the plausibility and thesejudgements should be routinely updated (Kuhn, 2018).

Norway should consider its deterrent in two ways: first, as an intermediary and moderator of United States and NATO deterrence in the High North against Russia and, second, as a provider of an independent, flexible deterrent

posture to avoid a spiraling security dilemma (Strauss & Wegge, 2023). NATO remains the cornerstone of Norway's strategic deterrent vis-a-vis Russia based on the United States commitment to NATO's extended deterrent posture and guarantee of allied reinforcements if Article 5 is ratified (Norwegian Ministries, 2017). However, as NATO increases its capabilities and readiness in the High North, Moscow will perceive such developments as offensive (Folland, 2022). Thus, Norway requires an independent, flexible deterrent posture for a range of plausible security challenges, crises, and conflict scenarios, some of which are described in Table 1 below (Norwegian Ministries, 2017).

While the United States provides Norway with a nuclear deterrent against Russian aggression, there remains little flexibility in response options. In the event of potential nuclear use, United States response options are limited to strategic nuclear weapon while Russia maintains a diverse nuclear arsenal (Harvey & Soofer, 2022). United States limited response options introduce a degree of doubt in the overall willingness of the United States to use strategic nuclear weapons in the event of a territorial incursion or act of aggression by Russia. While some would argue the conventional capabilities of NATO provide the additional flexibility needed prior to nuclear use, the High North and Norway likely are low priorities in NATO operational plans during a NATO-Russia conflict as compared to other regions, for example the defense of Baltic states or key allies such as the United Kingdom, France, and Germany (Jonassen, Great Powers Have No Right to "Spheres of Influence" against Small Neighboring Countries, 2023). Therefore, Norway must maintain an independent, flexible deterrent comprised of sufficient defensive capabilities to deny immediate Russian military objectives and respond to Russian use of hybrid threats leading to and during conflict.

By maintaining an independent and flexible deterrent, Norway can tailor its posture as crises unfold and quickly regain strategic balance. To do this, Norway might consider investing in military capabilities with primarily defensive purposes which also counter Russian military operational tactics such as anti-tank weaponry, short-range air and missile defenses, and littoral mine warfare. Furthermore, Norway should consider investing in enablers of NATO's conventional response options to an Article 5 declaration by Norway (or neighboring Nordic states) such as enhanced ground and air logistics, certain intelligence and reconnaissance capabilities, survivable command and control networks, and High North training and exercises. Finally, Oslo could consider the use of the cyber domain as an additional deterrent which could target Russia's key enablers for offensive operations against Norway.

REASSURANCE POLICY

Norway should maintain balance between its NATO-backed deterrent and demonstrating a clear, consistent reassurance policy to alleviate the developing security dilemma in the High North. This balance would need to be finely tuned to avoid escalating already worsening tensions while still demonstrating resolve and deterrence to Moscow (Raastad, 2023). Since Russia's invasion of Ukraine, Norway's approach to reassurance has largely been kept as a second priority to deterrence. Going forward, Norway should consider using clearer communications, more predictable behavior, and expanding cooperation where possible to establish increased stability.

Clear communication increases stability by reducing doubt in Moscow of Norway's potential threat to Russia. Direct military-to-military engagements will further allow for transparency and confidence building. However, since Russia's invasion of Ukraine, such dialogue has decreased or halted (Folland, 2022). Even prior to 2014, many of Norway's attempts were either rebuffed or initially used for propaganda purposes and later unilaterally terminated by Moscow. Norway's Joint Operational Headquarters and the Northern Fleet continue to maintain an emergency hotline as well as other means to avoid misunderstandings or inflaming bilateral tensions (Nilsen, In Times of Tensions, High North Commanders Maintain Hotline to Avoid Misunderstandings, 2022). This communication provides reassurances to Russia and Norway, thereby decreasing the chance of unintended escalation and tension.

In addition to clear communication, Norway should consider increasing its predictable behavior during peace time, crisis, and conflict. While some in Oslo have called for a stronger posture to "stand up to [Russia]," predictability and transparency allow for mutual understanding of red lines and decreased chance of misperception and subsequent escalation and tension (Atlantic Council, 2021; Grady, 2021; Wegge, et al., 2023). Although Moscow will likely express dissatisfaction and spread propaganda in favor of Putin's Arctic ambitions, such behavior is equally predictable and thereby stabilizing in its own sense. Elevating a perceived threat narrative – whether factual or inflated – often leads to increased prioritization of military investments or other resources. This is no different for Putin than is for many Western nations which use threat narratives to increase military funding. While the term reassurance continues to be politicized out of concern related to Russian appeasement, Oslo should demonstrate clear, predictable deterrent behaviors to stabilize relations in the High North (Friis, et al., 2023).

Finally, Norway should consider cooperating where possible with Russia. Because both nations are incentivized for

a safe, secure, and prosperous Arctic, collaboration is possible in areas of mutual interest. For example, as Russia continues to construct a fleet of nuclear-powered ice breakers, Oslo could partner on nuclear safety and incident response. Similarly, given shared oil interests in the Arctic, Oslo could partner on oil and disaster response (Atlantic Council, 2021; Grady, 2021). Additionally, Oslo and Moscow will likely continue collaborative search and rescue operations in the Norwegian and Barents Seas. These areas of collaboration allow for stability and shared preparedness for potential disruptive events thereby increasing stability in the High North (Norwegian Ministries, 2017).

SECTION 3: IMPROVING NORWAY'S FORCE POSTURE

Should Norway implement an independent, flexible deterrent posture in the High North, Oslo will be better prepared for a spectrum of crises and conflicts. First, Norway should consider the response requirements to hybrid threats – a tool of choice by Moscow in Ukraine. Additionally, Norway should maintain sufficient conventional force posture and readiness to deter, and if necessary, unilaterally deny immediate attempts of potential Russian territorial incursions. However, Oslo must use caution to increase capabilities such that it does not create a destabilizing effect to the developing High North security dilemma. Specifically, while the accession of Finland and Sweden into NATO allows Norway to further tailor its military capabilities to a discrete set of plausible scenarios, it creates new dimensions to the developing security dilemma in the High North (Brooke-Holland, 2024). By focusing Norway's military investments in the High North against a discrete set of plausible scenarios, while offsetting the military investments of other Nordic states, Oslo can maximize its contributions to the most impactful capabilities to safeguard its sovereignty, territorial integrity, and political freedom of action.

HYBRID THREATS

Russia considers itself to be in a perpetual state of competition with the West and leverages a mix of malign activities below the threshold of armed conflict to achieve tailorable end states in support of Putin's global ambitions (Monaghan, et al., 2023). Norway and the High North are not immune to such threats. Russia views these tools as force multipliers to make up for its conventional military shortfalls. Typically, Russia views acceptable hybrid activities to include cyber warfare, electronic warfare, sabotage of critical infrastructure and government facilities, as well as information and influence operations – a list of plausible hybrid threat scenarios is further articulated in Table 2 below (Jasper, 2021; Mueller, 2019).Moscow authorizes increasingly more hybrid activities seeking to undermine liberal institutions and fracture the public or political will to counter Russia's aims (Black, et al., 2020; Clark, 2020). To confront Moscow's perceived advantage in using hybrid threats, Norway should consider implementing a robust set of tools in three ways: (1) survivability and protection, (2) detection and attribution, and (3) mitigation and response.

Table 2

Threat Types	Target Types	Difficulty to Attribute	Example Scenario
Chemical or Biological Weapon event	People Equipment Buildings	High	Russian military operatives use a lethal chemical nerve agent proximate to a crucial Norwegian airbase and seaport to impede NATO reinforcements and distract Oslo during lead up to war with NATO (May, 2018; UK Police, 2021).
Assassination	People	Medium-High	Russian intelligence conducts a covert assassination of a Norwegian government official working with the United States and NATO to undermine Russian strategic military advantages (Klain, 2020).
Covert Provocations	People	Medium	Russian operatives aid the movement of refugees from southern Russia to its border with Norway to create a distracting challenge for Oslo (Agence France-Presse, 2023; Reuters, 2016).
Foment Civil Disobedience	People	Medium	At the direction of the Kremlin, ethnic Russians in Svalbard increase claims of unfair treatment by Norwegian authorities and secede. The movement establishes its own government and requests Russian protection. Moscow allows 'volunteers' to protect the Russian diaspora in the seceded territory in Svalbard (Riehle, 2022).
Physical Destruction	Equipment Buildings	Low	Russian operatives conduct physical sabotage against Frigaard Cave, Trondheim, Norway to slow United States forces from respond during crisis.
Cyber Operations	Equipment Buildings	Medium	Russian intelligence officials conduct cyber intrusions against Norwegian critical infrastructure (i.e., water, sewage, electricity, etc.) causing confusion and hesitancy in Oslo's willingness to respond in crisis (Soldatov & Borogan, 2022).
Space Operations	Equipment	Medium	Russia initiates multiple counter-space tools to temporarily incapacitate NATO space-based infrastructure (DIA, 2022).
Electronic Interference	People Equipment	High	Russian military electronic warfare units conduct electronic-based jamming and interference activities in the High North against NATO aircraft during a significant Arctic exercise (Nilsen, Russian Jamming is now messing up GPS signals for Norwegian aviation practically every day, 2024).
Political Coercion and Influence	People	Medium-High	Russia's Internet Research Agency uses different types of media to influence Norwegian public support for a growing Norwegian military and NATO presence in Norway.
Economic Coercion and Influence	People	Low-Medium	Moscow rapidly expands its export of select Arctic commodities to decrease the market demand, thereby undermining Norway's export value.
Information Operations	People	Medium-High	Moscow's controlled media outlets expand coverage and readership in Norway to push pro-Russian narratives and shape public opinion in Norway.
Espionage	People	Medium-High	Russian foreign intelligence operatives cultivate sources with access to Norwegian and NATO defense planning information.
Coercive Diplomacy	People	Low	In a public address, Russia's President threatens nuclear use if Norway were to conduct any Arctic military activity which threatens Russia's SSBNs.
Intelligence Collection	People Equipment	Low-Medium	Russia's Embassy in Oslo pay local Norwegians to film military bases and report on military activity (Robert Lansing Institute, 2023).
NOTE: Attribution is based on Norway's judged ability to detect and determine the action was carried out at the direction of a particular government. This does not only include detection which in some cases can be easier than attribution to a foreign government.			

Perhaps most important within Norway's tools to confront hybrid threats is its ability to protect individuals, equipment, and infrastructure from malign activity. Whether this includes influence operations or deliberate sabotage events, protection from immediate effects will deny Russia's attempts at undermining Norway's sovereignty while giving Norway time to mitigate long term implications. While protection remains the most expensive and difficult to implement, Norway might consider establishing a cross-ministerial office co-led by the Ministry of Defense and Ministry of Justice and Public Security dedicated to confronting hybrid threats and increasing protection capabilities across Norway. While not perfect, this could limit the overall effects if Russian hybrid tools were to be employed (Ministry of Defense Finland, 2021). Furthermore, the Storting should consider appropriating dedicated funds to increase the protection of critical infrastructure from hybrid threats – primarily cyber and sabotage. Finally, Oslo might consider leveraging the unique skills and status of the Home Guard to provide protection against hybrid threats. The Home Guard, comprised of 40,000 soldiers as compared to the 17,000 active soldiers, serves as the Norwegian quick reaction force during a crisis (Norwegian Armed Forces, 2022; Norwegian Armed Forces, 2022). The Home Guard could provide essential civilian and local expertise to identify and protect Norway from Russian hybrid threats.

Detection and attribution of hybrid threats remains critical to the sovereignty of Norway. Without this capability, Oslo would be unable to determine if an event was a result of Russian-directed malign activities, as experienced in 2021 and 2022 when cables between Norway and Svalbard were severed (High North News, 2021; Humpert, Nord Stream Pipeline Sabotage Mirrors Svalbard Cable Incident, 2022; Schia, Gjesvik, & Rødningen). Detection remains crucial for hybrid threats as they are often only successful if they remain deniable and ambiguous. The confusion caused by hybrid threats allows Russia to delay, complicate, or even prevent Norway's timely response to crises (Berg, Helkala, & Årnes, 2024). As the Home Guard is embedded within their communities, they could serve as hybrid threat sentries ready to warn and respond to malign activity (Norwegian Ministry of Defense, 2015). In 2022, Oslo mobilized its Home Guard to protect maritime infrastructure in Svalbard and on the mainland (Østhagen, Svendsen, & Bergmann, 2023). Additionally, the Storting should consider appropriating dedicated funds to increase civil education and media literacy to enable Norwegians to warn public officials of malign activity as well as control the spread of such activities (Sheppard, et al., 2019). Finally, within the spirit of Norway's Total Defense concept, whereby the government can mobilize the country to support its defense, Oslo should expand coordination with private industry directly to increase dialogue for detection of unusual activities and rapid development of safeguards to minimize their malign effect (Norwegian Ministry of Defense, 2018).

In considering the mix of hybrid threats posed by Russia, Norway should prioritize a strong Detect, Attribute, and Respond (DAR) posture (Norwegian Ministry of Defense, 2015).Within this concept of DAR, Norway can rapidly react to ongoing hybrid threats and limit their potential damage. For hybrid threats, speed and information advantage remain critical to mitigation and response (Notaker, 2023). Norway should work across NATO and its neighboring Nordic states to develop multilateral mitigation and response plans to contain the initial impact and diffuse the potential effects of the hybrid threats. By limiting or reversing the effects of a hybrid activity, the activity's value as perceived by Russia will diminish. If paired with the appropriate deterrence and reassurance measures, Russia may come to view hybrid threats as contrary to its bilateral interests with Norway (Schaus, et al., 2018; Sheppard, et al., 2019).

CONVENTIONAL THREATS

In addition to hybrid threats, Norway will also need to maintain sufficient conventional force posture and readiness to deter, and if necessary, deny potential Russian territorial incursions. By focusing Norway's military investments in the High North against a discrete set of plausible scenarios and the investments of other Nordic states (articulated in Table 3 below), Oslo can maximize its contributions to the most impactful capabilities to safeguard its sovereignty and territorial integrity (Norwegian Armed Forces, 2023). Norway's Armed Forces are facing challenging decisions while being asked to contribute more with a relatively flat budget through the next 10 years. The Chief of Defense has called Norway's Armed Forces "…not sufficiently funded or dimensioned to perform the tasks incumbent on them" (Norwegian Armed Forces, 2023). Oslo should, therefore, reevaluate its force posture based on its strategic end states and Norway's bilateral and multilateral security commitments. Furthermore, Norway will equally need to contend with the appropriate balance of necessary force posture for territorial defense while not further contributing to a security dilemma in the High North. For example, Norway's continued investment in anti-submarine warfare operations might enhance the United States' ability to track and target Russia's submarines; however, such an investment exacerbates Moscow's fears of a vulnerable second-strike nuclear deterrent (Wegge, et al., 2023).

To alleviate some of the immediate challenges of Norway's limited defense spending, Oslo might consider the force posture of its NATO allies in the High North as articulated in Table 3 below. Denmark, Finland, Iceland, and Sweden all maintain diverse military and coast guard capabilities. Norway could take a leadership role in certain areas while relying primarily on the strengths of other Nordic states for certain key military functions (Strauss & Wegge, 2023). In a NATO-Nordic burden sharing construct, Norway should consider prioritizing: (1) situational awareness; (2) maritime presence and defenses; (3) short-range air and missile defenses; (4) logistics; and, (5) counter-maneuver warfare capabilities. These systems would not only serve Norway's independent, flexible deterrent posture, but also enable NATO's conventional response options in an Article 5 declaration such as enhanced ground and air logistics, certain intelligence and reconnaissance capabilities, survivable command and control networks, and High North training and exercises. Additionally, Norwegian investment in operational denial systems such as anti-tank weaponry, short-range air and missile defenses, and littoral mine warfare, could slow a potential Russian territorial incursion and serve as an advantage for a quantifiably smaller military force.

Beyond the High North, Norway's commitments to NATO have further ramifications for their defense budget. As Sweden and Finland join NATO, additional attention will be drawn to the High North and the Baltic Sea. While both the High North and Baltic Sea require some complementary capabilities for NATO operations, Norway's limited military budget of less than 1.6% of its gross-domestic product is insufficient for defending the High North, let alone meaningfully contributing to other regions (World Bank, 2024). Oslo has committed to raising its military spending to 2% by 2026; however, it will take longer before this additional funding will result in operationally ready capabilities (Norwegian Armed Forces, 2023; Reuters, 2023). Under such budget constraints, Norway should consider prioritizing and streamlining its military investments based on the force posture of its NATO allies in the High North and the direct impact the investment will have on protecting Norway's sovereignty while minimizing unintended escalation with Russia.

In December 2023, Finland signed a defense cooperation agreement with the United States authorizing "broad access" to Finish territory by U.S. forces (Kauranen & Lehto, 2023). The accession of Finland and Sweden has in some ways alleviated certain burdens (such as United States permanent basing which Norway has long rejected out of concern of escalations with Russia), but in other ways has added additional complexity for the security dilemma with Russia. Finland's extensive land border with Russia and Sweden's strong military posture could strain Russia's threat perceptions in the High North. Additionally, Finland and Sweden's focus on the Baltic Sea over the High North could draw attention away from the security interests of Norway. This further calls for Norway to adjust its force posture to share the military burden with the other NATO Nordic states while also expanding its leadership role within NATO and the Nordic Defense Council (NORDEFCO).

Table 3 - Comparing Military Composition of Nordic States

	Denmark	Finland	Iceland	Norway	Sweden
Combat Aircraft (1)	50	107	0	37	98
Patrol Aircraft (2)	25	15	1	40	11
Logistics Aircraft (3)	8	35	3	22	76
Air Defense (4)	0	60	0	4	14
Surface Combatants / Patrols (5)	12	8	0	11	8
Submarines	0	0	0	6	5
Naval Support Vessels (6)	23	15	3	22	30
Assault Landing Craft	0	64	0	6	144
Main Battle Tanks	44	100	0	36	120
Infantry Fighting Vehicles (7)	44	212	0	112	411
Armored Personnel Carrier	286	616	0	390	1.06
Military Utility Vehicles (8)	175	84	0	262	82
Artillery	50	682	0	167	357

Data Source: Military Balance 2023. The International Institute for Strategic Studies (IISS). S.l.: ROUTLEDGE, 2023. https:// www.iiss.org/en/publications/the-military-balance/the-military-balance-2023/.

NOTE: This is a high-level consideration of military equipment and does not account for all nuance associated with each piece of equipment such as personnel, training, or maintenance requirements. This is meant to be a high-level consideration of military investments by each country and, therefore, does not account for the sophistication of each piece of equipment; the author does recognize all equipment is not of equal sophistication. Finally, these figures only include assets from each country and do not include United States or NATO forces forward positioned within these Nordic countries (e.g., United States Marines at Vaernes and Setermoen, Norway).

1. Finland has shared its plans for the purchase of 64 United States produced F-35.
2. Includes search and rescue, anti-submarine warfare, and intelligence, surveillance, reconnaissance missions with unmanned, fixed-wing, and rotary wing platforms. These are generally not armed for its primary mission.
3. Includes moving of equipment on manpower and include fixed-wing and rotary-wing aircraft.
4. Denmark recently announced its planned investment in short range air defense. Norway currently operates 4 of the 6 original NASAMS and is expected to receive an additional 8 NASAMS in 2024-2025 with the delivery of the Norwegian mobile ground-based air defense (GBAD) system.
5. Includes off-shore vessels and coastal patrol vessels with the primary purpose of maritime assaults or land strikes at distance.
6. Includes coast guard (not search and rescue), law enforcement, mine warfare, and naval intelligence missions. An additional 30 coastal patrol vessels are available from the Danish reserve home guard.
7. Includes vehicles for mechanized combat and reconnaissance missions.
8. Includes logistics and supporting equipment of ground maneuver operations and special equipment such as mine sweeping, bridge laying and engineering, and nuclear, biological, and chemical vehicles.

CONCLUSION

Since the invasion of Ukraine in 2022, Norwegian officials have claimed the global security order has irrevocably changed. Subsequently, Oslo should reconsider its security posture to defend against potential future threats from Russia (Støre, 2024). While Putin's disregard for international norms and legal principles remains concerning, the net security situation in the High North has not significantly deteriorated. Nevertheless, it bears continued vigilance moving forward. Rhetoric from NATO and Russia continues to generate alarm. Russia demonstrates a more assertive, imbalanced military posture creating the initial components of a developing security dilemma with Norway in the High North. While much of this development is focused on Russia's territorial defense, Norway should take a leadership approach to maintain an independent, flexible deterrent paired with a strong reassurance posture to prevent the potential for hybrid aggression or conventional conflict in the High North.

Norway should consider its deterrent in two ways: first, as an intermediary and moderator of United States and NATO deterrence in the High North against Russia and, second, as a provider of an independent, flexible deterrent posture to avoid a spiraling security dilemma. This requires a suite of flexible capabilities to both limit Russia's immediate military advances and generating sufficient situational awareness to trigger an Article 5 declaration by NATO to reinforce Norway's defense. In conjunction with this deterrent posture, Norway should leverage clear communications, predictable behavior, and cooperation where possible to reassure Russia of Oslo's nonthreatening intentions. A revitalized reassurance policy to Russia serves to decrease the chance of unintended escalation and tension, thereby avoiding the developing security dilemma in the High North.

As Russia seeks to consolidate its gains in Ukraine and rebuild its military capabilities to further Putin's great power ambitions, Norway should be adaptable in its deterrent and reassurance policy and vigilant in considering its effectiveness for further improvements. Norway should immediately address critical military capabilities shortfalls in the High North to support its independent, flexible deterrent as well as confront hybrid and conventional military challenges of the future. To do this, Norway should invest in military capabilities with primarily defensive purposes to undermine Russian military operational tactics. Furthermore, Norway should invest in enablers of NATO's conventional response options to an Article 5 declaration. By focusing Norway's military investments in the High North against a discrete set of plausible scenarios and the investments of other Nordic States, Oslo can maximize its contributions to the most impactful capabilities to safeguard its sovereignty, territorial integrity, and political freedom of action while avoiding a potential security dilemma in the High North.

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Achieving Unified Command in the Arctic:

The History of Alaskan Command

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ABSTRACT

This article examines the history of unified command in Alaska and the Arctic. An examination of the history of unified command at North America's "ten o'clock position" is needed to illuminate critical insights into the evolving dynamics of military organization and strategy in response to geopolitical shifts and emerging security challenges. Rapid transformation driven by geopolitical, environmental, and Great Power Competition create a pressing need to reassess and adapt the structural frameworks governing unified command at the top of the globe. By evaluating the evolution of unified command in Alaska and the Arctic, alongside an analysis of current geopolitical trends and security threats, this article seeks to identify opportunities for structural changes that enhance the effectiveness and responsiveness of military command and control in the strategically central Arctic Region. This historical examination provides insights into the ongoing discourse surrounding unified command in Alaska and contributes to informed discussions regarding future policy and organizational reforms across the Arctic. Moreover, by conducting a comprehensive exploration of the historical context of unified command in Alaska, this article sets the stage for subsequent examination of contemporary imperatives shaping the Arctic Region alongside potential alternatives for consideration by the Joint Staff during the periodic Unified Command Plan (UCP) review process.

The Arctic is undergoing drastic changes: an increasing threat in and through the Arctic as seen by recent cooperation between the People's Republic of China (PRC) and Russia, a dynamic and evolving geostrategic security environment, including North Atlantic Treaty Organization (NATO) expansion, and the ongoing effects of climate change emanating from the region. As a result of these changes, the Arctic is increasingly viewed as a distinctly cohesive global region possessing a unique and strategic identity. Achieving unity of command in Alaska and the Arctic Region will enhance comprehensive Arctic domain awareness and Arctic capabilities through effective advocacy and resourcing. It will also expand engagement with Arctic Allies and partners through NATO and North American Aerospace Defense Command (NORAD), and increase campaigning in the Arctic through combined exercises, presence, and training (White House, 2023; Department of Defense, 2022).[1]

In 1947, following World War II (WWII), President Truman established Alaskan Command (ALCOM) – one of two original unified commands that still exist today. Despite several permutations, ALCOM's historical evolution demonstrates both continuity and change in response to significant threats to homeland defense. Today ALCOM, a subordinate unified command organized under USNORTHCOM, remains a joint force headquarters responsible for synchronizing joint effects within the Alaskan Theater of Operations (AKTO). Anticipating the future of the Arctic necessarily involves opening the aperture beyond ALCOM's role in Alaska and exploring the Arctic Region holistically. ALCOM and Alaska serve as an appropriate case study for future unified command concepts based on the premise that Alaska is what defines the United States an Arctic Nation and the only land area where the US can act unilaterally to influence the Arctic's security environment.

1 The White House's Implementation Plan for the 2022 National Strategy for the Arctic Region mandates "Strategic Exercise Presence to Support Priority Goals" (Strategic Objective 1.2) in support of Pillar 1—Security: "Develop Capabilities for Expanded Arctic Activity." The 2022 National Defense Strategy (NDS) and DOD's Arctic Strategy (2019; to be updated in 2024) further refine these goals. For example, achieving unity of command in the Arctic enables DOD's focus on integrated deterrence, campaigning, and building enduring advantages as described in the 2022 NDS.

Currently, three geographic combatant commands (CCMDs) share responsibility within the Arctic: U.S. Northern Command (USNORTHCOM), U.S. European Command (USEUCOM), and U.S. Indo-Pacific Command (USINDOPACOM), creating a complex command and control (C2) environment and challenging the United States' ability to monitor and respond across the region. Meanwhile, NATO expansion and NORAD modernization, alongside increased PRC and Russian activities, generate a security dilemma in the Arctic beyond the scope of the Arctic Council to adjudicate. The challenge of achieving unified command across the entirety of the Arctic to integrate and synchronize joint effects-including campaigning operations, activities, and investments requires further study and analysis, but will enable employment of an Arctic-capable joint force trained and equipped to respond to crises or contingencies across the Arctic.[2]

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Secretary of State William Seward argued in support of the United States' purchase of Alaska in 1867: "If we would provide an adequate defense for the United States, we must have Greenland and Iceland to dominate the North Atlantic – and Alaska to dominate the North Pacific" (USARAL, 1969, p. 1). Despite Seward's vision, Alaska's strategic significance for the defense of North America was not fully realized for 75 years, when the United States and Canada combined forces during WWII to defeat the Japanese invasion of United States soil on the western Aleutian Islands of Attu and Kiska.[3] A lack of unity of command across air, land, and sea domains hindered operations, especially given the intense competition for limited supplies of ships, landing craft, and airplanes.[4] The fierce struggle for the Aleutians during WWII-resulting in a wartime peak of over 150,000 military personnel in Alaska, an incredible logistical burden-could have been mitigated through unified command.

Based on his research of the Aleutian Campaign and Alaska, Galen Perras concluded, "The JCS [Joint Chiefs of Staff] did not agree to a common approach to the Aleutians. Failure to appoint a Joint Commander . . . made the JCS the de facto theater commanders" (2003, p. 195).[5] Following WWII, the US military consolidated its joint forces in Alaska and focused on incorporating lessons learned in unified or joint operations during the war and developed a joint command system. One of the first actions involved President Truman signing the Outline Plan, or "First UCP," in December 1946 thus crafting the model for combatant commands (Cole et al., 2013, pp. 9-10, 117; Watson, 2011, p. 12).[6]

The Outline Plan led to the simultaneous creation of the first three unified commands on January 1, 1947: Alaskan Command, Pacific Command, and Far East Command. Several scholars attest that ALCOM was established as the Nation's first truly unified or combatant command, even though Pacific Command and Far East Command were established on the same date.[7] Affirming this claim most recently, Perras emphasized ALCOM's tri-service aspect, including the strong Air Force presence that existed in Alaska making it unique among the original joint commands.[8]

2 Campaigning involves following the principles of joint operations while synchronizing efforts throughout the Operational Environment with all participants (JCS, 2020, p. xxv).

3 Just prior to WWII, air power advocate Billy Mitchell boldly proclaimed in testimony before the US Congress in 1935 that Alaska was the most strategic place in the world. For a recent summary of Alaska's significance in Homeland Defense see Nahom and Vanderlugt (2023).

4 Unity of command means all forces operate under a single commander who possesses the requisite authority to direct all forces employed in pursuit of a common purpose (JCS, 2020, p. V-5).

5 Galen Perras supports this thesis in his final chapter (pp. 186-198). Rather than establishing a system of unified command for the North Pacific, the official Army history admits bifurcated Pacific Command Relationships (COMREL) led to duplication of effort and competition for limited resources. A scholar at the Naval War College added, "[this] glaring deficiency would manifest itself in persistent interservice bickering, poor command and control, and a lack of unity in effort as major operations were conducted," (Perras, 2004, p. 195).

6 The National Security Act of 1947 (P.L. 80-253) established the Office of the Secretary of Defense and created the Unified Combatant Command (UCC) system – thus terming Alaskan Command a combatant command (though in early usage, this moniker was not as common as "unified command"). The Act gave the JCS the responsibility to establish unified commands in "strategic areas" subject to the approval of the President and Secretary of Defense (Congressional Research Service, 2013, p. 4).

7 11th Air Force historian John Cloe wrote, "The Alaskan Command, or ALCOM, had been established 1 January 1947 as the first unified command [italics added]" (p. 158). Alaskan Command historian Truman Strobridge wrote, "On I January 1947, CINCAL issued the first General Order of the Alaskan Command providing for the activation of the joint headquarters and the authorization for the unification of all land, sea, and air forces within the territory. Thus the first joint command in America's defense posture came into existence and has continued to be ever since [italics added]" (Strobridge, 1966, p. 19). Strobridge's early publication date cannot account for ALCOM's disestablishment in 1975 and reestablishment in 1989. Continuity for the joint command in Alaska during these intervening fourteen years was provided by Joint Task Force-Alaska.

8 Perras wrote: "The new DoD decided in 1947 to create ALCOM, the first unified tri-service command in the nation" (p. 184). The Air Force was recognized as a separate and distinct Service in 1947, the same year ALCOM was established. See footnote

USINDOPACOM's publicly available history claims it is the "oldest and largest" unified command, but not the first. USINDOPACOM also highlights that individual Army and Air Force component commands for the Pacific were not established until the mid-1950s, supporting claims that ALCOM was indeed the Nation's first unified command given its unique tri-service composition and assigned components at the time of formation (USINDOPACOM History Office, 2024).[9]

Though the nuance of whether ALCOM was the first unified joint command or PACOM[10] was the longest continuously-existing joint command may largely be a moot point, Alaskan Command was the only original unified command directly tasked in 1947 with defending the US homelands in North America and "protecting the United States from attack through Alaska and the Arctic regions" (Cole et al., 2013, p. 10).[11] ALCOM's genesis and purpose is therefore tied to the mission of homeland defense. Alaskan Command was founded due to a lack of unity of forces in Alaska during World War II (112th Congress, 2012).[12] As a result, Alaska possessed an unforgettable, perhaps unforgivable, scar on American defense. The Aleutians represent the only enemy occupation of US soil in North America during the twentieth century. Regardless of whether some viewed Alaska as expendable – an "economy of force" mission – most Americans agreed that we could not allow our enemies to just "come over and grab some of our land." This mentality influenced the military decision to take it back, regardless of strategy, and to prevent enemy seizure of US territory from ever happening again.

The President established Alaskan Command during the post-war years to provide unified air, ground, and sea defense of Alaska and its surrounding waters by the US Joint Force. General Order Number 1 established Alaskan Command as follows:

> In accordance with instructions from the Joint Chiefs of Staff, 14 December 1946, the Alaskan Command is established as of 010001Z January 1947, with Headquarters at Fort Richardson, Alaska. The Command-in-Chief, Alaskan Command, will exercise unified command over all US Army Forces and all Army Air Forces currently under command of the Commanding General, Alaskan Department, and over all US Naval Forces which have been reported to him by COMALSEAFORN in accordance with instructions from the Command-in-Chief Pacific Fleet. Current missions, tasks and administration of the subordinate commands will continue in effect. The undersigned, designated by the Joint Chiefs of Staff, hereby assumes command. Signed, H.A. Craig, Major General, US Army, Command-in-Chief (Atkinson, 1951).[13]

The newly established Alaskan Command consisted of three components:

9 According to INDOPACOM's public website, "U.S. Indo-Pacific Command was established as a unified command on January 1, 1947, and it is the oldest and largest of the United States' unified commands. The present US Indo-Pacific Command (USINDOPACOM) includes areas originally assigned to two other unified commanders. The Far East Command, which had been established on January 1, 1947, was disestablished on July 1, 1957, and all its responsibilities were assumed by the Pacific Command. That same day [in 1957], the command assumed some of the responsibilities of the Alaskan Command and individual Army and Air Force component commands for the Pacific also were established in Hawaii (USINDOPACOM History Office, 2024, 1).

10 The Secretary of Defense officially changed the name of US Pacific Command (USPACOM) to US Indo-Pacific Command (USINDOPACOM) on May 30, 2018, reflecting increasing connectivity between the Indian and Pacific Oceans. For the purposes of this article, most references are to the pre-2018 organization, USPACOM, or simply "PACOM." When the organization is referenced post-2018, its current designation of USINDOPACOM is utilized.

11 The Northeast Command included US forces assigned to Newfoundland, Labrador, and Greenland and a mandate to defend against attack through the Arctic Region and airways within its Command but did not include the US homelands. The establishment of Northeast Command involved extensive political negotiation with the Canadian government.

12 For recent Congressional testimony regarding Alaskan Command, see Senator Begich, "DoD Authorization for Appropriations for FY 2013 and Future Years Defense Program," Hearings before the Committee on Armed Services, United States Senate, 112th Congress, Second Session on S.3254 (February-March 2012).

13 The "History of the Alaskan Command, 1 January 1947 through 31 December 1951" was declassified on 9 December 1997 by ALCOM J2. A copy of ALCOM's Establishing Directive is attached as an appendix to the ALCOM History, Volume I, located in the 11th Air Force Archives, 673 Air Base Wing, Joint Base Elmendorf-Richardson, Alaska. The author thanks Christopher Koonce, Chief, 673rd Air Base Wing History Office, for his support of this project and providing access to the Air Force and ALCOM archival records at JBER, Alaska.

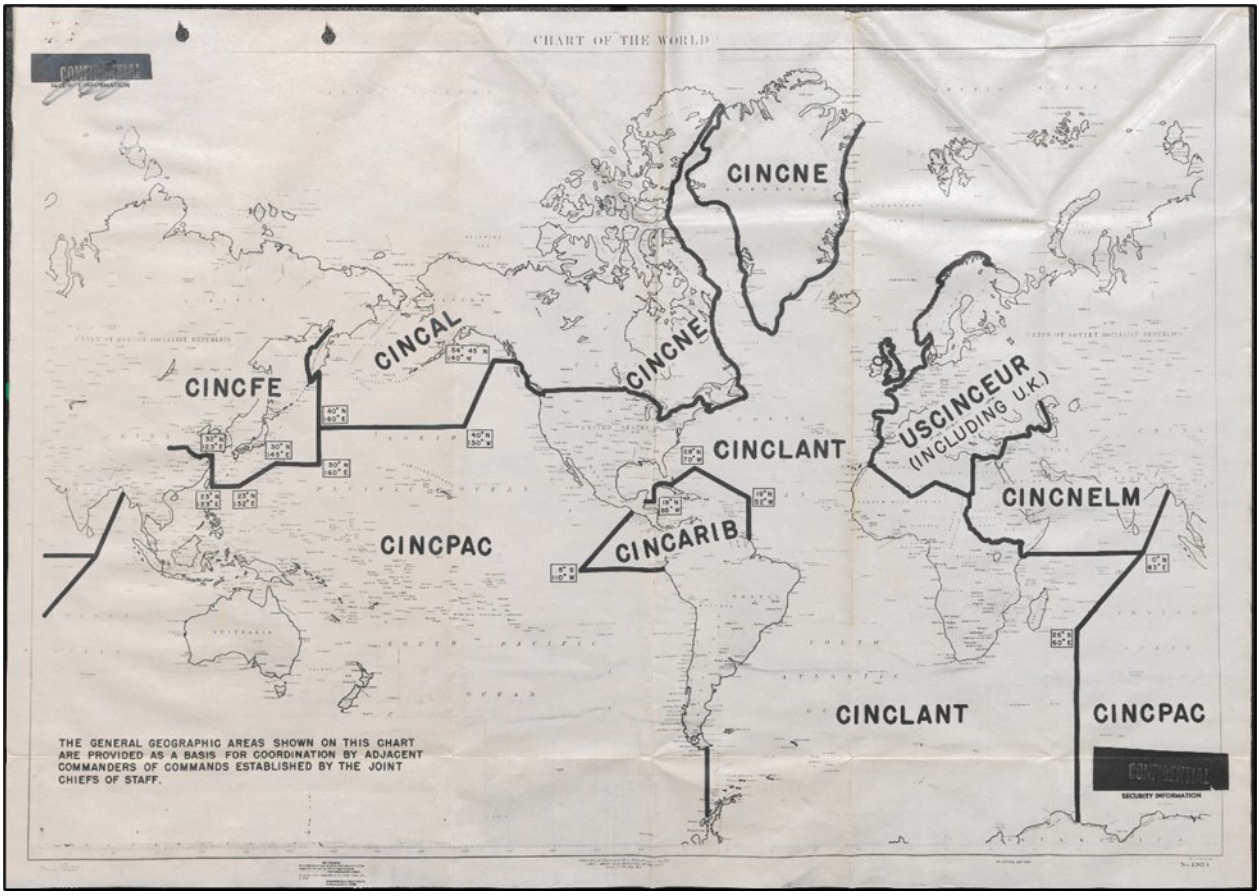
1) Alaskan Department, redesignated as U.S. Army Alaska (USARAL) in November 1947[14]
2) Alaskan Air Command (AAC), a redesignation of the Eleventh Air Force in December 1945[15]
3) Alaskan Sea Frontier (ALSEAFRON)

Though Alaskan Command's three original Service components reported to their respective Services, an Air Force three-star general exercised operational control. ALCOM, in turn, initially reported to Headquarters, USAF, which served as the "executive agent" responsible to the Joint Chiefs of Staff for the defense of Alaska.[16] When Congress passed the DOD Reorganization Act eleven years later, in 1958, ALCOM reported directly to the Joint Chiefs of Staff as a Joint Unified Command.[17]

ALCOM's first commander (Commander-in-Chief, ALCOM, or "CINCAL"), Maj Gen Howard Craig, together with his joint staff, had the authority to plan and coordinate Army, Air Force, and Navy operations in the Alaska area. After taking command, Maj Gen Craig's initial mission included overseeing the withdrawal of forces from the Aleutians and the establishment of an air defense system in Alaska. In addition, the command focused initially on five essential tasks (Atkinson, 1951, ix):

1) Defend and hold select base areas against enemy attack. This included the Fairbanks-Anchorage area and
the Naval Operation Base at Kodiak.
2) Deny any potential enemy the possession of Alaskan mainland bases and prevent them from making effective use of bases in the Aleutians.
3) Maintain and protect internal lines of communications and those external sea and air lines of communication essential to accomplishing of CINCAL's mission.
4) Conduct offensive missions appropriate to forces available and support offensive missions of other commands.
5) Provide logistical support to the various organizations or projects in the theater, which support or contribute indirectly to the Alaskan Command war emergency mission.

14 United States Army Alaska (USARAL) was later designated as USARAK.
15 The National Security Act of 1947 (P.L. 80-253) established the US Air Force. The Alaskan Air Command was designated as a Major Command (or MAJCOM) of the Air Force from 1945-1990 (Congressional Research Service, 2013, p. 4).
16 In recognition of the importance of air power to the defense of Alaska, the Commanders-in-Chief, ALCOM, or "CINCALs" were drawn from the ranks of the United States Air Force. Alaska was recognized as primarily an air-centric Theater of Operations.
17 In the DOD Reorganization Act of 1958 (P.L. 85-599), President Eisenhower sought "a complete unification of all military planning and combat forces and commands," thus amending the National Security Act of 1947 (Congressional Research Service, 2013, p. 4).



UCP Map, 1953 Revision[18]

In the land domain, United States Army Alaska (USARAL) provided for the ground defense of Alaska's main base complexes. The Alaskan Air Command (AAC), formerly the 11th Air Force, defended Alaska within the air domain. The Alaskan Sea Frontier (ALSEAFRON) provided maritime patrol and antisubmarine operations within the maritime domain in the waters surrounding Alaska. Lt Gen Nathan Twining, Maj Gen Craig's successor as CINCAL, submitted various proposals for modification of the UCP as it pertained to ALCOM on an experimental basis. In 1949, Lt Gen Twining pointed out that in the event of a surprise attack, the enemy would likely strike with such strength that forces in Alaska might be saturated and the command would have to revert from a planning to an operational headquarters at the very moment when it would be in danger of being overwhelmed by superior forces. He proposed authorization for his assumption of direct command over the three component forces, and that this be accomplished by appointing the three component commanders to Deputy CINCAL positions. The three Service component headquarters could then be merged, and the duplication of certain functions eliminated, resulting in a savings of approximately 1,000 personnel (Atkinson, 1951). Though his proposition was not implemented, the concept was fully analyzed by the JCS and later recommended by a DOD Blue Ribbon Panel.[19] The map below shows the general boundaries of CINCAL (or ALCOM), which included a majority of the North Pacific, the Kamchatka Peninsula and Chukotka regions of the Soviet Union, Alaska, most of Canada, and a large portion of the Arctic Ocean.

While serving as Chief of Staff of the Army from 1945-1948, General Eisenhower or "Ike," became convinced of Alaska's strategic significance for homeland defense. He personally visited Alaska shortly after ALCOM was established in 1947. His ten-day trip left a lasting impression. According to Ike, Alaska's defenses were in no shape to meet the potentialities of war. He believed Alaska's defense was so important that it should rank above all other

18 Photostat Map in Annex to Memorandum from the JCS dated July 24, 1953. Note this map shows geographic divisions prior to establishment of Continental Air Defense Command (CONAD) or NORAD. In addition, the unified command organization was for "all U.S. forces outside the continental limits of the United States." Published prior to Alaska statehood in 1959, Alaska was not considered part of the contiguous (or continental) 48 United States. The map is intended to delineate "general geographic areas of responsibility" only, thus the ambiguity between Alaskan Command and Northeast Command, the latter of which was disestablished on September 1, 1956. In Canada, Northeast Command consisted only of Newfoundland and Labrador; the remaining portions of Canada fell under ALCOM.

19 A 1970 Blue Ribbon Panel recommended "unfragmented command authority" for the unified commanders and designation of the component commanders as deputies to the unified commander to make "unmistakably clear" that the combatant forces were in the chain of command that ran exclusively through the unified commander (Cole et al., 2013, p. 27).

aspects of national defense. Meanwhile, Collier's ran an article claiming the Aleutian chain was a gaping and undefended back door to the American continent. Lyndon Johnson, chair of an Alaskan Task Force studying Alaska's security needs, stated: "The security of every American home begins in the snows of Alaska" (Perras, 2003, 185).[20] Meanwhile, a fitting motto, "Top Cover for America," was first unveiled by Elmendorf Air Force Base leadership in 1952 and eventually adopted by the AAC in 1969 (Cloe & Monaghan, 1984, 187).[21]

In 1958, following a binational agreement with Canada, Congress established NORAD and the Alaskan NORAD Region (ANR). The geographic boundaries of ANR generally corresponded with those of Alaskan Command, providing alignment of ALCOM with ANR, a subdivision of NORAD, thus strengthening the defense of North American air domain in the High North. Furthermore, the commander-in-chief, NORAD, delegated responsibility for the Alaskan NORAD region to the commander-in-chief, ALCOM. Therefore, the commander of ALCOM was dual-hatted and responsible for the command of both ANR and ALCOM. In addition, many of the ANR staff positions were dual-hatted from either ALCOM or AAC. ANR, ALCOM, and ALCOM's component structure focused on homeland defense remained largely unchanged until the early 1970s.

In addition to providing homeland defense for the strategic terrain of Alaska, ALCOM also assumed the mission of military assistance to civil authorities (MACA) within the Alaskan area of responsibility (AOR).22[22] ALCOM responded to several natural disasters. For example, the command provided pivotal assistance to the State of Alaska just five years after its formation, when the 1964 "Good Friday Earthquake" devastated the coastal region of southcentral Alaska and a flood engulfed Fairbanks in 1967. The new State lacked viable local and State emergency response capabilities. ALCOM stepped up and took the lead in rendering direct and immediate assistance. The residents of Alaska considered ALCOM's actions decisive in ensuring Alaska's recovery from both events. ALCOM continued to coordinate for other Federal assistance to provide the timely return of essential services, cleanup, transportation, and communication.

During the early 1970s, as the protracted Vietnam War wound down for the United States, the nation looked to draw back its military and reduce manning abroad, including a general reduction in military headquarters. This reduction affected the military in Alaska, since it was considered an overseas duty location. While ALCOM as a unified command remained intact during the early Vietnam era, the AAC's discrete identity as an Air Force major command (MAJCOM) began to slip due to massive cuts during the 1960s in its air defense capability. The AAC was reduced from six fighter interceptor squadrons to one and its two air divisions were inactivated. The Army experienced similar cuts during the 1960s, but not as severe. The Alaskan Sea Frontier, small to begin with, remained relatively intact. To counter these cuts, ALCOM began stressing Alaska's strategic importance for basing deployable forces. Elmendorf Air Force Base became a major point on the Military Airlift Command route to southeast Asia.

The Vietnam drawdown eventually affected the size of the ALCOM headquarters. In 1970, a "Blue Ribbon Defense Panel" recommended that ALCOM be disestablished (Cole et al., 2013, p. 27). Though this did not occur immediately, the Alaskan Sea Frontier (ALSEAFRON, the Navy Service component) was disestablished on June 30, 1971 (Cloe & Monaghan, 1984, p. 233). The Commander of Pacific Command (Commander-in-Chief, PACOM, or "CINCPAC") assumed responsibility for ALSEAFRON's functions. In command relationships (COMREL) reminiscent of WWII, this included the defense of the Aleutian Islands and other strategic islands of the Bering Sea (such St. Lawrence), with the creation of a new AOR organized under USPACOM: Joint Task Force – Aleutians (JTF-AL).[23]

Two years later, in 1973, a Secretary of Defense (SecDef) study recommended disestablishment of the ALCOM headquarters. Meanwhile, the Air Force Vice Chief of Staff ordered a feasibility study to downgrade the Air Force Service component, the Alaskan Air Command (AAC), to a numbered Air Force (NAF). Though the Air Force did not act on the study, the Army followed suit and on July 1, 1974, moved to disestablish United States Army Alaska (USARAL). In its place, the Army left the smaller and separate 172nd Infantry Brigade (Alaska) which reported directly to US Army Forces Command (USFORSCOM).

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20 The article in Collier's ran in August 1947. Dwight Eisenhower testified about Alaska before Congress in 1949. Lyndon Johnson chaired the "Alaska Task Force for Preparedness" Subcommittee of the Senate's Committee on Armed Services in 1951 (Perras, 2003, 185).

21 The motto, "Top Cover for North America" was revalidated and approved as the ALCOM-ANR-11th Air Force Combined Headquarters motto in 2023. In the 1980s, the Canadians asked for the name to be changed from "Top Cover for America" to "Top Cover for North America" – a more inclusive mandate that reflected the combined, bi-national mission of NORAD and the triple-hatted command.

22 Military Assistance to Civil Authorities (MACA) was an earlier term for the concept now applied to Defense Support of Civil Authorities (DSCA).

23 JTF-AL was headquartered at Naval Air Station Adak, previously known as Davis Air Force Base and the headquarters of AAC prior to its transfer to Elmendorf Air Force Base in 1942.

Therefore, by 1974 ALCOM had lost two of its Service components. In the same year, the Joint Chiefs of Staff, in line with the 1973 SecDef study, officially recommended that ALCOM be disestablished. For the moment, it seemed that this was the death knell for ALCOM. The command was disestablished effective July 1, 1975. However, the Joint Chiefs of Staff left a remnant in its place by creating a provisional command, Joint Task Force-Alaska (JTF-AK), which reported directly to a NORAD Control Center (NCC).[24] This provisional command would become the nucleus for a C2 reversal in Alaska: the reestablishment of ALCOM within just fourteen years. It is significant that JTF-AK, during its initial period from 1975-1989, reported to a command in North America. Since its creation to defend Alaska, ALCOM reported first to the Pentagon and the JCS through the executive agency of Headquarters Air Force and then directly to the JCS as a unified combatant command starting in 1958. ALCOM did not report directly to the Pacific until its reestablishment as a PACOM subordinate unified command in 1989.

Though JTF-AK's provisional command headquarters was left without any permanent manning, its new commander was the same commander as that of the Alaskan Air Command – but upgraded to the rank of Lieutenant General. For the AAC, this meant increased responsibility, both in becoming the dominant Service in Alaska and in the elevation of its commander from a two–to a three-star general. ALCOM's disestablishment ceremony was held in front of the Davis Building.[25] In the ceremony, Maj Gen Jack Gamble, the last two-star to command the AAC, relinquished command to Lt Gen Hill, the first three-star to command AAC and the last commander of the original ALCOM. Lt Gen Hill also assumed duties as commander of JTF-AK and ANR. Therefore, though for the meantime Alaska saw its unified command disestablished in 1975, the senior military commander in Alaska was now a three-star Air Force general responsible for Alaska's defenses and triple-hatted as Commander, JTF-AK; Commander, ANR; and Commander, AAC.

The concept of JTF-AK involved a contingency command that could be activated in the event of war or other emergencies at the direction of the JCS (Cloe & Monaghan, 1984, p. 233). Under this rather complex arrangement – and without naval assets – in 1975 the newly formed JTF-AK was primarily a small cadre organization and as necessary, consisted of elements from the AAC, the 172nd Infantry Brigade, and the Alaska National Guard. The addition of authority over the Alaska National Guard reflected JTF-AK's evolving organizational mission, including both homeland defense of Alaska and providing Military Assistance to Civil Authorities (later DSCA).[26] Throughout the organizational change from ALCOM to JTF-AK in the mid-1970s, the Alaskan NORAD Region structure and mission remained unchanged.

Alaska's political and civic leaders reacted negatively to ALCOM's demise in the mid-1970s and the transition to JTF-AK. Many recalled the lessons learned during WWII, when operations in Alaska and specifically the Aleutian Islands were hampered by a lack of unified command. Their vocal opposition necessitated a visit by senior Defense officials to address concerns. Ultimately, Secretary of Defense James Schlesinger visited Alaska to assure Alaskans that homeland defense in the region would not be neglected. The JCS had committed to a major rewrite of Alaska's defense plans, to be tested in a series of joint and combined exercises called JACK FROST and later BRIM FROST, where the three-star AAC Commander served as the JTF-AK Commander and the Army two-star 172nd Infantry Brigade Commander served as the deputy.[27] Overall, large-scale joint exercises had declined in Alaska due to Vietnam. The Frost-series of exercises sought to reverse this trend and involved the deployment of forces to Alaska to augment Alaska-based forces, commanded by the JTF-AK Commander, who was responsible for directing these forces through subordinate Army and Air Force commanders (Cloe & Monaghan, 1984, p. 233).

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24 NCCs, or NORAD Control Centers, were Cold War era Joint Direction Centers utilized for C2 of ground-controlled interception by both Army and Air Force Commands.

25 The "Davis Building," originally building #5-800, continues to serve as ALCOM's headquarters in 2024 and is currently numbered building #9480. ALCOM headquarters was initially based at Ft. Richardson in 1947. The following year, ALCOM moved its headquarters to Elmendorf Air Force Base to occupy the newly constructed Davis Building in 1948. The headquarters of ALCOM, ANR, and 11th Air Force share the David Building, and are commanded by a triple-hatted three-star Air Force officer.

26 For example, in 1989 JTF-AK was activated in the aftermath of the March 1989 Exxon Valdez oil spill and served as a vehicle for coordinating support to civil authorities during cleanup operations.

27 JACK FROST occurred in 1975-1977 and 1979; BRIM FROST replaced JACK FROST and occurred throughout the 1980s during the odd years. In 1989, BRIM FROST was a FORSCOM-sponsored field training exercise in support of JTF-AK that involved 22,000 US and Canadian troops conducting cold weather training. Previously, exercises held in Alaska such as SWEETBRIAR (1950) and POLAR STRIKE (1965) also involved several thousand military personnel. In the 1990s, BRIM FROST was replaced by summer exercises integrated with the COPE THUNDER air training exercises.

However, DOD's message was largely symbolic and did not match the overall decrease in campaigning activities, exercises, and investments across Alaska. This mismatch came to a head just two years after a SecDef visit in 1977, when the JCS announced that the frequency of joint exercises in Alaska would be halved, occurring every other year instead of in accordance with the military's established annual cycle. Alaska's news and media outlets, especially the Anchorage Times, took aim at the Pentagon, claiming Alaska's critical defense lacked national priority and was in danger of being ultimately ignored.

Meanwhile, almost immediately, the JTF-AK organizational structure proved cumbersome and ineffective due to the command's provisional nature, reduced manning, and split COMREL between JTF-AK, ANR, and the AAC. The command arrangement became increasingly difficult during the late 1970s and early 1980s. In response, the Services provided a small, ad hoc out-of-hide planning staff in Alaska. This effort supplied only minimal manning relief. Real change and a reversal of ALCOM's fate were not realized until a significant increase in adversarial threats impacted Alaska.

That threat came in the form of a Soviet military buildup in the Kuril Islands, located west of the Aleutians and immediately north of Japan. USPACOM began planning for the defense of the Aleutians in the late 1970s, conducting carrier battle group transits of the North Pacific and amphibious exercises in the Aleutians. The Alaskan Air Command was tasked to provide air defense of the Aleutians and general support. These cross-combatant command relationships and responsibilities created problems that soon became readily apparent.[28] In November 1982, the JCS began to consider the possibility of downgrading the Alaskan Air Command to a Numbered Air Force (a reversal of the 1945 decision that created the AAC out of the 11th Air Force and reminiscent of the 1973 USAF study) and creating a subordinate unified command in Alaska under PACOM.

Matters came to a head when US Senator Ted Stevens asked for details of what appeared to be a reduction of military force structure in Alaska and was unable to obtain clear information. This situation reached the broader public in the spring of 1983 when a series of articles and editorials appeared in the Anchorage Times indicating that Senator Stevens had learned through unofficial sources that Alaska would be subordinated to the Pacific Command – the first time in its history Alaska would fall under such an arrangement. As a result, the JCS dispatched Lt Gen John Chain, Air Force deputy Chief of Staff for Plans and Operations, to brief a group of influential Alaskan leaders in June 1983 and explain the military rationale for restructuring Alaska. During the engagement, senior military leaders strongly disagreed on Alaska's future. Lt Gen Chain and Gen Raymond Reeves, former commander of ALCOM/ANR and later NORAD, publicly exchanged harsh words. In response to the proposition that all Alaskan military forces would be controlled by the CINCPAC in Hawaii, Gen Reeves countered that Alaska should report directly to the JCS. He opined:

> The Commander in the Pacific would have more than enough on his hands in meeting any hostile actions threatening the security of the United States in the vast Pacific Ocean and the Far East. The strategic location and valuable assets of Alaska should have first-hand consideration in military planning. The present command structure is not good, but this new proposal is worse. Reactivation of the unified Alaskan Command operating directly under the guidance of the JCS is still the best answer in the defense of the security and well-being of our country and Alaska. Action should be taken to correct the mistake made in 1975 by the disestablishment of the Alaskan Command. That mistake should not be compounded by another one in 1983 (Reeves, 1983, p. 18).[29]

28 In 1986, the Goldwater-Nichols Department of Defense Reorganization Act sought to "rebalance the relative power of the geographic commands versus the services" (Watson, 2011, pp. 14-15). The Goldwater-Nichols Act called for review of the missions, responsibilities, force structure and geographic boundaries for each CCMD not less than every two years, along with greater interaction between CCMDs and Congress and participation in the DOD budget process.

29 In addition to subordinating Alaska to USPACOM, another reasons Reeves was against the proposed change was the initial proposal involved redesignating the Alaskan Air Command – then reporting directly to the Chief of Staff of the Air Force – and naming it the 11th Air Force, subordinate to the Hawaiian-based Pacific Air Forces (PACAF), the Air Force component of USPACOM.

Regarding Alaska's potential shift to the Pacific, Robert Atwood, owner-publisher of the Anchorage Times, reflected the animosity of Alaskans towards subjecting their State's defenses to the whims of a Commander in far-off Hawaii with the simple quip: "Lt Gen Chain discovered he had stuffed his head in a buzz saw" (Atwood, 1983, p. 13).[30]

The briefing also included a group of Alaskan civic leaders and members of the Civilian Advisory Board (CAB). Several long-standing CAB members recalled personal memories from the WWII Aleutian Campaign when a foreign military power occupied US soil in Alaska. Their viewpoint and experiences made them extremely wary of decisions made "outside" of Alaska that involved reductions in Alaska's military structure or transferring responsibilities from Alaska to the Pacific. Robert Atwood's editorials and constant advocacy were particularly influential in convincing the Joint Chiefs of Staff to alter their plans. Instead, they decided to turn the effort to create a unified command structure in Alaska over to Commanders in Alaska, and to heed lessons learned from WWII.

The resultant effort to retool the Alaskan Command structure involved Senator Stevens and a CAB trip to PACOM Headquarters. Throughout the engagements, Senator Stevens remained largely skeptical, noting that Alaska had been previously "sold a bill of goods" on the disestablishment of ALCOM in 1975. In fact, Senator Stevens became widely known for routinely inserting language into Senate appropriations bills, stating no funding could be spent on reorganizing the command structure in Alaska. Senator Stevens insisted that continued reduction and fragmentation of the command in Alaska would negatively affect unity of command in the region. His position seemed to be validated during a joint exercise in the Aleutians in 1987. This 10-day exercise, christened FORTRESS GALE, involved 3,100 Air Force, Army, Coast Guard and Navy forces. The impetus for FORTRESS GALE was Soviet aircraft operating too close to a sensitive SOund SUrveillance System (SOSUS) facility on Adak.[31] The Alaskan NORAD Region (ANR) was responsible for the air defense of Alaska but was unable to intercept Soviet aircraft.

The exercise was controlled by the CINCPAC, who was responsible for the maritime defense of Alaska, through the subordinate Joint Task Force – Aleutians. Aimed to increase campaigning in Alaska and the North Pacific, FORTRESS GALE involved the first wargame in the Aleutian Islands – the first time the Aleutians had seen Army troops since WWII (United Press International, 1987). The event included a command post and field training exercise on Adak Island.[32] In the absence of ALCOM, FORSCOM had responsibility for the land defense of Alaska. To Senator Steven's satisfaction, the lack of unity of command in Alaska was highlighted in the FORTRESS GALE After Action Report (AAR) and in the JCS Remedial Action Program (RAP). The joint exercise had validated the need to bring back the concept of unified command through ALCOM, albeit at a lower echelon.

In May 1988, Lt Gen Thomas McInerney assumed triple-hatted command of the Alaskan Air Command, Alaskan NORAD Region, and JTF-AK, and shortly thereafter succeeded in convincing Senator Stevens and the CAB that a subordinate unified (or "subunified") command could be reestablished under USPACOM while retaining the Alaskan Air Command as an Air Force Major Command (MAJCOM). Earlier recommendations involved no reestablishment of ALCOM but a reduction of the AAC to a NAF and subordinating it to the Pacific Air Forces (PACAF), a component of PACOM – so this seemed like a reasonable compromise. Admiral Huntington Hardisty, CINCPAC, attended the ALCOM activation ceremony. He stated the action restored interservice unity, albeit now under Pacific control, that was lost in post-Vietnam War defense cutbacks:

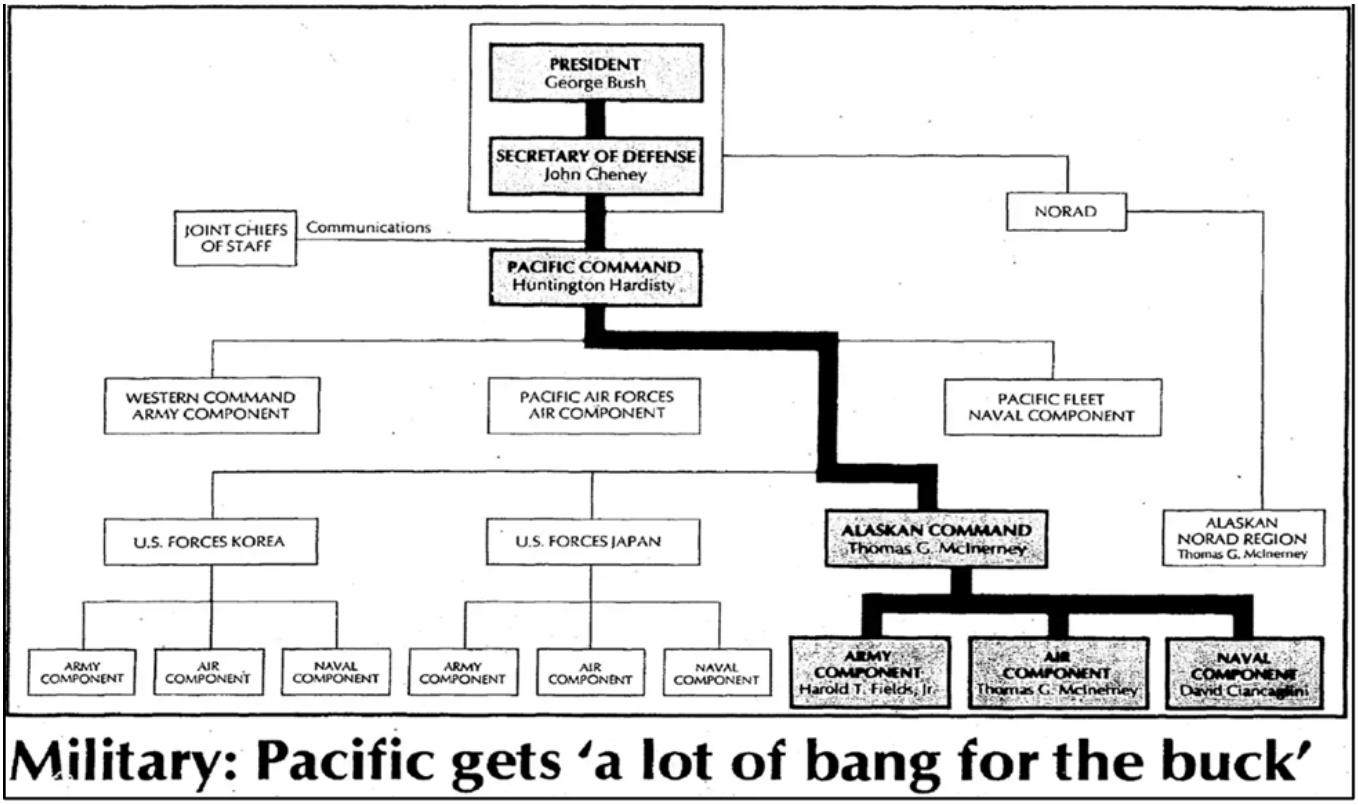
> It didn't make a lot of sense, splitting Alaska in half, with the Aleutian Island under control of the Navy's Pacific Fleet, and the rest of the State under a joint task force arrangement. Alaska is really in the Pacific, certainly the Aleutians are in the Pacific," he said. "They go right up to the doorstep of Mother Russia . . . we've learned in exercises that command and control would be much better if we had unity of command (Saddler, 1989, pp. 1-2).

ALCOM was officially reestablished as a subunified command under Pacific Command on July 7, 1989.[33] Despite this reorientation of Alaska's defenses, Senator Stevens' remarks at the activation ceremony foreshadowed a vol-

30 Similar editorials were published by Robert Atwood in the Anchorage Daily Times on June 5 (p. 17) and June 20 (p. 6).
31 Cold War tensions reached a high point during the mid-1980s. One example of increased tensions included the shoot-down of Korean Airlines Flight 007, which inadvertently deviated from its flight path from Anchorage to Seoul and was shot down off the Kamchatka Peninsula by a Soviet fighter, killing all 269 passengers and crew aboard.
32 In 1982, the Navy started to increase campaigning activities in Alaska by sending two separate carrier groups to the North Pacific, the Service's largest effort since the Aleutian Campaign in WWII.
33 JTF-AK, established as a provisional command upon the disestablishment of ALCOM in 1975, provided continuity of missions in Alaska until ALCOM was reestablished in 1989. JTF-AK was no longer required as a provisional command when ALCOM was reestablished in 1989 (the Commander remained triple-hatted, substituting his ALCOM hat for a JTF-AK hat in 1975, and vice versa in 1989). In February 2003, following the creation of USNORTHCOM, JTF-AK was reestablished to replace JRAC-AK.

atile future for the subunified command, hinting that both he and the CAB planned to keep a close eye on ALCOM, hoping it would function the way they envisioned.

In 1989, the three components under the newly reestablished "Pacific" ALCOM included US Army Forces Alaska, US Air Forces Alaska, and Naval Forces Alaska. The Army Forces were drawn from the 6th Infantry Division (Light), commanded by MG Harold Fields; the Air Forces from the AAC (redesignated the 11th Air Force in 1990), commanded by Lt Gen Thomas McInerney; and the Navy Forces from the 17th Coast Guard District, commanded by RADM David Ciancaglini.34[34] In concept, the newly reestablished subunified command was designed to mirror the organizational structure of the USPACOM subunified commands in Japan and Korea. The following graphic shows how the Anchorage Daily Times illustrated COMREL for the new organization.



Military: Pacific gets 'a lot of bang for the buck'

ALCOM COMREL in 1989, excerpt from Anchorage Daily Times (Saddler, 1989)

USPACOM tasked its burgeoning joint subunified command in Alaska with conducting the unified defense (less aerospace) of the land and territorial waters (within 12 nautical miles) of the State of Alaska, including the Aleutian Islands, and other missions directed by CINCPAC. ALCOM's mission statement was later expanded to include the deployment of forces. ALCOM now had responsibility for the land and maritime defense of Alaska and all air missions not assigned to ANR. While ANR retained the air defense mission, the ALCOM Commander was appointed ANR Commander, thus reuniting the three domains under one joint command. These events completed the rebirth of ALCOM, although at a lower echelon. ALCOM was now subordinate to its former peer joint command – UsPACOM. Together, they represented the remnants of two of the three original joint commands established in 1947.

Manning ALCOM became an immediate challenge following its 1989 reestablishment. Despite requests for a larger joint headquarters consisting of 177 ALCOM personnel, including several dual-hatted billets, the JCS approved a joint staff end strength for ALCOM that was approximately half the desired size. In all, ALCOM's JCS–approved headquarters consisted of 90 total personnel, only 55 of which were newly-created billets. Thirteen billets were transferred from those existing in JTF-AK, and the remaining 22 were dual-hatted from the AAC.[35] ALCOM's joint staff manning was distributed among the 90 billets as follows:

34 In addition to becoming the commander of ALCOM, Lt Gen McInerney retained his authority commanding the AAC and ANR.

35 By comparison, AAC's headquarters manning in 1989 consisted of 420 personnel. When the AAC was redesignated as 11th Air Force in 1990, its headquarters manning consisted of 307 personnel.

J-0	7	Protocol	1
J-1	10	Public Affairs	2
J-2	12	Surgeon	2
J-3	16	Comptroller	1
J-4	15	Airlift	1
J-5	7	Chaplain	1
J-6	12	History	1
Weather	1	SJA	1
Total: 90			

ALCOM Manning, 1989

In January 1990, General Merrill McPeak, Commander of PACAF, met with Senator Stevens and succeeded in convincing him that the AAC should be downgraded to a NAF, the 11th Air Force, and that it should be assigned to PACAF. Gen McPeak achieved this in part by inviting members of the CAB to briefings and tours at Hickam AFB, Hawaii. To further soften the blow of a downgraded force structure and reduction of one of ALCOM's components, the AAC's redesignation ceremony was held in August 1990 to coincide with a reunion of the WWII 11th Air Force veterans in Anchorage. With this change in 1990, the Air Force 3-star assumed in name the current triple-hatted responsibilities still present today: commanding ALCOM, ANR, and 11th Air Force.

In exchange for the loss in Air Force major command, or MAJCOM status, the Air Force gained additional forces including COPE THUNDER responsibilities. In 1994, the 6th Infantry Division (Light) was inactivated and replaced by the United States Army, Alaska (USARAK), which reported to the United States Army, Pacific. With these changes, the realignment of forces in Alaska under PACOM was nearly complete, except for the Alaskan NORAD Region, which remained under NORAD and outside of USPACOM's control. However, all ANR positions were dual-hatted from the 11th Air Force except for the organization's Canadian deputy and three other personnel.

On September 11, 2001, the Alaskan NORAD Region responded decisively to Korean Airlines Flight 085, which had inadvertently transmitted a highjack signal.[36] The next day, in response to the 9/11 attacks, PACOM established Joint Rear Area Coordinator-Alaska (JRAC-AK), without an additional manning allocation, to operationalize the ALCOM headquarters and execute homeland defense, defense support of civil authorities, antiterrorism/force protection, and critical infrastructure protection responsibilities. For the first time the ALCOM, ANR, and 11th Air Force Commander possessed four mission responsibilities, with the addition of duties as JRAC-AK.[37]

Following "9/11" and in response to the ensuing war on terror, the entire surface of the earth was divided among various unified commands, including the US homelands. The 2002 UCP created a new combatant command, US Northern Command (USNORTHCOM, or simply "NORTHCOM"), which encompassed the majority of North America and was assigned air, land, and sea missions within its newly established AOR, including the State of Alaska and surrounding waters.[38] Shortly thereafter, in February 2003, JRAC-AK was replaced by a newly reestablished JTF-AK, which reported to USNORTHCOM to execute the combatant command's assigned mission of North America homeland defense, again without any increase in manpower.[39] Whereas the purpose of JTF-AK in 1975 had been to serve as a conflict-activated or "on order" headquarters, USNORTHCOM realized it would require a standing joint task

36 As a result of the purported hijacking, Alaska's governor ordered evacuations in Anchorage as a precaution. Lt Gen Norton Schwartz, CDRALCOM, scrambled F-15s that intercepted and escorted the Korean Airliner to Whitehorse, Canada, where it landed safely.

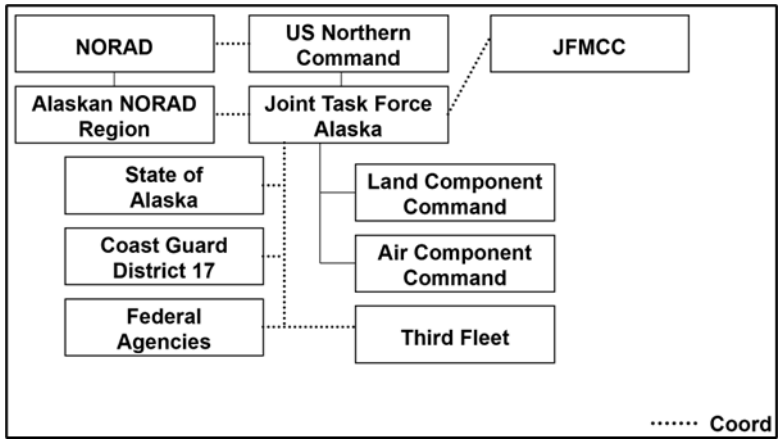
37 ALCOM, through USPACOM, provided approximately 80% of the manpower, or 73 personnel, to operate JTF-AK using dual-hatted billets. The unclassified portions of information used in the subsequent section involving USNORTHCOM were provided by the USNORTHCOM History Office. The author thanks Dr. Lance Blythe and Dr. Richard Marsh for their support of this project and providing references to relevant sources, along with Dr. Chris Holmes, historian at the Joint History and Research Office.

38 USNORTHCOM's establishment resulted in significant changes for USPACOM, including the West Coast of North America and Alaska being reassigned from USPACOM to USNORTHCOM. However, Alaskan Command forces remained assigned to USPACOM (Congressional Research Service, 2013, p. 43).

39 USNORTHCOM provided JTF-AK with 17 personnel out-of-hide; the remaining 73 personnel were dual-hatted from USPACOM positions in ALCOM and 11th Air Force.

force headquarters in Alaska to execute homeland defense and DSCA in the newly established Alaskan Command Joint Operations Area (ALCOM JOA).[40]

Though USPACOM retained the ALCOM headquarters, all previous responsibilities of USPACOM's JRAC-AK shifted to USNORTHCOM's JTF-AK. The ALCOM commander, with mission responsibilities converted from JRAC-AK to JTF-AK, became responsible for executing both the new USNORTHCOM (JTF-AK) mission and ongoing USPACOM missions in Alaska through ALCOM. However, instead of shifting USPACOM/ALCOM personnel and resources to USNORTHCOM/JTF-AK, the Joint Staff tasked USPACOM to execute the USNORTHCOM mission in Alaska, keeping the personnel and resourcing at status quo levels yet impacting the complexity of C2 relationships in Alaska. The lack of resourcing and increasingly complex C2 would prove to be a big mistake, requiring future resolution. For the meantime, the JCS executed this directive through mission orders and memorandums of understanding (MOUs) to ensure NORAD and NORTHCOM missions were accomplished by units assigned to USPACOM. Essentially, the homeland defense and DSCA missions within the Alaska portion of the new USNORTHCOM AOR were accomplished by USPACOM, through ALCOM headquarters staff dual-hatting in JTF-AK positions (collective staff manning for both ALCOM and JTF-AK remained at the originally-allocated level of 90 personnel established in 1989). Though all forces and bases in Alaska remained assigned to USPACOM, the below provides a simplified chart representing JTF-AK's COMREL in 2003:

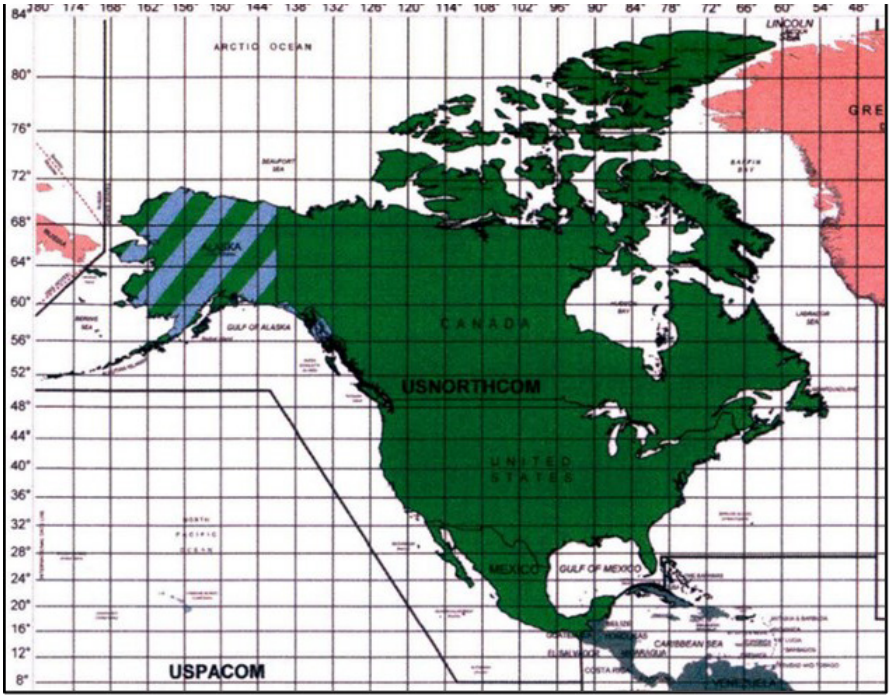


Joint Task Force – Alaska COMREL, 2003

Over the next decade, the existing C2 structure for homeland defense and DSCA in Alaska and the Arctic proved overly complex and severely lacked unity of command. For example, in his quadruple-hatted role, the senior military commander in Alaska reported to a bewildering four separate chains of command, a different higher command for each organization: ALCOM reported to USPACOM, JTF-AK to USNORTHCOM, ANR to NORAD, and 11th Air Force to PACAF. Dual-hatting the organizations of ALCOM and JTF-AK so that they reported in opposite directions to USPACOM and USNORTHCOM – with separate responsibilities to two different combatant commands – fragmented the C2 structure within Alaska. Though it served as an attempt or perhaps an historic example of how to "globally integrate" across CCMD seams, it also caused further confusion through the UCP.

Since the creation of USNORTHCOM, resolving the "Alaska problem" within the UCP was anything but straightforward. Solving the problem of handling C2 in Alaska involved the troubling fact that Alaska was the one place in the world where two CCMDs overlapped on the UCP. Though Alaska was placed within the USNORTHCOM AOR in 2002, its forces and bases – along with the subunified command of ALCOM – belonged to USPACOM. The UCP-map, which historically presents various geographic CCMDs in solid colors that divide the world into distinct AORs, creatively showed Alaska as cross-hatched blue and green, the corresponding colors of the USPACOM and USNORTHCOM AORs.[41] A footnote on the map indicated the State of Alaska was assigned to USNORTHCOM's AOR. However, forces based in Alaska remained assigned to USPACOM. The cross-hatch, or UCP overlap, represented a resource-to-mission mismatch: the resources in Alaska largely belonged to USPACOM whereas the priority missions of homeland defense and DSCA were responsibilities of NORAD and USNORTHCOM. This mismatch placed the command organizations located in Alaska in a tenuous position, unable to fully satisfy competing mission requirements of higher commands.

40 From 1975-1989, JTF-AK was a provisional command that reported to the NORAD Control Center.
41 An early example of Alaska being cross-hatched in the UCP occurs on "The World with Commanders' Areas of Responsibility, with changes based on Unified Command Plan, 5 May 2006," National Geospatial-Intelligence Agency, 1:60,000,000 (Unclassified). Map information as of 2005.



UCP Map, 2005[42]

Alaska's cross-hatching remained on subsequent UCP maps for nearly a decade. Originally, cross-hatching Alaska on the 2005 UCP map was a politically expedient decision, made by Defense Secretary Donald Rumsfeld in 2002 to satisfy Hawaiian Senator Daniel Inouye's concerns that USPACOM assets in Alaska might eventually be assigned to USNORTHCOM. Over time, both USNORTHCOM and USPACOM found that cross-hatching Alaska was unnecessary and confusing. In 2010, a special Joint Staff UCP working group on the Arctic considered deleting the "Alaska cross-hatch," modifying Arctic UCP boundaries, and making USNORTHCOM the advocate for Arctic capabilities in coordination with adjacent CCMDs in the region. Modifying UCP boundaries involved reassigning the portion of USPACOM's AOR in the Arctic Ocean to EUCOM (thus eliminating USPACOM's presence in the Arctic Ocean) and creating a polar "keyhole" with USNORTHCOM's AOR encircled the North Pole. The Joint Staff J5 Director originally reasoned that deleting the cross-hatching was merely cosmetic and did not improve the UCP or resolve the "Alaska problem." Senator Inouye requested certain assurances from Defense Secretary Robert Gates. Secretary Gates affirmed that neither removing Alaska's cross-hatching nor modifying Arctic UCP boundaries would involve any shift of forces. Reassured, Senator Inouye consented to eliminating Alaska's cross-hatching on the UCP map. When USPACOM, the last stakeholder contributing to Senator Inouye's political concurrence, finally agreed to delete the cross-hatch, the ambiguous depiction indicating USPACOM interests was eliminated as part of "UCP 2011 Change 1" (Cole et al., 2013, pp. 105-106).

Despite these changes, the 2011 UCP did not alter the ground truth for COMREL in Alaska, including the presence of USPACOM interests. In 2011-2012, USNORTHCOM and ALCOM conducted a detailed study of C2 in Alaska and the Arctic and recommended the transfer of ALCOM from USPACOM to USNORTHCOM to simplify the C2 structure. USPACOM was not immediately amenable to the transfer, preferring the status quo, given in early 2012 it was considering disestablishment of its subunified command in Alaska and transfer of ALCOM billets to US Forces Japan (USFJ), a peer subunified command in the Pacific. USNORTHCOM understood that if USPACOM successfully executed this transfer to USFJ, JTF-AK would be left manned at a minimal 20% level, given 80% of JTF-AK's billets were dual-hatted from ALCOM. In April 2012, the NORAD and USNORTHCOM Commander, GEN Charles Jacoby, endorsed the study's findings which called for simplification of the C2 structure in Alaska by transferring ALCOM between combatant commands. CDRUSPACOM non-concurred. USNORTHCOM countered with a compromise position, drafting an initial "eight-star memo" between the two four-star combatant commanders to the CJCS that aimed to create a new "Joint Force Headquarters Alaska Region Command" that formalized responsiveness to both commands. USNORTHCOM's new proposal was ultimately rejected by USPACOM in early 2013 because it required continued sharing of ALCOM staff across CCMD lines of authority, a relationship that in USPACOM's view increased complexity and tension.

USPACOM not only rejected USNORTHCOM's proposal – it raised the stakes and officially recommended disestablishment of ALCOM in late 2013. The reason was tied to national politics and DOD realities. In 2011, the Obama

42 Excerpt from "Map of 2006 Unified Command Plan," see footnote 41.

Administration launched an initiative intensifying the U.S. role in the Asia-Pacific region, a "Pivot to the Pacific," and the beginning of America's so-called "Pacific Century." The subsequent Defense Strategic Guidance, published in January 2012, directed a rebalance toward the Asia-Pacific region, placing high priority on relationship expansion with Allies and partners throughout the theater and building partner capacity. Meanwhile, in 2013, Secretary of Defense Chuck Hagel responded to budget constraints and sequestration by instating a 20% cut in Management Headquarters spending throughout the DOD, including a reduction in 20% reduction of both civilian and military staff across CCMD headquarters. Ironically, Alaska was caught in the crossfire of the Pacific Pivot and USPACOM manning reductions. This resulted in USPACOM forfeiting its subunified command in Alaska – key terrain for projecting forces to the Pacific.

In response to the Secretary-directed headquarters reductions, Admiral Samuel Locklear, CDRUSPACOM, outlined in a 2013 memo to the SecDef his plan to transfer USPACOM's 65 billets at ALCOM to forward locations in the Pacific AOR (such as Japan) no later than September 30, 2017, to preserve critical war-fighting capabilities. Any duties performed by ALCOM's 65 personnel would be assumed at the USPACOM headquarters or by USPACOM's Service components. The disestablishment and movement of personnel out of Alaska would help USPACOM meet its reduction goal.

USNORTHCOM quickly sought to capitalize on this opportunity to adopt ALCOM and prevent the subunified command from disestablishment by USPACOM, leaving Alaska and the homeland's ten o-clock position and northwestern frontline adjacent to the Arctic without a joint force headquarters. USNORTHCOM also sought to align Alaska C2 within its established AOR, which encompassed the entirety of North America, to mitigate the "Alaska problem." To this end, USNORTHCOM initiated engagements with key leaders of both CCMDs in late 2013 and convened a joint planning team (JPT) with representation from ALCOM, PACAF, and USARPAC. This effort was spear-headed by the USNORTHCOM J5, Major General John "Jeff" Newell, after assuming the position of J5 in June 2013.[43]

The result was a memorandum through the CJCS to the SecDef signed by both CCDRs in July 2014 that requested reassignment of ALCOM from USPACOM to USNORTHCOM. CDRUSPACOM acknowledged he had initially directed ALCOM's disestablishment to enable USPACOM's efforts to meet its 20% Management Headquarters reduction. However, based on the JPT, the CCDRs now agreed that preserving and transferring the subunified best served both CCMDs, along with the transfer of only one billet: the O-9 Air Force subunified commander (Jacoby and Locklear, 2014).

This second "eight-star memo" between Jacoby and Locklear requested an effective ALCOM transfer date of October 1, 2014, and established ground rules for the transfer. USPACOM received credit for a 65-person joint billet reduction aimed at preserving its critical warfighting capabilities elsewhere within the Pacific Theater. USNORTHCOM received a mandate to pursue necessary backfills of the 65 billets for its new subunified command to ensure ALCOM's ability to accomplish USNORTHCOM's homeland defense and DSCA mission in the key terrain of Alaska and the Arctic. USPACOM insisted that the transfer was contingent on receiving credit for billet reductions and on COMREL between 11th Air Force and USPACOM remaining unchanged, including the support provided for operations in the region. ANR's COMREL with CDRNORAD also remained unchanged. CDRALCOM maintained command authorities as 11th Air Force Commander under PACAF and ANR Commander under NORAD. The missions previously assigned to JTF-Alaska were assumed by ALCOM under USNORTHCOM. Overall, the transfer was intended to streamline C2 in Alaska and improve both USPACOM and USNORTHCOM's ability to achieve assigned mission responsibilities (Jacoby and Locklear, 2014).

Similar to ALCOM's establishment by the SecDef as a subunified command of USPACOM in 1989, the process of disestablishing or transferring a subunified command in 2014 remained outside of CCMD authority. The authority for actions involving subunified commands rested with the Secretary of Defense. Joint doctrine provides the following guidance, "CCDRs may establish subordinate unified commands when so authorized by SecDef through the CJCS" (JCS, 2020, pp. xi, I-11, III-1). Therefore, in October 2014, Secretary of Defense Chuck Hagel approved the reassignment of ALCOM as a subunified command along with its assigned Lieutenant General Air Force command billet from USPACOM to USNORTHCOM. In addition, Secretary Hagel directed USNORTHCOM to "resource the necessary billets and funding required to accomplish USNORTHCOM's mission in the region" and document the decision in the appropriate FY15 assignment tables (Hagel, 2014).

The transfer of ALCOM occurred just a month before GEN Jacoby retired as CDRUSNORTHCOM. GEN Jacoby, a former USARAK Commander who served in Alaska from 2005-2007, stated: "This is an important step in integrating our defense across North America . . . it places our nation in a better position to plan and execute homeland defense and civil support missions in Alaska, and reflects the growing strategic value of the Arctic to our nation's defense. Simply put, this move makes the most sense as we seek a more cohesive approach to defending North

43 The author thanks Maj Gen Jeff Newell (USAF, Ret.), former USNORTHCOM J5, and RADM Scott Robertson, the current USNORTHCOM J5, for their feedback and review of this article.

America." Lt. Gen. Russell Handy, CDRALCOM, added, "The transfer streamlines command and control in Alaska and improves the ability of USPACOM and USNORTHCOM to execute their missions. This will improve partnerships with our Canadian neighbors and international allies in order to optimize support to all combatant commanders in the context of the evolving Arctic environment . . . we do not anticipate any major changes to the size and scope of our headquarters" (Alaskan Command Public Affairs, 2014).44[44]

The transfer included an "Implementation Plan" that was agreed to by both CCDRs. The 2014 ALCOM transfer Implementation Plan acknowledged that USNORTHCOM required a standing C2 headquarters in Alaska and the Arctic to perform both its assigned missions of homeland defense and DSCA. This gave the newly transferred subordinate unified command a "dual-mission mandate," though the mandate lacked resourcing. Likewise, USNORTHCOM had a mandate to pursue the necessary backfill of billets and funds for ALCOM. The Implementation Plan stated: "the ALCOM transfer will continue effective phase zero and beyond homeland defense and civil support operations for USNORTHCOM; it will also be conducted in such a manner as to ensure both combatant commands' long-term interests in the region are maintained" (Jacoby and Locklear, 2014, Tab B, p. 3).

USPACOM's reduction of 65 joint billets and funding was phased over a three-year implementation period across Fiscal Years (FY) 15-17, mirroring USNORTHCOM's phased resourcing strategy to backfill USPACOM reductions. During the transition, USNORTHCOM and ALCOM continued to support USPACOM tasks in Alaska. At the conclusion of FY17, all ALCOM missions performed in support of USPACOM were reassigned to a USPACOM Service component, including executive agency for the Joint Pacific Alaska Range Complex (JPARC) and planning and execution of exercise NORTHERN EDGE. Exercise ARCTIC EDGE remained with ALCOM in support of USNORTHCOM. The role of inland Search and Rescue (SAR) Coordinator responsibilities for Alaska was transferred to USNORTHCOM. After the transition was complete on September 30, 2017, any support ALCOM provided to USPACOM was to be codified in future USPACOM and USNORTHCOM Command Arrangement Agreements (Jacoby and Locklear, 2014).

As part of ALCOM's resource and mission transition, USNORTHCOM committed to performing a mission and manpower analysis to fully capture the requirements needed to accomplish USNORTHCOM's homeland defense and DSCA missions in Alaska and the Arctic. Additionally, a phased funding transfer was designed to be proportional to billet transfers between FY15-17, with USNORTHCOM reciprocally aligning resources to the funding and programming schedule. The manpower assessment was completed; however, it did not include a detailed C2 analysis to optimize the structure of the subunified headquarters for steady state operations. This mistake would prove detrimental to ALCOM, since unlike most subunified commands, ALCOM lacked discrete Service components and assigned forces as previously configured under USPACOM.

For nearly a decade since 2014, ALCOM has served without significant structural adjustments as USNORTHCOM's standing C2 headquarters and subordinate unified command in Alaska and the Arctic responsible for homeland defense and DSCA. The unfinished C2 mission analysis related to the 2014 Implementation Plan resulted in under-resourced C2 in Alaska during steady state operations. For example, no shared command and support relationships existed during steady state with USNORTHCOM components to enable the ALCOM's C2 mission as a joint force headquarters. As currently configured, ALCOM's joint staff requirements and capability will likely only be resourced in "time of need." Given Alaska's distance and detachment from the contiguous United States, and its remote Arctic environment, these resources will likely be late to need. Moreover, ALCOM's reassignment did not match its role as a subunified command for significant aspects of homeland defense given its limited staff capabilities, nor did its C2 structure address how the headquarters in Alaska should be designed or resourced to enable steady-state homeland defense. Given the Implementation Plan was limited to what both combatant commanders must agree upon, it did not address the role of USNORTHCOM Service components in Alaska, or the corresponding command and support relationships between the components and the subunified to enable steady state campaigning.

ALCOM's 2014 alignment to USNORTHCOM did somewhat streamline C2 in Alaska and create potential for further modifications to improve C2 in Alaska and the Arctic. CDRALCOM now reports directly to the combatant commander in charge of North America, rather than the Pacific. This directly aligns with ANR's organization under NORAD, with both CDRALCOM and CDRUSNORTHCOM dual-hatted in their respective ANR/NORAD command authorities. Alaska's ties to the Pacific, however, were not cut, but remain strong regarding alignment of bases and forces, including assignment of the 11th Air Force and United States Army Alaska (later the 11th Airborne Division) to USPACOM Service components.[45] Recently, efforts are underway within USNORTHCOM to optimize the current command structure in Alaska during steady state to better support USNORTHCOM's mission in Alaska and the Arctic. These efforts, including the establishment of the Alaskan Theater of Operations (AKTO), seek to increase USNORTHCOM Service component campaigning in Alaska, and will be further explored in a subequent article.

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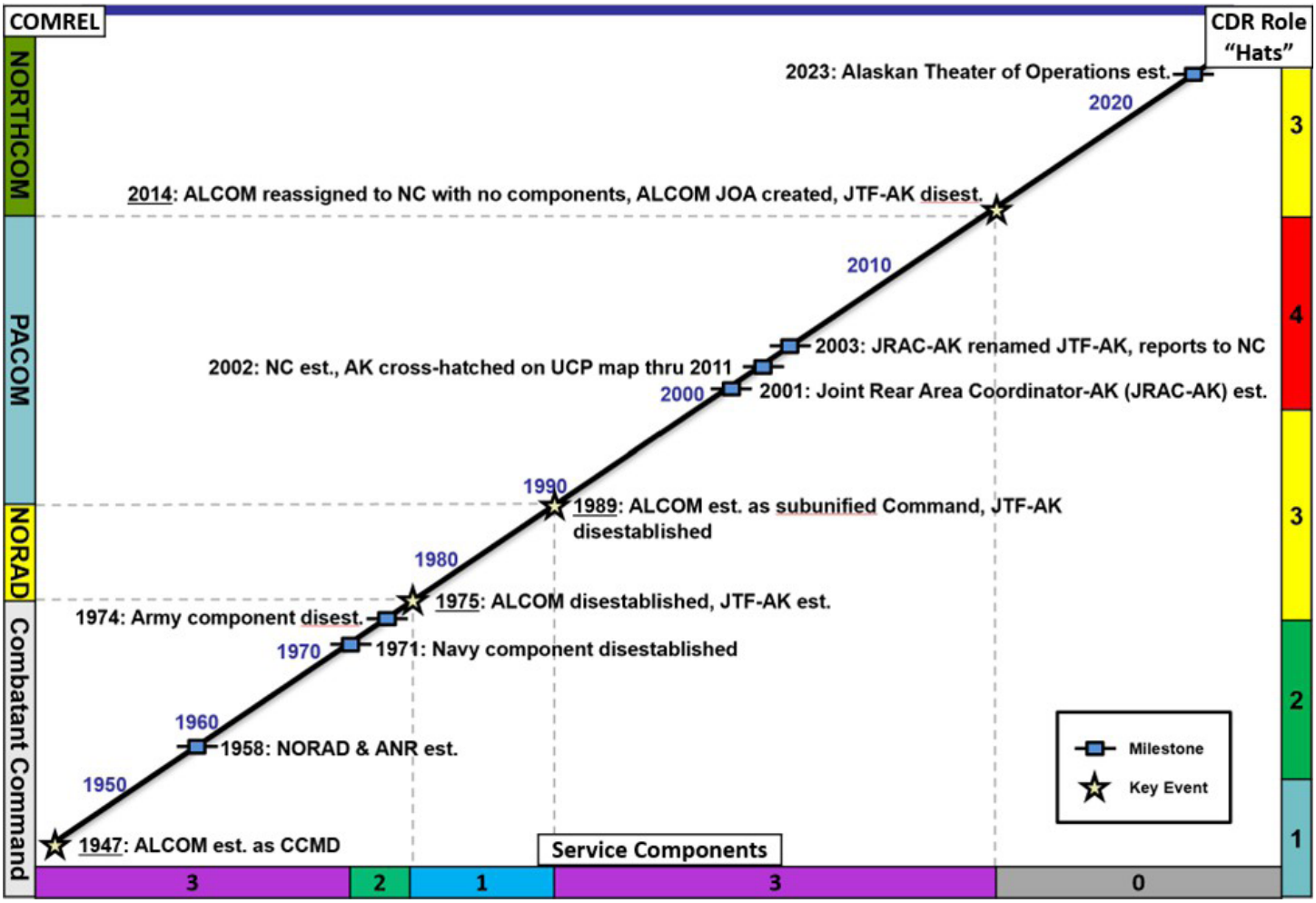
44 The author thanks Lt Gen Russell Handy (USAF, Ret.), former ALCOM commander, and Lt Gen Nahom, the former ALCOM commander, for their feedback and review of this article.

45 For the conversion of USPACOM to USINDOPACOM in 2018, see footnote 11.



Timeline of Unified Command in Alaska[46]

The figure above summarizes how the history of joint or unified command in Alaska has evolved from the initial establishment of ALCOM to the present. The three data sets on the margins highlight COMREL (left), number of "hats" or roles held by the CDRALCOM (right), and number of Service components (bottom). Four stars along the timeline represent key events and correspond to the left data bar: ALCOM's establishment as a unified combatant command (1947), ALCOM's disestablishment and simultaneous activation of JTF-AK (1975), ALCOM's

reestablishment as a subunified command under USPACOM (1989), and ALCOM's transfer from USPACOM to USNORTHCOM (2014). As shown by the data bar on the right, beginning with the establishment of NORAD in 1958 the ALCOM commander has been at least dual-hatted. During the ALCOM / JTF-AK transition in 1975, the commander added a third hat by simultaneously assuming an additional role as commander of Alaskan Air Command (later 11th Air Force), a role continuing to the present. For a short period of time, from 2001-2014, the commander was quadruple hatted when JRAC-AK (later JTF-AK) coexisted with ALCOM under COMREL split between USNORTHCOM and USPACOM, respectively. As shown by the data bar at the bottom, ALCOM's and subsequently JTF-AK's components were reduced as the Vietnam War drew to a close and ALCOM was disestablished in 1975. When ALCOM was reestablished and assigned to USPACOM in 1989 near the end of the Cold War, Alaska-based Service components for the new subordinate unified command were aligned to the Pacific. In 2014, when ALCOM was transferred to USNORTHCOM without components, all forces and bases in Alaska remained assigned to the Pacific, resulting in ALCOM's current status with no subunified Service components assigned.

The cyclical establishment and disestablishment of a joint force headquarters and associated Service component combat power in Alaska followed a late-to-need pattern that lagged the adversarial threat level in the region. For example, Alaska lacked unified command leading up to the Japanese invasion of the Aleutian Islands in 1942. The United States subsequently surged combat power to Alaska to defeat the enemy, yet five years passed before a joint command was established. Political pressure and a protracted Vietnam War caused a significant reduction in

46 The author thanks Maj Alex Trousdale, ALCOM J-5/3, for his assistance with this figure.

overseas military manning and headquarters, which led to ALCOM's disestablishment. The Pentagon attempted to counterbalance the disestablishment of Alaska's joint force headquarters by ramping up joint exercises in the late 1970s and 1980s. Ironically, lessons learned during Alaskan exercises such as FORTRESS GALE demonstrated the necessity of a joint force headquarters in Alaska. Meanwhile, increasing Cold War threats alongside local political and community pressure to defend US soil and the citizens of Alaska resulted in the reestablishment of a joint force headquarters – but not until just prior to the collapse of the Soviet Union and end of the Cold War. Though Alaska had assumed an appropriate defensive posture, Alaska's military structure and forces were, for a third time, one step behind the rise and fall of the threat. Finally, in 2014, ALCOM was transformed into a significantly weakened subunified command without components or forces assigned, just as the pacing and acute threats adjacent to Alaska were on the rise. As the threat in and through Alaska and the Arctic continues to rapidly evolve and intensify with recent cooperation between the PRC and Russia, a strengthened joint force command and increased component campaigning in the Alaskan Theater of Operations will require immediate prioritization to achieve the mission of homeland defense.

In conclusion, achieving unity of command in Alaska remains a critical issue of national defense and requires a joint force headquarters and commander present in Alaska. Though Alaska and the Aleutians could be viewed as "Stepping Stones to Nowhere" upon the dissolution of the Soviet Union, the emergent threat of PRC-Russia cooperation in the Arctic supplants the previous regime with a potentially more potent capability than that realized during the Cold War or by Japan during WWII. Just as WWII demonstrated that Alaska cannot be a "pick-up game," recent USNORTHCOM exercises such as VIGILIANT SHIELD highlight how Alaska and the Aleutian Islands are critical to the defense of North America, along with missile defense and other threat monitoring systems across the State. The Arctic Ocean and Bering Sea are increasingly becoming viable travel routes open to commercial and military sea traffic, while competition across the Arctic Region for resource development and opposing claims is a driver for future conflict. Alaska's military installations associated with key infrastructure serve as DOD force projection nodes that must be prioritized and protected within the key terrain of Alaska and the Arctic. In the interest of national defense, the Alaska-based joint force command must be able to simultaneously "protect to project" by synchronizing and integrating joint effects across the Alaskan Theater of Operations.

Anticipating Arctic futures and achieving unified command in the Arctic requires further research and analysis, including consideration of how a subunified command in Alaska is strategically positioned, empowered, and utilized to serve as an operational-level Arctic command not only in Alaska but across the Arctic Region. ALCOM provides an appropriate historical case study illustrating lessons learned from the ebb and flow of unified command in and near the Arctic, including examination of recent initiatives to optimize ALCOM and increase campaigning in the AKTO. As a US joint force headquarters positioned adjacent to the Arctic, a subunified Arctic Command headquartered in Alaska is also well-postured to serve as an interface with regional representatives from the many Federal agencies engaged in the Arctic, as well as State and local governmental organizations and interagency partners with Arctic equities. A subsequent article will anticipate Arctic futures by providing senior decision-makers with several potential structural alternatives for achieving unified command in the Arctic for consideration during the periodic UCP review process. This spectrum of alternatives will include status quo and hybrid solutions utilizing current UCP boundaries, cross-boundary alternatives, and potential AOR changes in the Arctic. It will also propose a future study and detailed mission analysis led by the Joint Staff, including examination of Arctic contingency and campaigning requirements. By examining alternatives for achieving unified command and potentially assigning a single CCMD sole responsibility across the entirety of the Arctic, the United States will attain comprehensive domain awareness to monitor threats while synchronizing effects of an Arctic-capable joint force trained and equipped to respond across the region.

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Across the Top of the World:

An Arctic Swing Strategy for Defense and Prosperity Across Eurasia

By
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ABSTRACT

The Arctic presents significant opportunity for US economic and security interests. Shipping routes and global maritime chokepoints have become more fragile and contested, as demonstrated by the Ever Given blockage in 2021 and Red Sea attacks in 2023-24.American and allied shipping companies and organizations should find alternatives to traditional shipping routes to build resiliency and speed, for commerce and security. Rather than thinking of the Arctic solely as a destination theatre of operations, conceptualizing it as a transit region would introduce more flexibility into DOD force and supply movement for various contingency planning, both for crisis and conflict. The Arctic can be used to move US equipment to Europe and to move allied supplies across the breadth of Eurasia, flexing, surging and re-enforcing allies in the Indo-Pacific. This option would better enable the combined might of the US and allies in Europe and the Indo-Pacific to confront and persevere against adversaries like Russia and China, simultaneously. This paper encourages the DOD (US Navy, USNORTHCOM, TRANSCOM), DHS (US Coast Guard), and the Department of Transportation (US Maritime Administration, MARAD), along with key allied defense and commercial shipping entities like Defence Research and Development Canada (DRDC) and the Canadian Coast Guard, to engage in proof-of-concept Arctic shipping exercises along the Northwest Passage (which runs along the Canadian coast as opposed to the Russian coast, which is already an established shipping route). These exercises would demonstrate the viability of the Arctic as a transshipment domain for American vessels and would be coupled with an assessment of the region's long-term viability as a commercial route and option for Time Phased Force Deployment Data (TPFDD) flow, including maritime sealift and logistics, force posture and relocation, and resupply resilience. This reframing of the Arctic as not just a destination but also a crucial new transit region, along with critical investment in the Arctic from across the US government, would signal and encourage the US private sector to explore trans-Arctic commercial shipping. If successful, this approach wouldddeepen US and allied economic cooperation and would enhance resilience for key allies on the frontlines of great power aggression from Russia and China. Furthermore, the development of US commercial and defense presence would go a long way towards countering the PRC's aggressive near and long-term Arctic ambitions.

INTRODUCTION

The Arctic region, with its unique geopolitical and geophysical characteristics, has emerged to be a pivotal arena for US military and economic interests. The 2021 Ever Given blockage of the Suez Canal highlighted the vulnerability and contestation of global maritime chokepoints, underscoring the need for alternative shipping routes that bolster resilience and expedite commerce and security. This paper posits an additional reconceptualization of the Arctic from solely a destination theatre of operations to instead a region of transit, thereby introducing greater flexibility into the Department of Defense's (DOD) force and supply movement for diverse contingency planning, encompassing both crisis and conflict scenarios. The conventional perception of the Arctic as a destination theatre of operations is limiting in terms of strategic planning and resource allocation. Viewing the Arctic as a key transit region enables us to leverage it for the movement of US equipment to Europe and the transference of allied supplies across the breadth of Eurasia. This shift can unlock new strategic avenues and make resource allocation more efficient. It can also encourage profitable commercial trade, due to reduced transit times and alternatives to current maritime trade routes that are increasingly contested, insecure, and unpredictable.

A NEW SWING STRATEGY-THROUGH THE ARCTIC

The first military asset to transit across the Arctic and the North Pole was the USS Nautilus with Operation SUNSHINE in 1958 (Brown, 2014). President Eisenhower’s direction to provide this demonstration in the wake of the Soviet launch of Sputnik was the beginning of Cold War efforts to combine the ability to swing forces from military theaters through the Arctic and to signal capability and resolve to adversaries (Anderson & Keith, 2008; Griffin, 2013).

The US military's "Swing Strategy" was a contingency approach developed during the Cold War to address potential conflicts in Europe, particularly the threat posed by the Warsaw Pact countries led by the Soviet Union. In the event of kinetic hostilities between the Soviet Union and NATO, the main body of the US Pacific Fleet would ‘swing’ to the Atlantic, in some planned circumstances moving before conflict began (McCrea, et al., 1989). The movement would have involved US aircraft carriers, amphibious ships, Army and Marine divisions and B-52 bombers swinging from Asia to Western Europe, providing critical surge capacity in case of a Soviet invasion of Europe (Evans & Novak, 1979; Walters, 1991). It was a secret US military strategy for about 25 years, beginning in the late 1950s.

With the changing geopolitical landscape and the melting of the Arctic ice, the US military could potentially adapt and modernize this strategy to incorporate the Arctic region as an additional transit opportunity. In the context of a modernized Swing Strategy, the Arctic could serve as a strategic pivot point. With the opening of new sea routes due to melting ice, the Arctic region could provide a quicker and more direct route for the US military and allies to move forces between the Atlantic and Pacific Oceans. This route could allow the US to respond more quickly to threats in either Europe or Asia. For example, in the event of a conflict in Asia, US forces based in the Atlantic could use the Arctic routes to 'swing' to the Pacific more quickly than they could via the Panama Canal. Arctic routes would also provide resilience should the Panama Canal be blocked due to weather or hostilities. Similarly, in the event of a conflict in Europe, US forces based in the Pacific could 'swing' to the Atlantic via the Arctic, which could be particularly important given the rise of China as a major military power in the Pacific and the ongoing tensions with Russia in Europe, as well as the disruptions in key maritime chokepoints, like the Suez Canal blockade, terrorist attacks in the Red Sea, or Chinese control and denial of passage through the Panama Canal. However, a viable swing strategy would require sealift ships, and ships taken up from trade (STUFT) (Naval Historical Society of Australia, 1990), to be ready and able to operate consistently in the high-latitude, cold weather environment.

Figure 1: Arctic shipping routes[1]

1Arrows added onto original figure done by Rodrigue, J. (n.d.). Polar Shipping Routes | The Geography of Transport Systems. The Geography of Transport Systems. https://transportgeography.org/contents/chapter1/transportation-and-space/polar-shipping-routes/ Used with permission.

If the US were to employ a modernized Swing Strategy involving the Arctic, it could move forces, weapons, and supplies from bases in Europe and the Atlantic region to the following locations in the Pacific:

Japan: The US has numerous military bases in Japan, including Yokosuka Naval Base, which is the US 7th Fleet's home port, and Kadena Air Base in Okinawa, which is the largest US air base in the Pacific.

South Korea: The US maintains a significant military presence in South Korea, including Osan and Kunsan Air Bases, which could be used for air operations against China.

Guam: This US territory in the Western Pacific is home to Andersen Air Force Base and Naval Base Guam. Given its location, Guam could serve as a crucial hub for air and naval operations against China.

Hawaii: Home to the US Pacific Command (USINDOPACOM), which oversees all US military operations in the Asia-Pacific region. Pearl Harbor, located in Hawaii, is a major naval base that could serve as a staging area for US naval forces.

Diego Garcia: This British Indian Ocean Territory hosts a US military base that could be used for long–range bomber missions.

Pacific Air Forces (PACAF) in some ways already uses the Arctic as a transit region with the staging of Air assets in Alaska, which are primarily there for deployment to the INDOPACOM theater. A full Arctic swing strategy can 1) use the same staging areas that exist but add capacity and 2) add additional facilities primarily in collaboration with the Canadians. This approach would also be able to take advantage of the recently approved (Newcomb, 2024), long debated deep-water expansion of Port Nome in Alaska (US Army Corps of Engineers [USACOE], Alaska District), which will be able provide a much-needed strategic basing, logistics, and transshipment hub.

Key European and Atlantic bases could include Naval Station Norfolk in Virginia, the largest naval base in the world, and various bases in Europe, such as Naval Station Rota in Spain and Naval Air Station Sigonella in Italy. For example, an aircraft carrier group based in Norfolk could sail north, pass through the Arctic, and then head south to reinforce US forces in the Pacific.

The Arctic could also provide a strategic advantage for US allies to swing forces towards the Pacific, especially for those countries that have Arctic territories or are located near the Arctic Circle.

Canada: As an Arctic nation, Canada could potentially use the Northwest Passage for quicker access to the Pacific. Canada has a significant military presence in the Arctic, including the Nanisivik Naval Facility and Canadian Forces Station (CFS) Alert (Nasittuq Corporation, n.d.), located in the world's northernmost permanently inhabited place. In the event of a conflict in the Pacific, Canadian forces could potentially move from the Atlantic to the Pacific via the Arctic.

Norway: Norway's location near the Arctic Circle could allow it to use the Northern Sea Route to swing forces to the Pacific. Norway has been investing in its Arctic capabilities, including the procurement of new submarines and the establishment of a new Arctic brigade (Szymański, 2021).

United Kingdom: The UK has expressed interest (UK Ministry of Defence, 2022) in increasing its presence in the Arctic and could use Arctic routes to move forces from its home bases to the Pacific. The UK's new aircraft carriers, the HMS Queen Elizabeth and HMS Prince of Wales, could be used in such a scenario.

Additionally, increased weapons manufacturing located with key allies and partners in Europe (such as the UK, Denmark, Norway, Sweden, Finland, the Netherlands, Poland, Germany, France, and Italy) and in the Indo-Pacific (such as in Japan, South Korea, Philippines, Vietnam, Singapore, and Australia) could be surged and pivoted to greatest need quickly along the trans-Arctic route.

This new Swing Strategy would enable more rapid pivoting of forces and weapons back and forth between Pacific and Europe (where conflict is already occurring and may continue to occur), would respond to adversaries' attempts to create a contested homeland and limit US and allied mobilization, and would recognize a pivotal frontline for confronting an increasingly mutually cooperating China and Russia. By increasing the resilience and agility of US and allies to respond to conflict more rapidly and effectively in both theaters, the new swing strategy provides additional ability to bolster deterrence of conflict.

INCREASED VULNERABILITY AND RISKS TO GLOBAL SHIPPING

Military planners and shipping companies are increasingly vulnerable to marine chokepoints, as these narrow passages are critical for global trade but can be easily disrupted. This vulnerability has been starkly illustrated by several recent incidents. In March 2021, the Ever Given, a large container ship, became lodged in the Suez Canal, one of the world's busiest shipping lanes. The ship, which is longer than the Eiffel Tower is tall, was stuck for six days, blocking hundreds of other vessels and causing a massive traffic jam that disrupted global trade. The blockage of the Suez Canal had significant economic impacts. It is estimated that the incident cost the global economy around $400 million per hour in delayed goods (Vlamis, 2021). Shipping companies had to decide whether to wait for the canal to be cleared or to reroute their ships around the Cape of Good Hope, a much longer and more expensive route. The incident and others, such as the March 2024 Dali ship collision resulting in the Francis Scott Key Bridge collapse at the port of Baltimore, highlight the vulnerability of shipping companies to disruptions at marine chokepoints and the need for alternative routes and contingency plans.

Shipping is also vulnerable to deliberate attacks. The Red Sea has long been a source of vulnerability for shipping companies. The ongoing conflict in Yemen, and now the conflict in Israel, has led to several attacks on commercial vessels by Houthi rebels (Gambrell, 2024). These attacks, which have included missile strikes and attempted bombings, have created a high-risk environment for shipping companies operating in the region. Many shippin companies are currently avoiding the area (Sugiura & Holder, 2024). Another regional critical maritime chokepoint, the Gulf of Aden, has long been a hotspot for piracy. Despite international efforts to combat piracy in the region, attacks on commercial vessels continue to occur (Crisis24, 2024). These attacks not only pose a direct threat to the safety of crews and cargoes but also lead to significant delays and additional costs. Shipping companies operating in the Gulf of Aden have had to invest heavily in security measures, including armed guards, secure rooms for crews, and advanced surveillance and tracking systems (ASA Security Services, 2023). They have also had to deal with increased insurance premiums from these risks and the potential for ransom payments (Department of Transportation). Despite these measures, the threat of piracy continues to be a significant source of vulnerability for shipping companies. The Panama Canal, long viewed as a safe passage in the Western Hemisphere, has instead become increasingly risky, due to Chinese influence as well as climate impacts resulting in drought, which are limiting operations and transit capabilities (Plume, 2023).

In addition to human factors, marine crises can also be caused by climate events. Typhoon Hato, which struck in August 2017, was one of the strongest typhoons to hit the South China Sea region in over five decades. With wind speeds reaching up to 200 kilometers per hour, the typhoon caused significant disruption to marine transport of people and goods, particularly in the Pearl River Delta region, one of the busiest shipping areas in the world. The typhoon forced the closure of several major ports in the region, including those in Hong Kong, Guangzhou, and Shenzhen (The Maritime Executive, 2017; Tanndy, 2017). These ports are critical nodes in global shipping networks, handling millions of Twenty-foot Equivalent Units (TEUs) annually. The closure of these ports caused significant delays in the transport of goods, which caused a domino effect of delays and disruptions across the globe. Financial costs came in the form of direct damages to ships and port infrastructure, lost revenues due to delays and cancellations, increased operational costs due to rerouting, and increased insurance premiums (Sun, 2017). The typhoon highlighted the vulnerability of global shipping networks, and as climate change increases the frequency and intensity of such events, the shipping industry and military planners will need to develop more robust contingency plans and invest in more resilient infrastructure to mitigate these risks. We see the Arctic as a promising region for that purpose.

CHANGES TO GLOBAL SHIPPING LANES AND THE TRANS-ARCTIC ALTERNATIVE

Arctic shipping can provide resilience to global shipping by acting as an alternative to some of the following major shipping lanes. The Panama Canal route connects the Atlantic and Pacific Oceans, providing a significant shortcut for vessels that would otherwise have to navigate around the southern tip of South America. The canal primarily used for commercial shipping, but the US military also relies on it for rapid deployment of naval vessels between the two oceans. This route is one of the most critical for power projection to the Indo-Pacific and is one of the clearest chokepoints that can be mitigated by Arctic routes. It is also limitingly shallow.

The Suez Canal connects the Mediterranean Sea to the Red Sea, providing a direct route between Europe and Asia that bypasses the need to navigate around Africa. The canal is a critical artery for global trade, particularly for oil shipments from the Middle East to Europe. The US military has used the Suez Canal for deployments to the Middle East, and its closure would complicate military logistics in the event of a Middle Eastern conflict.

The Strait of Malacca, between Malaysia and Indonesia, is one of the world's busiest shipping lanes, serving as the main gateway between the Indian Ocean and the Pacific Ocean. The strait is particularly important for oil shipments from the Middle East to East Asia. While the US military does not rely on it as heavily as commercial shipping, it is still a strategically important chokepoint in the region.

The Strait of Hormuz connects the Persian Gulf with the Arabian Sea and the Indian Ocean. The strait is a critical chokepoint for global oil supplies, with a significant percentage of the world's oil passing through it. The US military has a strong presence in the region to ensure the free flow of oil, and any disruption to this strait could have significant implications for global energy supplies and military operations.

With the melting of the Arctic ice due to global warming, new shipping routes are opening up in the Arctic region, such as the Northern Sea Route (NSR), which runs along the Russian Arctic coast from the Kara Sea, along Siberia, to the Bering Strait. When open, this route significantly reduces the distance from Europe to Asia compared to the Suez Canal route and is regularly used by Russian commercial vessels (Humpert, 2011; Schuler, 2018). Unfortunately, the NSR may not be an option for American vessels, especially DOD vessels, given its proximity to and reliance on the Russian coast and infrastructure. The Transpolar Sea Route, which would run across the center of the Arctic Ocean, over the North Pole, is currently not navigable but could become an option later in the 21st century if the current rate of ice melt continues.

The Northwest Passage (NWP), which is a sea route through the Arctic Ocean, along the northern coast of North America via waterways through the Canadian Arctic Archipelago, is an interesting option that also provides a shorter trip from Europe to Asia. The NWP is considered more difficult to navigate than the NSR and will require significant DOD investment (Royal Geographical Society, n.d.).

We recognize the extent of the effort we are proposing. The NWP is currently rarely used due to harsh conditions and lack of infrastructure – it has been completely traversed 392 times in modern history (Headland, 2024). The route, travelling from the Labrador Sea, through the Arctic Archipelago, to the Beaufort Sea and to the Bering Strait, in some places has just about no useful close safe harbor. Vessels and people require substantial technology to deal with the ice and cold. There is enormous work to be done to make it a reliable route. However, as the ice continues to melt and the route's season increases, it could become more navigable and, regardless of improved conditions, should play a more prominent role in DOD planning.

Generally, rail is not a good alternative to the NWP. The permafrost poses significant challenges to constructing rail across northern Canada, cost of rail is much higher compared to cost of shipping, and shipping allows for agility and flexibility (rail, by its nature, is a fixed target and therefore more vulnerable to potential sabotage or being disabled due to accidents).

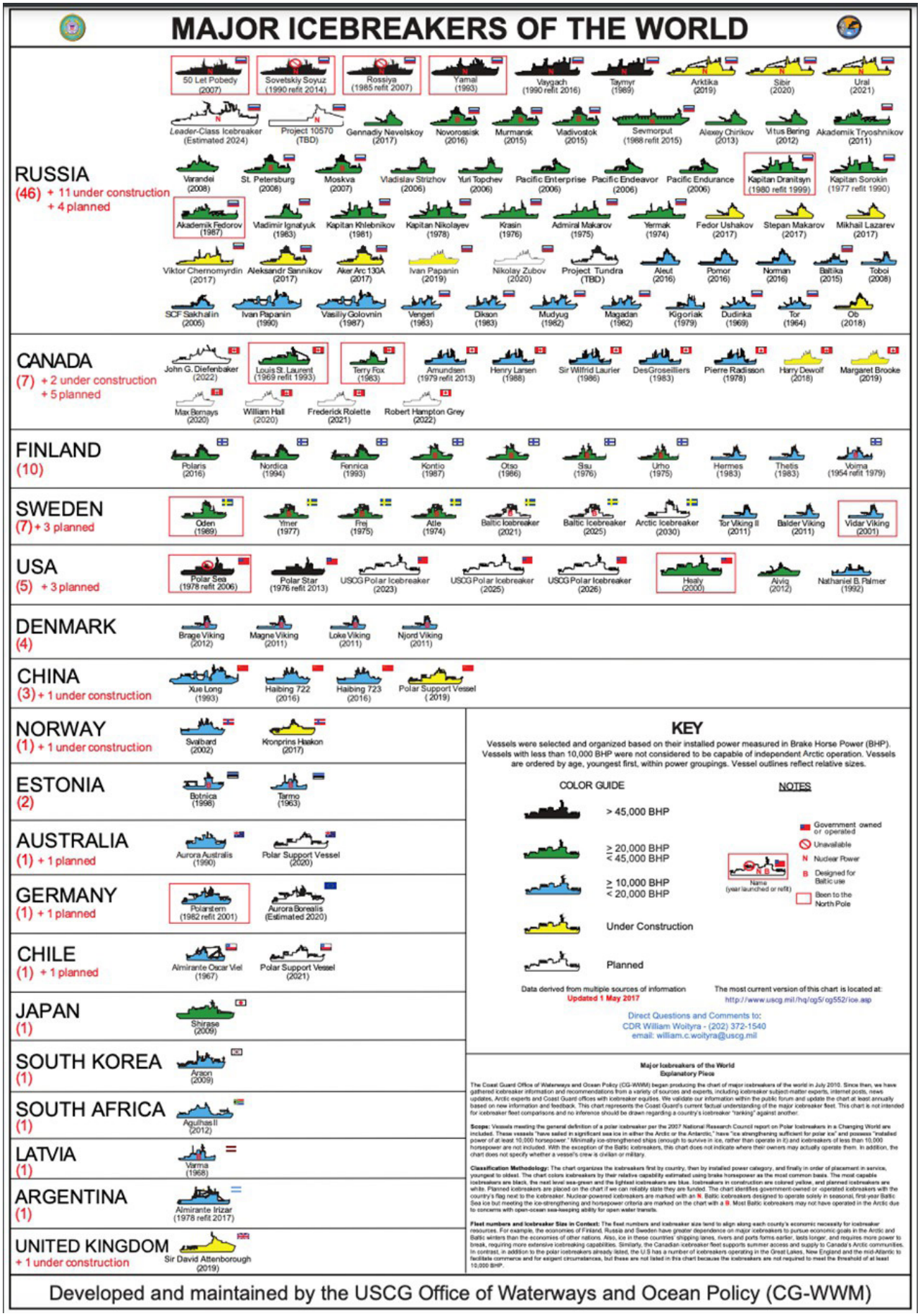

Figure 2: Nation-state icebreaker fleets (USCG, 2017)

The US military has already expressed concern about increased Russian and Chinese activity in the Arctic, and the US Coast Guard has been working to increase its ice-breaking capabilities to ensure it can operate in the region (Cusick, 2024). A Northwest Passage route would revolutionize both US military force movement and global shipping by significantly reducing travel time between major players/markets. The NWP presents significant challenges, including harsh weather conditions, navigational hazards, lack of infrastructure, and environmental and sovereignty issues. The extent to which US security and commercial entities can take advantage of the route will depend on our ability to develop and deploy ice-hardened ships and the infrastructure those ships will require to support sustained and frequent transit operations.

CURRENT CAPABILITIES FOR MARITIME OPERATIONS IN THE ARCTIC

The US military, most publicly the US Coast Guard, has high capability but low capacity to operate in the Arctic region. As a recent RAND report concluded, "there is no evidence of other Arctic actors being able to access parts of the Arctic that the United States fundamentally cannot, based on the inventory of US capabilities that are either currently available or planned for the near term. However, the team found that Russia (in both government and commercial interests) has the capacity to sustain a strong day-to-day presence in the maritime Arctic in a way that the United States does not" (Tingstad, et al., 2023).

As of 2021, the US Coast Guard has two operational icebreakers:

The USCGC Polar Star (WAGB-10), which is a heavy icebreaker. This ship is primarily used for missions in Antarctica, but it can also operate in the Arctic.

The USCGC Healy (WAGB-20), which is a medium icebreaker. This ship is primarily used for scientific research in the Arctic.

In addition to these two operational icebreakers, the US has a third non-operational heavy icebreaker, the USCGC Polar Sea (WAGB-11) which has been in inactive status since 2010 due to major engine problems, and two other military icebreakers (USCG, 2017). The US is also in the process of acquiring new icebreakers to replace its aging fleet. In 2019, the US Coast Guard awarded a contract to VT Halter Marine to design and build up to three new heavy polar icebreakers, with the first ship, the USCGC Polar Security Cutter, expected to be delivered in 2024 (USNI Staff, 2023). Although an Arctic nation, the US has dedicated insufficient resources to realizing capability and capacity for trans-Arctic maritime operations. However, if willing, the US can easily leverage offers from allies to use their existing capacity, such as Finland, as notably "80 per cent of the world's icebreakers have been designed in Finland and 60 per cent have been built by Finnish shipyards (Good News From Finland, 2020)."

RECOMMENDATIONS

Below are a series of our recommendations. While they are predominantly geared towards the defense and national security community, most are highly relevant to any shipping operation interested in cheaper, faster routes through the Arctic. Our integrated deterrence approach considers cooperation between and across interagency, public-private, and with allies & partners as the foundation of success (Bassler, Halper, Katz, & Kirkman, 2023). We discuss ways in which the US Government and the Department of Defense can establish the viability of Arctic shipping along Canada as opposed to along the Russian coast before laying out a few combined Defense – private sector options.

ESTABLISH A NEW DOD EXERCISE SERIES: TRANS-ARCTIC REFORGER

With the resources we do have, and to substantiate the viability of the Arctic as a trans-shipment region, this paper advocates for the execution of proof-of-concept Arctic shipping exercises. These exercises, supported by the United States Transportation Command (TRANSCOM), United States Navy (USN), Military Sealift Command (MSC), United States Coast Guard (USCG), and the Maritime Administration (MARAD), would establish a trans-Arctic version of the historical Return of Forces to Germany (REFORGER) exercise series, thereby operationalizing the movement of equipment across the bookends of Eurasia. The exercises could be designed in a phased manner, with each phase focusing on a specific aspect of Arctic operations. One major task, to be executed towards the end of the series, would be a military icebreaker escorting a commercial ship through the NWP.

The first phase would involve planning and coordination among the participating entities. This would include the identification of potential Arctic shipping routes, the selection of suitable vessels and equipment, and the development of contingency plans for possible challenges such as extreme weather conditions, equipment failure, and encounters with foreign vessels. The second phase could involve simulation exercises, like tabletop exercises and

maybe bi-national (US and Canada) simulation events, to test the feasibility of the plans developed in Phase 1. These simulations could be conducted in controlled environments and would allow for the identification and rectification of potential issues before the actual exercises.

The third phase could involve limited-scale exercises, with a small number of vessels navigating the identified Arctic routes. These exercises would provide valuable real-world data on the challenges and opportunities of Arctic operations and would allow for the testing and refinement of the plans and procedures developed in the earlier phases. The fourth phase would involve full-scale exercises, with a larger number of vessels and the movement of actual equipment and supplies. These exercises would serve as the ultimate test of the viability of the Arctic as a transshipment domain and would provide a clear demonstration of US capabilities in this region.

Throughout all these phases, it would be crucial to monitor and evaluate the performance of the vessels, equipment, and personnel involved in the exercises. This monitoring would involve the collection and analysis of a wide range of data, including navigational data, weather data, equipment performance data, and personnel performance data.

The exercises could also include scenarios designed to test the ability of the US forces to respond to potential challenges and threats in the Arctic environment, such as scenarios involving extreme weather conditions, equipment failure, encounters with foreign vessels, and even simulated attacks. The execution of these proof-of-concept Arctic shipping exercises would be a complex and challenging task, requiring careful planning, coordination, and evaluation. However, the potential benefits in terms of demonstrating the viability of the Arctic as a transshipment domain, enhancing US capabilities in this region, and sending a clear signal to potential adversaries make it a task worth undertaking.

The execution of an exercise series in the Arctic could serve as a powerful catalyst for private sector investment in the region. By demonstrating the potential viability and benefits of trans-Arctic operations, and by investing in the necessary infrastructure and technologies, the DOD could stimulate innovation and economic activity in a range of sectors, from shipping and energy to insurance and financial services, which would deepen US and allied economic cooperation, enhance resilience, and provide a counterbalance to the ambitions of other powers in the region. Furthermore, the augmentation of US commercial and defense presence would serve as a robust countermeasure to the People's Republic of China's (PRC) aggressive near and long-term Arctic ambitions. Thus, the Arctic represents not only a strategic opportunity but also a crucial front in the ongoing geopolitical contestation.

CONDUCT A COMPREHENSIVE ASSESSMENT OF THE TRANSPORTATION POTENTIAL OF TRANS-ARCTIC SHIPPING: PLATFORMS AND INFRASTRUCTURE

Concurrent with these exercises, a comprehensive assessment of the region's long-term viability as a commercial route and option for maritime logistics, force relocation, and resupply resilience is paramount. A whole of government effort involving the Department of Defense (DOD), Department of Transportation (DoT), Department of Commerce (DoC), Department of Homeland Security (DHS), the State of Alaska, and local officials could conduct such an assessment through a multi-pronged approach, incorporating both qualitative and quantitative methods, and involving a broad range of stakeholders, including military strategists, climate scientists, maritime experts, and economists. This assessment would first need to entail an analysis of Arctic ice thaw data and the corresponding development of sea lines of communication (SLOC). A comprehensive analysis of Arctic ice thaws could be achieved through collaboration with climate scientists and leveraging satellite imagery and data from organizations such as the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA). The data collected would provide valuable insights into the rate of ice melt and the consequent opening up of new SLOCs; predictive modeling could be employed to forecast the development of these SLOCs over the next two, five, ten, and twenty years.

Secondly, the assessment should also encompass a review of the current capabilities of naval and commercial maritime platforms, systems, and performance in high-latitude, cold, and remote environments. This review would involve a detailed examination of the structural integrity, performance, and adaptability of existing vessels and equipment in high-latitude, cold, and remote environments. It could also include an evaluation of the technological advancements in ship design and construction, propulsion systems, navigation systems, and communication systems that could enhance the operational efficiency and safety of maritime operations in the Arctic region.

Thirdly, the assessment should consider the human element. This consideration would involve an evaluation of the training and preparedness of naval and commercial crews for operations in the Arctic environment. The assessment could also examine the potential psychological and physiological impacts of operating in such harsh and isolated conditions, should the need arise for long stays in-region.

Fourthly, the assessment should consider the economic viability of Arctic shipping routes. This would involve a cost-benefit analysis comparing the potential savings in time and fuel from using Arctic routes with the additional costs associated with operating in such a challenging environment. These costs could include increased insurance premiums for commercial traffic, the need for specialized vessels and equipment, and the potential for environmental damage and the associated cleanup and legal costs.

Fifthly, the assessment should do a mapping analysis of closest safe harbor and emergency response options available to vessels traversing the Northwest Passage. The availability of timely assistance, and conditions a rescue operation might face, will vary drastically along the route from the Labrador Sea, through the Arctic Archipelago, to the Beaufort Sea and to the Bering Strait. This part of the assessment can also look for key locations where dual-purpose large community centers might be built for local populations, to be available for Humanitarian Assistance and Disaster Response (HA/DR) as a rescue staging ground. It can also look at the state of interoperability with Canadian maritime search and rescue entities and make recommendations for improvement.

Finally, the assessment should also consider the geopolitical implications of increased activity in the Arctic. This would involve an analysis of the potential reactions of other Arctic nations, particularly Russia and China, and the potential for conflict over control of Arctic resources and territory. This part of the assessment could also consider, i.e. establish, the potential benefits of increased US presence in the region, both in terms of projecting power and in providing a counterbalance to the ambitions of other nations.

ENGAGE WITH AND INCENTIVIZE PRIVATE SECTOR INVESTMENT TO ACCELERATE TRANS-ARCTIC SHIPPING

A strategic reframing of the Arctic, coupled with signaling and investment by the DOD and the execution of an exercise series, would potentially incentivize the US private sector to explore trans-Arctic commercial shipping. If successful, this approach could deepen US and allied economic cooperation and enhance resilience for key allies confronting the aggression of great powers such as Russia and China.

The execution of an exercise series in the Arctic could serve as a powerful signal to the US private sector, demonstrating the potential viability of trans-Arctic commercial shipping and incentivizing further exploration and investment in this area. For shipping companies, the successful execution of the exercise series could highlight the potential benefits of trans-Arctic shipping routes. These routes could offer significant time and cost savings compared to traditional routes, particularly for shipments between the East Coast of the US and Asia. The demonstration of US military capabilities in the Arctic could also provide reassurance regarding the security of these routes. Moreover, the DOD's investment in Arctic-capable vessels and equipment could stimulate innovation in the private sector. Shipping companies could leverage the technologies and designs developed for military use to create their own Arctic-capable commercial vessels.

For energy companies, particularly those involved in the extraction of oil and gas, the exercise series could highlight the potential for increased access to Arctic resources. The Arctic holds about 13% (90 billion barrels) of the world's undiscovered conventional oil resources and an estimated 30% of its undiscovered conventional natural gas resources, per an assessment conducted by the US Geological Survey (USGS)/ (USEIA, 2012; USGS, 2008). Periods of retracting Arctic ice could open up new areas for exploration and extraction, and the demonstration of US capabilities in the region could provide reassurance regarding the feasibility and security of such operations. In addition, the DOD's investment in Arctic infrastructure, such as ports and logistics hubs, could reduce the costs and risks associated with energy extraction in the region, which could make Arctic energy projects more economically viable and attractive to private investors.

For insurance and financial services companies, the exercise series could provide valuable data and insights regarding the risks and opportunities associated with Arctic operations. This could enable these companies to develop new products and services tailored to the needs of companies operating in the Arctic. For example, insurance companies could use the data collected during the exercises to develop more accurate risk models for Arctic operations, enabling them to offer more competitive insurance premiums. Similarly, financial services companies could use the insights gained from the exercises to provide more informed advice and investment opportunities to their client.

OPTIONS: ARRANGE AND MAINTAIN ICEBREAKER ESCORT CAPACITY FOR TRANS-ARCTIC COMMERCIAL ACTIVITY

The use of military icebreakers to escort commercial vessels is a concept that could potentially increase the viability and safety of Arctic shipping. This practice is already in use by some countries, most notably Russia, which has a fleet of nuclear-powered icebreakers that regularly escort commercial vessels along the Northern Sea Route (TASS, 2017). In October 2023, the first container ship to transit the Arctic did so with a Russian nuclear icebreaker escort (Humpert, 2018). The container ship is owned and operated by Maersk.

The primary role of an icebreaker is to clear a path through the ice, allowing other vessels to follow in its wake. In the Arctic, where ice conditions can be unpredictable and potentially hazardous, the presence of an icebreaker can provide a significant boost to the confidence of commercial shippers. In addition to clearing a path through the ice, an icebreaker can also provide other support services to commercial vessels. These services could include search and rescue operations, emergency towing, and medical assistance. The icebreaker could also serve as a platform for scientific research, which could help improve our understanding of the Arctic environment and contribute to safer and more efficient shipping operations. From a military perspective, the use of military icebreakers to escort commercial vessels could also have strategic implications. It could help to assert national sovereignty over Arctic waters and potentially deter unwanted activity by other countries. It could also provide valuable experience and training for military personnel in Arctic operations.

OPTIONS: OBTAIN ICE-HARDENED COMMERCIAL SHIPPING FOR UNESCORTED OPERATIONS

Leveraging existing icebreaker, or ice-hardened fleet from key allies offers a method to accelerate this concept immediately. Concurrently, there is a need for the US naval and commercial fleets to design and construct a fleet of ice-capable military sea command or logistics ships that would, in peace time, serve commercial interest as an auxiliary fleet. This would be a significant undertaking, requiring careful planning, specialized design and construction, and a substantial investment. As discussed below, these ships would need to be built to withstand the harsh conditions of the Arctic, including extreme cold and ice-covered waters, at high latitudes.

Ice-capable container ships, also known as ice-class ships, are designed to navigate through ice-covered waters. They have reinforced hulls and powerful engines to break through ice, and they are equipped with systems to manage icing and low-temperature conditions. Several types of ice-class ships already exist, including icebreakers, ice-capable tankers, and ice-capable bulk carriers. These ships are used in regions like the Baltic Sea, the Great Lakes, and the Arctic and Antarctic regions. However, ice-capable container ships are less common, as most container shipping currently takes place in ice-free waters.

OPTIONS: BUILDING ICE-CAPABLE SHIPS

Building ice-capable container ships is more challenging and expensive than building standard container ships. The hull needs to be very strong to withstand the pressure of the ice, which could involve using thicker and higherstrength steel, and/or designing the hull shape to push ice downwards and break it under the ship's weight. The propulsion system also needs to be powerful enough to break through the ice. The ship also needs to be designed to withstand the extreme cold, which can affect everything from the mechanical systems to the crew's living conditions. In addition to the technical challenges, there are also operational challenges to consider. Ice-capable ships are generally slower and less fuel-efficient than standard ships, which could increase shipping costs. Navigating through ice-covered waters also requires specialized skills and knowledge and can be more hazardous than navigating in open water. Despite these challenges, we believe the development of ice-capable container ships has potential, particularly as climate change opens up new shipping routes in the Arctic. Indeed, the Chinese shipping company COSCO has been operating ice-capable container ships on the Northern Sea Route since 2013 (Lamazhapov, et al., 2023).

Long range, autonomous break bulk carriers may also be an option, reducing the risk should a vessel encounter trouble along the route. Without a crew aboard, search & rescue becomes search & recovery, a considerably less fraught endeavor.

RETROFITTING

There are technical challenges associated with retrofitting ships for Arctic transit, but these are not impossible to overcome. The hull of the ship would need to be strengthened with an ice-belt to withstand the pressure of the ice, which would involve adding steel (Staff, 2014). The ships need powerful podded propulsion systems to maneuver through the ice. Larger and more powerful engines can be added, and potentially the use of azimuth thrusters, which can rotate 360 degrees and provide better maneuverability in ice. Ships need additional systems to prevent ice from building up on the deck and topside superstructure, as ice can affect stability and operations. These anti-ice systems can involve thermocouples on deck, heating systems, special coatings, and physical deicing equipment. Topside de-icing solutions such as ice-phobic coatings can be retrofitted.

COLLABORATE WITH KEY ALLIES TO CREATE, ENABLE AND SUSTAIN TRANS-ARCTIC CAPABILITY AND CAPACITY FOR SECURITY AND PROSPERITY

The US should prioritize allied integration and interoperability in the Arctic. Navigating in such a hostile environment requires extensive considerations that are easiest tackled through teamwork. We recommend leaning more heavily into the International Cooperative Engagement Program for Polar Research (ICE-PPR). Recommendation #1 mentioned "a mapping analysis of 'closest safe harbor' and emergency response options available to vessels traversing the Northwest Passage" and suggested that "the assessment [...] look for key locations where dualpurpose large community centers might be built for local populations, to be available for Humanitarian Assistance and Disaster Response (HA/DR) as a rescue staging ground." This work would certainly need to be done in conjunction with the Canadians, but other allied nations such as some Nordic ones could be interested in supporting. Search & rescue entities should be merged in terms of capability. ICE-PPR already, "lays the groundwork to address long-standing capability gaps in critical areas" (Bassler, 2020); we just need to take full advantage of the resources and allies before us.

Increased US commercial activity in the Arctic could also deepen relationships with US allies through joint ventures and partnerships. US companies could partner with companies from allied nations to undertake Arctic projects, sharing the risks and rewards. For example, a US shipping company could form a joint venture with a Norwegian company to operate a trans-Arctic shipping service, leveraging the US company's logistical capabilitiesand the Norwegian company's experience in operating in the Arctic environment. Similarly, a US energy company could partner with a Canadian company to explore for oil and gas in the Arctic. This could leverage the US company's technological capabilities and the Canadian company's knowledge of the local environment and regulatory landscape.

Increased allied activity in the Arctic could also lead to technology and knowledge sharing. US and allied companies and defense entities could share their technologies and expertise with commercial and/or non-commercial entities from other nations, helping to improve everyone's Arctic capabilities. For example, a US company that develops a new type of ice-resistant ship hull could license this technology to companies from allied nations. Similarly, a Canadian company that develops a new method for predicting ice conditions could share this knowledge with the US and others. Currently, the US and its NATO and Indo-Pacific allies have limited ice-capable maritime logistics capacity. However, some countries, like Denmark, Finland, and Japan, have experience operating in ice-covered waters and could potentially provide valuable expertise.

Greater US presence in the Arctic would also lead to greater policy and regulatory cooperation with our allies. The US and its allies could work together to develop common standards and regulations for Arctic operations, promoting safety and environmental sustainability. The US and its allies, particularly in close collaboration with the International Maritime Organization (IMO), could develop a common set of safety standards for Arctic shipping and general Arctic norms, reducing the risk of accidents and environmental damage. They could also develop a common set of environmental regulations, ensuring that Arctic operations are conducted in a sustainable manner. The IMO as a global, non-US controlled entity, has particular potential for furthering standards and best practices that may curb some of the legally murky aspects of Chinese and Russian Arctic expansion.

Most importantly, increased US focus, militaristic, diplomatic, and commercial, would lead to greater security cooperation with our allies and reduce China's maneuverability. The US and its allies could work together to ensure the security of Arctic shipping routes and energy resources, deterring potential threats from other powers.

The US and its allies could conduct joint naval patrols of Arctic shipping routes, demonstrating their commitment to maintaining freedom of navigation. They could also share intelligence and conduct joint exercises, enhancing their collective ability to respond to potential threats.

ESTABLISH AND RESOURCE AN ARCTIC SECURITY INITIATIVE (ASI)

The Congressional bill Arctic Security Initiative Act of 2021 proposed "an independent assessment with respect to the Arctic region and establishment of Arctic Security Initiative". While not passed, it demonstrates continued Congressional interest in the Arctic region. This paper calls for renewed attention to an Arctic Security Initiative and suggests modelling it after the Pacific Deterrence Initiative (PDI) for INDOPACOM and the European Deterrence Initiative (EDI) for EUCOM. An ASI could be administered by NORTHCOM and Alaskan Command (ALCOM) and potential objectives can include:

- "The implementation of the National Defense Strategy and military service-specific strategies with respect to the Arctic region;
- The maintenance or restoration of the comparative military advantage of the United States in response to great power competitors in the Arctic region;
- The reduction of the risk of executing operation and contingency plans of DOD; and To maximize execution of DOD operation and contingency plans, in the event deterrence fails (Senate, 2021)."

A dedicated, congressionally mandated ASI would set aside the resources needed to accelerate and sustain US presence in and through the Arctic. This Initiative would enable top level decision making, enhance intelligence, and improve capabilities across the multitude of critical authorities on the region. It would be a much-needed accelerant and a consequential and proportional response to Chinese and Russian Arctic-focused entities, such as the Polar Research Institute of China. An ASI would also provide impetus to the federated agencies by sending a clear signal that Congress believes the Arctic region is one worth prioritizing as part of the US homeland and critical region for operations and transit to support both front along Eurasia.

CONCLUSION

In conclusion, this paper urges the USG to invest in a sustained presence in the Arctic to enable a new swing strategy through the Northwest Passage (NWP). This presence should merge security and commercial interest, cutting across government, public-private partnership, and allies and partners, and be significant enough to counter Chinese and Russian ambitions to set the norms of the region. In our recommendations we suggest a DOD exercise series, starting with TXXs and simulations, coupled with a full spectrum assessment of US capability and the investment required to magnify that capability so the NWP can be used to project US and allied power through the Arctic across Eurasia. We discuss commercial interest in the NWP shipping route and suggest various ways the DOD can support commercial traffic with icebreakers or ice-resistant ships, building an auxilary fleet. Our recommendations then highlight the importance and potential of strong allied interoperability and cooperation in the Arctic and concludes by pressing for renewed attention on an Arctic Security Initiative funded by Congress. Through a fusion of military need with increasing commercial interest, we can use the Arctic to support a joint and coalition forces swing strategy across Eurasia against adversaries like Russia and China. The strategic benefit cannot be overstated.

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Defending a Melting Arctic:

Aligning Joint Capabilities to Achieve Strategic Goals

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INTRODUCTION

In October 2022, the US National Security Strategy (NSS) elevated climate change as the most significant existential challenge facing all nations. Both democratic and autocratic countries compete for access to Arctic shipping routes and natural resources due to the accelerating effects of climate change. The US National Strategy for the Arctic Region (NSAR) envisions a peaceful, stable, prosperous, and cooperative Arctic region. To this end, the Department of Defense and the armed services have published independent Arctic strategies to defend the homeland, deter threats, and—if necessary—win in conflict.

The Joint Force lacks a unified effort to align military and civilian ways and means to achieve strategic ends in the Arctic. The Department of Defense's focus on pacing and acute threats in the Indo-Pacific and Europe prevents the department from fully understanding and investing in required Arctic capabilities. Policymakers and military decision makers must weigh Arctic modernization investments against current requirements while continuing to prioritize future Arctic readiness. The Department of Defense must update its Arctic strategy, develop a Joint Arctic Operational Concept (JAOC) supported by clearly defined Joint All-Domain Arctic Capabilities (JADAC), develop Arctic combatant command (CCMD) operational plans (OPLAN), and expand the National Guard State Partnership Program (SPP). The department should also reassess current command and control (C2) structures for Arctic-capable forces. These actions would enable the Joint Force to deter aggression effectively, respond in a crisis, and defend US interests in the Arctic.

ARCTIC STRATEGIC CONTEXT

The Arctic, or the circumpolar north, is the region above the Arctic Circle that encompasses all areas north of 66.56 degrees latitude north of the Equator. The Arctic's geography, the effects of climate change, and international governance significantly shape the strategic importance of the region and present political, informational, military, and economic opportunities and challenges. The Arctic is warming four times faster than the rest of the planet, resulting in accelerated glacial and sea-ice melt, warming temperatures, permafrost thaw, and sea-level rise (Rantanen, et al., 2022).

Armed conflict over the Arctic is unlikely, but competition with US adversaries may escalate as access to this region increases with a warming climate and improved technologies. The physical as well as the human terrain of the Arctic is changing, thereby heightening geopolitical interest in its riches. Diverse domestic and international workers are increasingly being recruited to the Arctic as much needed laborers for new business ventures in the region. Increased maritime accessibility due to melting sea ice is increasing economic opportunities through expanded shipping lanes, access to bountiful Arctic fisheries, and hydrocarbon and mineral resource extraction.

According to a 2008 US Geological Survey, an estimated 90 billion barrels of oil, 1,669 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids remain unharvested within the Arctic Circle, amounting to nearly 15% of the world's untapped oil and 30% of its untapped natural gas (USGS, 2008). Access to these hydrocarbon and mineral resources will drive future infrastructure development in the Arctic. The Northern Sea Route is estimated to be the first year-round sea route free of Arctic ice and has the most immediate economic viability. According to the Journal of Indo-Pacific Affairs, the Northern Sea Route reduces shipping between East Asia and Western Europe by 10 to 15 days and by 8,200 kilometers (Sharma, 2021). Traffic in the NSR is currently dominated by domestic shipping by Russia. However, increasing international traffic from the People's Republic of China (PRC), who owns one-fourth of the world's maritime vessels and moves 90 percent of its trade via maritime activity, could increase regional shipping traffic considerably (Sharma, 2021).

Any meaningful path to sustained regional peace requires the participation of Arctic nations, including Russia, in all aspects of Northern dialogue, regulation, and governance. Domestic and international Arctic organizations provide a forum for international cooperation through aligned national interests (a key strategic priority in the NSAR) and national collaboration on homeland Arctic and extreme cold weather priorities. These organizations facilitate unity of effort for regulating activities, addressing issues, and creating international and national agreements and policies vis-à-vis the Arctic region. The most notable organization is the Arctic Council which focuses on crucial topics such as improving the lives of Indigenous people, monitoring and protecting biodiversity, understanding and promoting the impacts of climate change to inform decision makers, and preventing and responding to emergencies. The Arctic Council's mandate prevents it from dealing with matters relating to military security and policy, leaving that authority to individual states and international bodies. However, the North Atlantic Treaty Organization (NATO), the Arctic Security Forces Roundtable, and the Arctic Chiefs of Defense Forum provide avenues for military and security cooperation. In March 2022, the Arctic Council ceased most official Arcticrelated meetings and collaborative work following Russia's invasion of Ukraine, removing cooperation and conflict resolution venues. But, in May 2023, Norway assumed chairmanship of the Arctic Council and reinstated working groups to safeguard and strengthen the Council (Arctic Council, 2023). However, geopolitical tensions within the eight nations of the Arctic Council could grow as both Finland and Sweden are now NATO members following Russia's 2023 invasion of Ukraine, leaving Russia as the last remaining Arctic Council nation without NATO membership.

ARCTIC INTERESTS AND STRATEGIES

The United States itself is an Arctic nation, as approximately the northern third of the state of Alaska sits above the Arctic Circle, encompassing areas such as the large Northwest Arctic and resource-rich North Slope Boroughs. From a circumpolar north standpoint, the United States desires a stable, peaceful, prosperous, and cooperative Arctic region. The NSAR rests upon four pillars: maintaining security, responding to climate change, engaging in sustainable development, and cooperating with international allies and partners. To secure the Arctic, the United States must deter threats; strengthen relationships with allies and partners; mitigate escalation; maintain and expand presence; and anticipate, prevent, and respond to man-made and natural incidences.

These US strategies indirectly highlight significant gaps in defense capabilities—most notably, maritime basing and presence. In particular, the NSS notes how competitors are expanding their presence and capabilities in the Arctic at a greater pace and scale than the United States. Pursuant to these strategy documents, the US defense enterprise must make calculated, timely investments in the Arctic region alongside allies and partners.

Russia states it wishes to maintain "sovereignty and territorial integrity" and to ensure "peace and stability" in the Arctic region (Davis & Vest, 2020). Yet, Russia chooses to pursue its interests outside established international organizations and forums. Russia's far-reaching claims to energy and mineral resources in the Arctic seabed conflict with the territorial claims of other signatories of the United Nations Convention of the Law of the Sea (UNCLOS) such as Canada and Denmark, resulting in increasing diplomatic tensions (Rumer, et al., 2021). Despite claims of protecting its economic interests, Russia's steady rise of military capabilities and operations to control portions of the Arctic sea and airspace contradict international norms, threaten national security interests of Arctic nations, and encourage a proportional military response from NATO to deter future conflict. The PRC is attempting to make a smooth entrance into the Arctic as well, leveraging three principal strategies: respect, cooperation, and win-win scenarios (Conley, 2018). These strategies aim to provide a mechanism for the PRC to gain early entrance into Arctic development and influence the creation of Arctic governance as an observer in the Arctic Council and self-declared "near-Arctic" state. The PRC's most significant opportunity resides within the country's diplomatic and economic influence over Arctic nations; the PRC views its climate-change research activities as vital to all countries and humanity (Lim, 2018). Like the Belt and Road Initiative, the PRC's Polar Silk Road–a network of infrastructure projects and investments to build navigable shipping routes in theArctic Ocean–has the potential to set conditions to shape how the United States and its allies approach development and security in the Arctic. For example, in 2019, Touchstone Capital Partners, a Beijing-backed investment firm, signed a 15 billion euro deal alongside three Chinese construction firms to construct the Helsinki-Tallinn tunnel between Finland and Norway (Borshoff, 2019). This is a prime example of how the PRC intends to gain access, and likely influence, in the region. The PRC knows it must proceed carefully to avoid losing its Arctic Council observer status since it is not an Arctic nation and does not hold any Arctic territory. Security concerns have been raised as to the level at which some PRC projects in the region may be dual-use for military purposes such as surveillance, observation, monitoring, and other civilian-military fusion activities. The NSAR clearly highlights the potential risks to US national interests in the Arctic due to strategic competition with Russia and the PRC. However, the DOD and service strategies do not reflect the current threat environment nor the refined US strategic vision.

The Department of Defense and each of the services published their Arctic strategies between 2020 and 2021, but the DOD strategy, which the department published in 2019, has not been updated since the latest NSAR. Although none of the service strategies diverge from the national strategy, they are not particularly joint in nature and are crafted to facilitate service-specific resourcing. The Department of Defense needs to update its Arctic strategy to articulate how the Joint Force will fight in the Arctic.[1] This strategy specifies the military requirements for driving strategic contingency planning, Joint capability development, and Joint Force development. This process is iterative because CCMDs develop Arctic requirements while crafting OPLANs using operational concepts that are tested during exercises and updating Joint Arctic tactics, techniques, and procedures. The capability of National Guard units through the SPP must also be included in the strategy update to meet the requirement to strengthen international relationships with partners and allies. Through the SPP, the National Guard uses a $44 million annual budget to conduct more than 1,000 events annually with 100 nations (National Guard Bureau, 2023). These connections aid in addressing security challenges across all geographic CCMDs.

As it preserves its focus on the Indo-Pacific region, the DOD Arctic strategy must shift from a calibrated force posture to a more permanent force posture in the Arctic (DOD, 2022). An effective strategy requires a persistent presence in the Arctic to achieve the NSAR objectives and to provide meaningful deterrence. A compelling shift in PRC and Russian military and grey zone activities in the Arctic might demand civilian and military leaders to shift their priorities. Building readiness in the Arctic will take years; the Department of Defense must start taking steps now to operationalize the Arctic to prepare for increased competition and competitor aggression.

OPERATIONALIZING THE ARCTIC

Operationalizing the Arctic addresses the arrangement of military ways and means to achieve US Arctic strategic aims. The section describes the role of the UCP in assigning responsibility for developing Arctic capabilities and argues for developing a JAOC, its supporting JADACs, and Arctic CCMD OPLANs. This section discusses three recommendations for the National Guard: expanding the Arctic SPP, identifying Arctic units in the National Guard for rotating mission sets, and increasing participation in Arctic exercises. This section concludes by reassessing the overall C2 structure of Arctic-capable forces.

Unified Command Plan 2011 identifies United States Northern Command as the advocate for Arctic capabilities, but the preponderance of America's Arctic allies, partners, and competitors reside in other CCMD areas of responsibility. The military services and other CCMDs support the United States Northern Command's role as the Arctic advocate by generating requirements, but more oversight and accountability are necessary to define and develop

1 Note that On July 22, 2024, the DOD released its latest Arctic Strategy.

Joint Arctic capabilities to meet national interests and strategic objectives. The Department of Defense lacks a Joint concept to inform required joint all-domain capabilities in the Arctic (USAF, 2021). The Department of Defense must invest in a JAOC and JADACs now to ensure the Joint Force can compete, fight, and win across all domains in the relentless Arctic environment. As part of the family of Joint concepts, a JAOC serves as the foundation for experimentation and Joint Force design and development. The department should specify key performance parameters for JADACs, such as minimum and maximum temperature thresholds for operating in ECW. For instance, JADACs might include a Joint, over-the-snow mobility platform or reinforced maritime vessels to navigate in the Arctic Ocean. Progress must begin within the Pentagon and include bottom-up refinement from CCMDs and the services. For example, the Secretary of Defense must increase the priority of JADACs in the Defense Planning Guidance and Joint Capabilities Integration and Development System to ensure all requirements are quickly identified and approved by the Joint Requirements Oversight Council. This top-down approach provides improved unity of effort across the Department of Defense.

Along with defining Arctic capabilities and requirements, CCMDs need to draft, refine, and submit OPLANs that name specific Arctic forces and capabilities for the defense of NATO allies and other contingencies in high-altitude, high-latitude, and ECW regions. Joint forces must execute portions of these OPLANs during regular, joint, combined exercises. By developing Arctic OPLANs, CCMDs effectively outline the military objectives, resources, and strategies required to achieve national interests in the Arctic. These OPLANs define which forces each CCMD requires for operations and influence the Global Force Management Implementation Guidance and the Global Force Management Allocation Plan. With this guidance, the services can more effectively generate the Arctic-capable forces to support CCMD requirements.

The National Guard Bureau must prioritize partnerships between Arctic nations and northern-tier states in the SPP to form cooperative, mutually beneficial relationships that deepen capabilities and trust between countries (National Guard Bureau, 2023). For example, aligning recently inducted NATO allies Finland and Sweden with US states that have similar climates will capitalize on ECW expertise, and increase training readiness for all partners. Likewise, steady funding through the NGB or the combatant command initiative funds will sustain these partnerships over time and enhance NATO's deterrence in the Arctic. If tensions build and conflict occurs in the Arctic region, SPP relationships can be a critical connection or lifeline and supply faster responses through strengthened diplomatic and military bonds. A key example is when Major General David S. Baldwin, the California National Guard's adjutant general, received one of the first calls from Ukraine requesting assistance once Russia began its attack (Garamone, 2022). The effectiveness and value of the SPP displayed in Ukraine demonstrate investment and partnerships are worth the time and effort to build. Further opportunities to build Arcticcapable forces within the National Guard include increasing participation in Joint and combined ECW exercises with active-duty forces and creating a rotating Arctic mission set as part of the Regionally Aligned Readiness and Modernization Model. This would enable units and states to focus on building Arctic readiness for a designated period. Enhancing existing CIVMIL relationships and expanding partnerships with Arctic Indigenous Peoples and other local populations in the region who have regional expertise and on-the-ground experience in these areas will also likely be needed.

REASSESSMENT OF ARCTIC COMMAND AND CONTROL (C2)

Each service directs specific commands to organize, train, and equip forces to fight in ECW environments but not as part of a Joint Force in the Arctic where multiple command authorities geographically overlap. In Alaska, the Army provides ground forces, air and missile defense capabilities, along with cold weather testing facilities. The US Air Force and Space Force command most of the Department of Defense's assets in the Arctic, including power projection, ballistic missile defense, radar warning, and space awareness platforms. The 11th Air Force commander serves as the commander of Alaskan Command, a sub-unified command of United States Northern Command and the Alaska North American Aerospace Defense Command region, to defend and secure the United States and its interests. The US Navy has the least permanent presence in the Arctic of any of the services however, it recognizes the need to operate forward and posture forces toward the Arctic in the coming decades (USN, 2020). The Navy's 2nd and 6th Fleets routinely conduct Joint and combined exercises and operations in the Northern Atlantic and the Arctic regions. However, the Navy's lack of ice breakers and reinforced ship hulls will continue to limit its ability to project naval power above the Arctic Circle until the Northwest Passage and other sea routes become more navigable. In 1936, President Roosevelt issued Executive Order 7521, directing the Navy to divest all icebreaking functions and capabilities to the US Coast Guard, thus removing icebreaking as a core mission for the Navy. Changes in the strategic environment are causing senior leaders to reassess the Navy's role in the Arctic. Admiral Daryl Caudle, the commander of US Fleet Forces, insists that the Navy, "must operate more assertively to keep the Arctic open,"... including "having ice-strengthened surface ships present (as cited in Grady, 2024)," Lastly, as part of its strong relationship with the Norwegian Army, the Marine Corps rotates a battalion of marines from the Marine Rotational Force-Europe to conduct annual ECW training.

Service force postures and C2 structures support current requirements and demands to organize, train, and equip Arctic-capable forces. Although the status quo may not meet future requirements to supply enhanced Arctic capabilities across all domains to deter threats and defend strategic interests. As directed in the NSAR, the Joint Force needs to reassess competing demands and obstacles that inhibit an improved understanding of the operational environment, an increased exercise presence, and maximized unity of effort with allies and partners in the Arctic and sub-Arctic.

Current C2 structures for Arctic-capable forces result from the Arctic being an economy-of-force theater and presence that has met the nation's past strategic objectives. The rising strategic importance of the region and the nature of competition and potential conflict require a reassessment of the status quo. The 11th Airborne Division is an excellent starting point due to the inherent tensions between the division's mission, geographic location, strategic partnerships, and current C2 structure. The division supplies essential land power and Joint, forcible-entry capability to the United States Indo-Pacific Command against the present and growing threat of the People's Liberation Army in the United States Indo-Pacific Command's area of responsibility.

Forward posturing within a theater of operation and dedicated resources for mission accomplishment are clear advantages of being assigned to a CCMD. However, the United States Indo-Pacific Command's focus remains on the PRC in the Indo-Pacific, not the Arctic (ADM Aquilino, 2024). Reassigning the division to the United States European Command makes sense, considering the preponderance of Arctic allies and partners. However, reassigning or reallocating the division to the United States European Command via the Global Force Management Allocation Plan presents challenges to organizing, training, and equipping forces across time zones. Likewise, reassigning the division to United States Northern Command aligns the CCMD tasked with advocating for Arctic capabilities. Nevertheless, the United States Northern Command's focused homeland defense mission may limit the division's ability to organize, train, and equip for Arctic competition and conflict. Retaining the 11th Airborne Division within the Department of the Army may give the appearance the division has excellent flexibility to support Arctic requirements across all CCMDs, but doing so would leave the division vulnerable to service interests and budget constraints. Therefore, an optimal solution that resolves the tensions in the division's current C2 structure is not apparent. More research is needed to understand the risks and fully available options for addressing this concern.

CONCLUSION

Policymakers and military decision makers must weigh Arctic capability investments against current requirements but not at the expense of future Arctic readiness. If access to and through the Arctic region occurs sooner than expected, either due to rapid climate change and competitors achieve overmatch or parity in Arctic capabilities, then the Defense Department's strategic risk increases. The Joint Force may lack cohesion and the necessary organization, training, and equipment to support CCMD requirements when needed. Maintaining the status quo will cost more lives and equipment if strategic miscalculation changes the probability of conflict in the Arctic.

The Department of Defense must update its Arctic strategy to align with the current NSS and NSAR, and ensure service Arctic strategies link activities, readiness, and modernization with strategic goals. The department needs an overarching JAOC that describes how the Joint Force will fight and win in the harsh Arctic environment and identifies the Arctic all-domain capabilities the Joint Force needs to accomplish its missions. The lack of clearly defined JADACs across the Joint Force inhibits effective acquisition and modernization to achieve strategic goals. Without unity of effort in strategy, concept, and capability development, the Joint Force accepts significant risk if required to generate trained and ready forces quickly to fight and win in a harsh Arctic environment. Operationalizing the Arctic requires developed CCMD OPLANs that inform further Arctic requirements and readiness. The United States has a strategic advantage and opportunity to expand the National Guard SPP to include all Arctic allies and partners to increase readiness, foster collaboration, mitigate risk, and enhance integrated deterrence. The Joint Force needs a more effective, permanent force posture in the Arctic as well as C2 structures that are more aligned with the risk level in the region. Nevertheless, the necessity to deter aggression in the Indo-Pacific and Europe complicates an easy solution. If the Department of Defense cannot implement all recommendations in this study, then incremental progress would move the Joint Force toward a better position of relative advantage when the Arctic theater becomes the priority.

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A Futures' Perspective on Cold Weather Warfare

Thoughts from the Kodiak Innovation Group 11th Airborne Division, US Army

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ABSTRACT

In the spring of 2023, the 70th Brigade Engineer Battalion of the 11th Airborne Division of the United States Army convened a Futures Workshop in which the team utilized strategic foresight to envision a range of future scenarios from which planning and modernization could occur. This manuscript describes the strategic foresight approach and summarizes the findings and recommendations resulting from this workshop. The workshop used a methodology derived from the Future Hunters elective taught at the Command and General Staff Officer College (CGSOC). This manuscript describes the strategic foresight approach and summarizes the findings and recommendations resulting from this workshop. In the time allotted (three days onsite and some background preparatory work), the participants were able to generate four plausible future scenarios, which are described within.

BACKGROUND

The National Security Strategy states that the United States (US) seeks an Arctic region that is peaceful, stable, prosperous, and cooperative (White House, 2022). The US will ensure security in the region through investment in maritime domain awareness, communications, disaster response capabilities, and icebreaking capacity to prepare for an anticipated increase in the international activity in the region. The US envisions itself as an Arctic Nation and seeks to strengthen cooperation with Arctic allies, working through the Arctic Council and other Arctic institutions.

The National Security Strategy also states that climate change is making the Arctic more accessible than ever, threatening Arctic communities and vital ecosystems, creating new potential economic opportunities, and intensifying competition to shape the region's future. Russia has invested significantly in its presence in the Arctic over the last decade, modernizing its military infrastructure and increasing the pace of exercises and training operations. Russia has opened and modernized large numbers of military bases along their northern coastline. Russia's militarization of their coastline has raised geopolitical tensions in the Arctic and is creating new risks of unintended conflict.

The National Defense Strategy specifically calls out the Arctic region as a critical aspect of anchoring allies and partners in strategies for achieving mutual regional goals (DOD, 2022). The Strategy is predicated upon a stable Arctic region relying on nations upholding internationally agreed-upon rules and norms. Currently, the US DOD priority is focused on the Indo-Pacific Region which means that the Arctic region is receiving nominal investment.

However, both Congressional and Executive branches of our federal government are expressing concern about the Arctic. Recently, the NATO Allied Command Transformation group published a regional perspective report on the Arctic region clearly demonstrating that NATO brings the Arctic to the forefront of Alliance thinking (NATO Strategic Foresight Analysis, 2021).

In addition to threats from adversaries, the challenges of climate change and thawing permafrost extends to most Arctic nations. The resulting permafrost thaw, more frequent and damaging extreme weather, and unpredictable snow and ice conditions are amplifying existing Northern infrastructure problems, with devastating consequences especially for Indigenous Peoples. The challenges of climate change and thawing permafrost extends to most Arctic nations. Most of Canada's shoreline is in the Arctic. More than 70% of Canada is covered by permafrost, which is thawing. And the impacts of climate change on infrastructure are assessed as severe. The resulting permafrost thaw, more frequent and damaging extreme weather, and unpredictable snow and ice conditions are amplifying existing northern infrastructure problems, with devastating consequences for Northerners (Canadian Climate Institute, 2022).

The US appears to be lagging behind most nations to augment their Arctic economic opportunities. The US has little to no infrastructure, to include Coast Guard stations, deep water ports, and border security (Sanchez, 2022). The aging radar systems will require significant international investment to detect and deter modern threats (Tukker, 2022). The cost for infrastructure repairs is considerable. Moreover, construction must be made to withstand the freeze/thaw cycles of permafrost. Recently, the US DOD has established an Arctic Strategy and Global Resilience Office to ensure US strategy and policy protects US interests in the Arctic region.

The Army mission is to fight and win our nation's wars by providing ready, prompt, and sustained land dominance by Army forces across the full spectrum of conflict as part of the Joint Force. On June 6th, 2022, the 11th Airborne Division, 1st Brigade, 11th Airborne Division, and 2nd Brigade, 11th Airborne Division, were activated at subsequent ceremonies on Fort Wainwright and Joint Base Elmendorf-Richardson. The Chief of Staff of the Army General McConnville laid huge demands on the 11th Airborne Division, expecting these soldiers to become masters of Arctic warfare, operating in extreme cold weather and mountainous terrain. The mission of the 11th Airborne Division: executes expeditionary operations worldwide, conducts multi-domain operations in the Indo-Pacific theater and in the Arctic and on order, decisively defeats any adversary in extreme cold weather, mountainous, high-latitude, and high-altitude environments through large scale combat operations.

This is a daunting mission given the austere Arctic environment alone. And considering the pace of military advancement of adversaries, primarily Russia, as well as aggression from China, the US Army needs to do everything in their power to ensure they outpace their adversaries in the advancement of an arctic force. For these reasons, the 70th Brigade Engineer Battalion convened a Futures Workshop in which the team utilized strategic foresight to envision a range of future scenarios from which planning and modernization could occur. The following methodology section details the approach to create plausible future scenarios for cold weather warfare in the Arctic.

FUTURE HUNTERS METHODOLOGY

This workshop used the strategic foresight methodology taught in the Future Hunters elective at the Command and General Staff College (US Army CGSS, n.d.). The Command and General Staff Officer Course (CGSOC) provides emerging leaders with a ten-month resident course intended to hone warfighting, historical, leadership and decision-making skills. The intent is to engender expertise in the Army for combined arms formations and to operate in a volatile, uncertain, complex and ambiguous environment, that of multi-domain operations in contested environments facing peer threats. There are three phases to CGSOC: Common Core, Advance Operations Course and the Elective Phase. Future Hunters is taught during the elective phase and is sponsored by the Department of Command and Leadership, one of six teaching departments of the Command and General Staff School. The Leadership Department emphasizes critical thinking and life-long learning skills that enable field grade officers to accomplish their missions while improving their organizations.

Beginning in academic year 2019, the Future Hunters elective at CGSOC provided emerging Army leaders with tools and skills to understand and make decisions regarding long term future operational environments. The course instruction consists of 8 lessons (3-hour blocks of instruction). These lessons are detailed below. In addition, students are tasked with reviewing a book about the future and with creating their own vignette, a short story derived from one of their scenarios developed during the course.

Lesson 1: Introduction to Future Hunters: provide students with an understanding of the importance of planning for and making decisions regarding long-term future operational environments. To be an effective leader, students must understand how to prowl for signals of future change in the present and pursue the implications of potential change to shape their decision making and enhance the readiness of their organizations. This lesson provides a brief introduction to the world of strategic foresight and lays out the framework for this course and the expectations for successfully achieving the objectives. This lesson also provides a review of critical thinking and introduces the emerging concept of mental agility, also known as re-thinking (Grant, 2021).

Lesson 2: Mindsets: students learn that the ability to be a Future Hunter starts with understanding the strengths and weaknesses of one's cognitive processes and identifying ways to strengthen areas where growth is beneficial. Students explore the importance of a growth mindset to allow continuous learning from your environment. Students may assess their own inherent and known biases and unproductive habits and learn to modify their state of mind to become more productive and more creative. Students explore the importance and the power of creative thinking-coming up with novel ways to solve problems. Students also uncover the importance of cultivating a futures mindset, which is the ability to imagine their own lives in the distant future and to make plans to optimize this future self.

Lesson 3: History Lessons: provide students with an understanding of the importance of planning for and making decisions regarding long-term future operational environments. To be an effective leader, students must understand that the past is not always a reliable predictor of the future. History also allows us to put signals of change in perspective.

Lesson 4: Signs of Change: provide students with an understanding of the importance and application of environmental scanning and its role in strategic foresight. To be an effective leader, students must understand how to prowl for signals of future change in the present. Students practice combining signals into unique combinations to create a range of plausible futures. Students also explore the importance of edgy or ridiculous ideas for driving innovation.

Lesson 5: Scenario Planning: students employ their signals and drivers of change uncovered in Lesson 4 to develop scenarios that generally describe a range of plausible futures. Students learn how to create multiple 2 x 2 matrices or use the Archetype methodology to explore a range of plausible futures. Students discuss the strengths of developing scenarios but also how they can be misused.

Lesson 6: The Operational Environment: students explore the concept of the Operational Environment, how and why it is generated for Army training, education and leader development. This lesson also exposes students to the use of strategic foresight in the Army (Army Futures Command), the National Intelligence Council, NATO Strategic Foresight, and that its use is becoming more widespread throughout the federal government. Strategic Foresight has been used by major corporations for decades (Day & Schoemaker, 2005; Murray, 2021; NATO Strategic Foresight Analysis, 2017; ODNI, 2021).

Lesson 7: Working Your Future: students pull together their knowledge from the previous lessons to develop and use scenarios to inform strategies that enhance organizational readiness as a form of applied learning. This is also an opportunity to bring in practitioners of strategic foresight to demonstrate how it has been used to shape decision-making in other organizations. Students explore the importance of strategic leadership and hence, the importance of taking some time to think and reflect. Introduce the notion of visioning.

Lesson 8: Final Presentations: students present their coursework to their peers, present their vignettes and their approach to creating them. This lesson was also an opportunity for students to provide feedback on the course and make recommendations on how to improve the overall design of the course for "future" Future Hunters (Graves, et al., 2023).

In 2024, the Future Hunters elective was incorporated into an online course entitled Strategic Defense Foresight and Leadership at Purdue University. This course is part of a for-credit concentration in the Master of Science in Interdisciplinary Engineering. The online concentration in Strategy and Defense Engineering offers an area of specialization in the Interdisciplinary Master of Science in Engineering (MSE)/ Master of Science (MS) degree. The concentration provides the skills and knowledge needed to join the defense industry or the military institutions that make informed decisions about future defense technologies. The target learning population are mid-career or retiring military officers, civilian employees of prime defense contractors, Capitol Hill staffers or think thank researchers, and/or graduate students.

Purdue University's Strategic Defense Technologies online professional graduate-level program prepares midcareer civilian and military leaders to make informed decisions about future technologies that enhance the nation's defense and security. The program includes two educational streams: a for-credit concentration in Strategic Defense Engineering and a non-credit certificate program in Strategic Defense Technologies. The Strategic Defense Foresight and Leadership online course will be made available in this non-credit program.

APPLICATION OF THE FUTURE HUNTERS METHODOLOGY TO THE WORKSHOP

PRE-WORKSHOP PREPARATION

The workshop had two primary objectives: 1) provide instruction on strategic foresight and 2) enable participants to create scenarios focused on cold weather warfare. During the planning phases for this workshop, it became very clear that there was not ample time during the Workshop itself to provide adequate instruction on the Future Hunters methodology. Therefore, in the weeks preceding the Workshop, participants took part in three virtual classroom sessions to learn and practice the basic underlying principles of strategic foresight.

INSTRUCTIONAL TOOLS AND RESOURCES

The participants were provided access to instructional materials through the Future Hunters site on the All Partners Action Network (APAN). APAN provides a virtual site for collaboration between the US military and both traditional and untraditional mission partners, including multinational organizations, law enforcement, non-governmental organizations (NGOs) and agencies that are not routinely provided access to valuable information. APAN is the unclassified information sharing service for the Department of Defense. And although it was not necessarily intended to be so, the Future Hunters course authors used APAN as a learning management system. It is free and offers the collaboration tools to develop community space. And unlike other learning management systems, students can maintain their access long after their tenure at the institution, for example CGSOC, is over.

LOOKING BACK TO SEE FORWARD

During the virtual sessions, the facilitator was able to meet many of the participants and to expose them to the first three lessons from the Future Hunters elective. It was during the virtual sessions that the participants practiced "looking back to see forward", a basic principle of strategic foresight (Gorbis, 2019). The past is not a reliable predictor of the future, but there are larger patterns that repeat over and over. Clues to possible futures can be found by identifying relevant patterns from the past. A dive into historical information provides both depth and contextual understanding. The workshop participants identified the following trends from the past as those that will shape the future of the Arctic.

Trends from the past:

1. Arctic terrain is unforgiving and hostile. Even without conflict, troops suffer from frostbite, disease, and accidents in this climate (Finlayson, 2008).
2. Arctic weather is very uncertain and can greatly impact re-supply logistics.
3. Most vehicles are unsuited for Arctic environment due to extreme cold, snow, ice and in the summer, melting permafrost making terrain uncertain (Brouillette, 2021; Denchack, 2018).
4. Skilled Arctic Soldiers trained to handle cold weather conditions and mountain terrain have the advantage in conflict.
5. Speed and surprise are key factors in cold weather warfare. Light forces with sleds, skis and other cold weather gear are invaluable (Lippman, 2018).
6. Undermanned and underequipped military in a vast territory spells disaster. It is extremely difficult to hold terrain without forces.

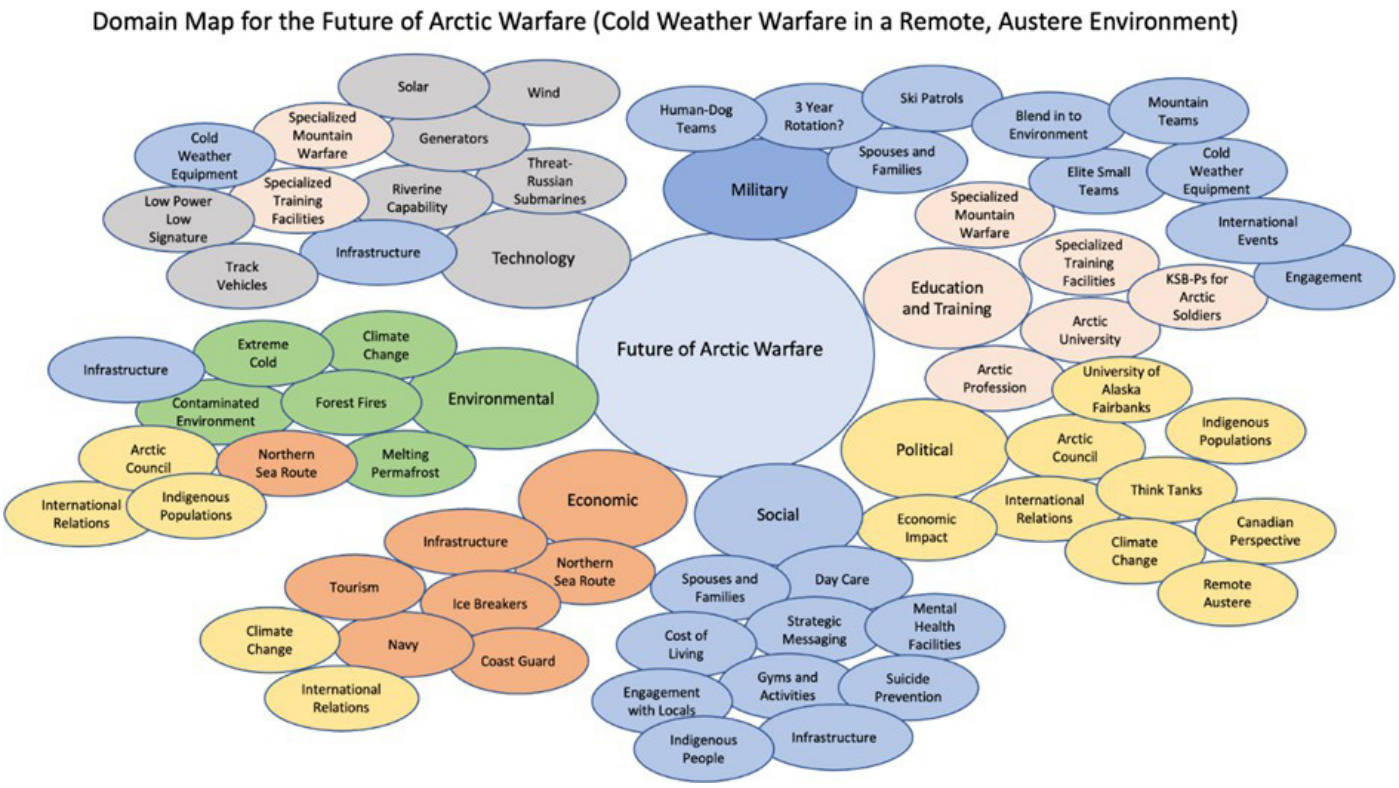

Figure 1

HORIZON SCANNING ACTIVITIES

Thus, the actual workshop at Fort Wainwright picked up at the stage of lesson 4-where the participants began discussing signals and drivers of change and drafting plausible scenarios. These initial scenarios were briefed to leadership on the last day of the workshop and are discussed in greater detail in the Findings section of this document.

Future Hunters seek to identify signals of the future that exist in the present. There is no data about the future, all the data we have is about the past. For people practicing strategic foresight, the present is viewed as an intersection between the past and the future. As William Gibson says, “The future is already here, it’s just not evenly distributed” (as cited in The Economist, 2003).

Workshop participants surveyed their environment and identifying signals of change; an activity called horizon scanning. Horizon scanning is a strategic foresight activity that Future Hunters routinely employ, and it is a time-consuming process. Participants were made aware apprised that horizon scanning is best done by spending some time with the fringe (Webb, 2016). The fringe is a term used to describe people who are comfortable adopting new ways of doing business.

CREATING A DOMAIN MAP

Workshop participants created a domain map that focused all of their signals collected during their “horizon scanning” activities. The domain map made their horizon scanning results visible and helped the participants to

think about how broad the topic of “cold weather warfare” is and how they might narrow the issue to a reasonable scope. To create the domain map during the Workshop, the topic (Arctic Warfare) was drawn in a large circle on a big piece of paper. The participants placed their signals around the circle organized into their respective domains: Social, Technical, Environmental, Economic and Political (STEEP). Several signals appeared in more than one domain.

The diagram above (Figure 1) shows the preliminary domain map created by the workshop participants.

SIGNALS ANALYSIS

Future Hunters abide by one and only one certainty-that the future will not be like today. The process of horizon scanning and identifying emerging signals helped the participants to visualize change and thus home in on possible emerging futures. The participants had to decide collectively which signals were strong, indicating trends that are underway, or weak, suggesting developments that are on the fringe. Below are the signals that the Workshop participants thought will set the stage for the future of cold weather warfare.

Signals identified of great importance to cold weather warfare:

- Increased Russian investment in the Arctic
- Formation of near-Arctic powers (China as well as India and Japan)
- Increased navigation of the Northern Sea Route
- Increased importance of Arctic Region as a strategic interest
- Climate change exacerbating rate of change in Arctic
- Increased threats from extreme weather-wildfires and pathogens
- Rising inflation and cost of living
- Decreased access to affordable housing
- Challenge of mental health in remote environments
- Reliable childcare in remote environments
- Challenge of messaging the benefits of Arctic (some thrive and others do not-how do we recruit talent with preference for this environment and retain them?)
- Arctic terrain is unforgiving and hostile. Even without conflict, troops suffer from frostbite, disease, and accidents
- Constant: weather is uncertain and can greatly impact sustainment
- Most vehicles are unsuited for Arctic environment due to extreme cold, snow, ice and in the summer, melting permafrost making terrain uncertain
- Skilled Arctic Soldiers trained to handle cold weather conditions and mountain terrain have the advantage
- Speed and surprise are key factors in cold weather warfare. Light forces with sleds, skis and other cold weather gear can be invaluable
- Undermanned and underequipped military in a vast territory spells disaster. It is extremely difficult to hold terrain

USING SIGNALS TO IDENTIFY DRIVERS OF CHANGE

While the Workshop participants were gathering signals, they were asked to think about the reasons why these signals are happening. Trends are visible manifestations of change and Drivers are the forces of change reflected in groups of related trends and events. Drivers are ranked in terms of their importance-the ones that will have the most impact on your organization's future. They are also ranked by their uncertainty. Drivers that are deemed important and uncertain are used to create interesting and informative scenarios.

Drivers anticipated to increase in current trajectory:

- Climate change/environmental disasters
- Russian military buildup in the Arctic (strategic missiles, submarines, riverine)
- Near-Arctic powers influence-congested and contested environment
- Competition in the Arctic-Northern Sea Route for international trade
- Technology development to include AI, cybersecurity, green energy technology
- High tech employment, high tech Arctic force
- Cost of living, housing, fuel and food costs
- Solar, wind, geothermal and other green energy technologies
- Education costs
- Competition for talent (Soldiers and Civilians)

Drivers anticipated to decrease in current trajectory:

- Low tech, low skill labor jobs
- Affordable housing
- Availability of childcare
- Trust in information, understanding of the Arctic environment

I

nternational norms and standards, respect for existing territorial boundaries Drivers where the trajectory is uncertain:

- US global influence
- Mental health issues in remote regions
- Arctic profession
- Arctic training
- International engagement
- Strengthening relationships with Indigenous People
- Environmental protections

CREATING PLAUSIBLE FUTURE SCENARIOS

Futures are simply extrapolated possibilities. Scenarios help to understand how the world might change, how to know when it is changing, and how to prepare for these changes. Scenarios are extremely important to organizations that are wrestling with the volatility and uncertainty extant in the world. Scenarios are used to help the very human tendency to see the future as a continuation of the present. Scenarios can help organizations to imagine a broader range of possibilities. They help to anticipate change, lead transitions, adapt to surprise and uncertainty.

After an enormous amount of work looking to the past, collecting and organizing their signals, the Workshop participants were ready to start creating their future scenarios. Due to the time constraints, they focused on a common method for creating a range of plausible future scenarios: the 2 x 2 matrix method. The participants selected two Drivers of change that they deemed the most important/impactful and uncertain. In the example on the following page, the driver selected for the Y axis: people/talent; and X axis: evolving international relationships. They translated the Drivers into critical uncertainties by identifying the extremes of the Drivers and then described the likely characteristics in each of the four quadrants defined by the X and Y axes as shown in Figure 2.The workshop was limited in time. If permitted, a wider range of scenarios could have been developed using a range of different drivers that were also impactful and uncertain.

SCENARIO ANALYSIS

Of the 4 plausible future scenarios, the one that is most desirable is the "Nirvana" scenario. In this potential future, the Army invests heavily in the culture of the Arctic force. The Soldiers in this environment are allowed to develop their unique skillsets and become an elite profession. The Army is an integral part of a strategic international collaborative approach to investment in the region. This creates a unique, collaborative environment that is inclusive of international forces, NATO and shared training to increase interoperability and skillset development and friendly competition. "Nirvana" is reflected in the recent publication by LTG David Krumm and COL Matthew Nicholson, US Air Force, in the Journal of Indo-Pacific Affairs "…to create global multidomain command and control will optimize the deployment and execution of all joint forces, which subsequently creates efficiencies and reduces resource drain" (Krumm & Nicholson, 2021).

The "Life As We Knew It" scenario speaks to a plausible future where investment in the Arctic is very slow and the US is reticent to capitalize on opportunities. Specifically, the US minimizes its investment in an elite Arctic force, where Soldiers or Joint Warfighters who exhibit a preference/unique capability for cold weather fighting are afforded an opportunity to lengthen their rotation beyond 3 years. This scenario is informative as it focuses on the importance of talent and training in a cold weather environment. It prioritizes skills that must be honed and reinforced continuously as they are ephemeral. Concomitant with the emphasis talent is the need for unique cold weather-related support services. Families and staff living in cold, remote environments experience unique challenges, to include quality childcare, education, exercise facilities, affordable housing, food and mental health services.

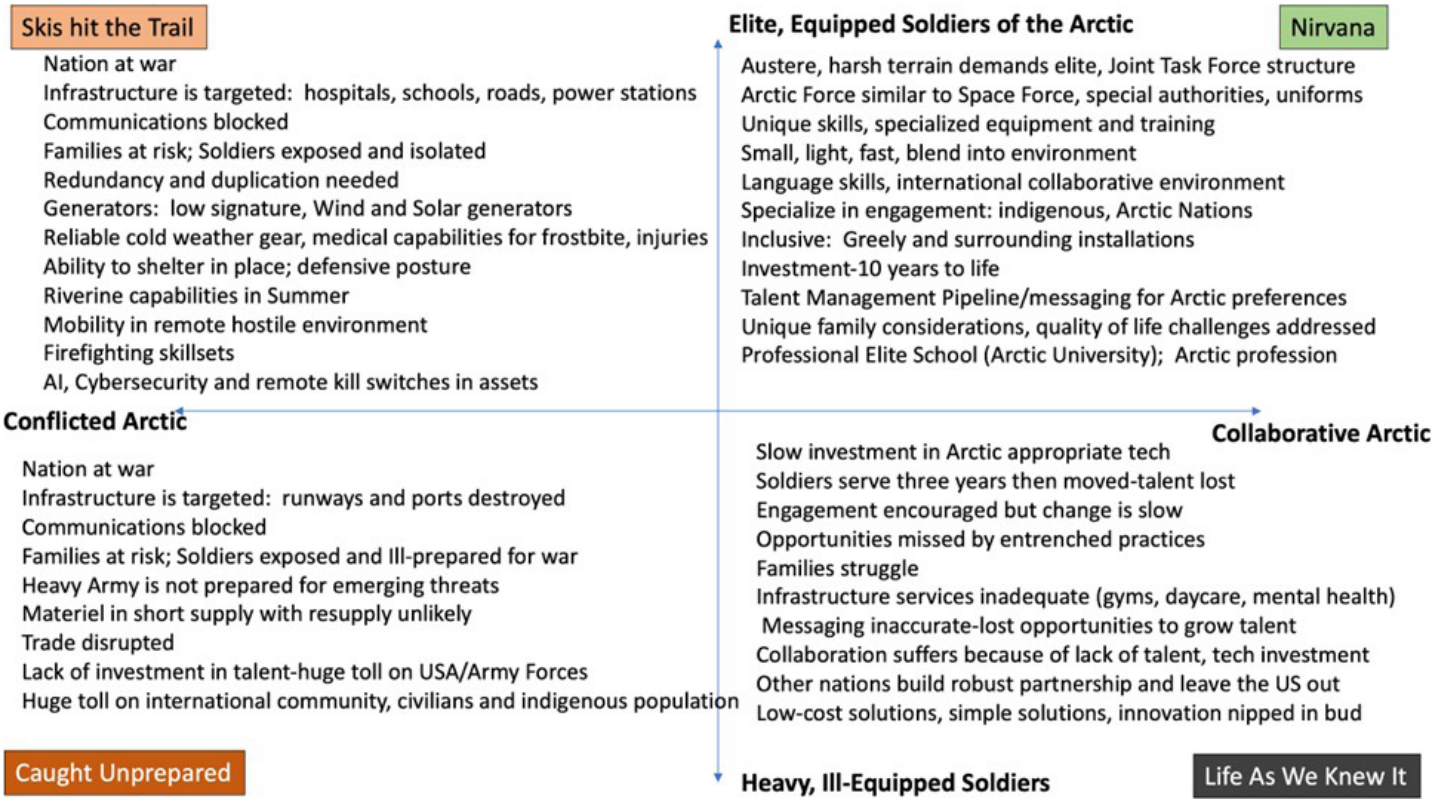

Figure 2

The ”Skis Hit The Trail” scenario captures a plausible future world where Soldiers are highly trained and uniquely equipped for cold weather fighting. In this future scenario, the US is engaged in conflict where infrastructure and communications capabilities are targeted. In this future world, the ability to maintain a defensive posture, recover rapidly and mobilize is critical. Advanced medical capabilities will be necessary to treat injuries associated with fighting in cold weather environments, such as frostbite.

The world that is least desirable is the “Caught Unprepared” where the US Army is unable to compete for talent and is found in a very disadvantaged, conflicted environment. Ultimately, the cost to the Nation would be insurmountable. This scenario is devastating for the US; however, the scenario is extremely informative. It speaks to a plausible future where the US has not invested in highly skilled Soldiers and Joint Warfighters that are prepared for the Arctic environment and where the US has not been successful in engaging partners and Allies to mitigate conflict in the Arctic environment.

STRENGTHS AND WEAKNESSES OF SCENARIOS

As part of the Workshop, facilitator explained the importance of generating scenarios, but also the danger of relying solely on scenarios. Specifically, scenario development is just the beginning of a long process for innovating to meet the challenges of the future. Strategic foresight is simply a good start to strategic leadership. Scenario development is part of the visioning process that creates alignment between the organization’s strengths and weaknesses and the anticipated demands of the future external environment. Strategic leaders understand the importance of ensuring the vision and strategy of the organization align to the process, structures, cultures and technology of the organization. Finally, strategic leaders are change agents that enable the constant realignments required in a volatile, uncertain, complex and ambiguous environment (Straw, et al., 2013). Strategic foresight enables teams to craft their vision, the process of imagining an improved future state that the team will make a reality through its work.

CONCLUSION

In the spring of 2023, the 70th Brigade Engineer Battalion of the 11th Airborne Division of the United States Army convened a Futures Workshop in which the team utilized strategic foresight to envision a range of future scenarios from which planning and modernization could occur. This workshop used the strategic foresight methodology taught in the Future Hunters elective at the Command and General Staff Officer College and at Purdue University's Strategic Defense Technologies online professional graduate-level program. Both of these organizations focus on preparing mid-career civilian and military leaders to make informed decisions about future technologies that enhance the nation's defense and security.

The workshop had two primary objectives:

1) provide instruction on strategic foresight and
2) enable participants to create scenarios focused on cold weather warfare.

In the time allotted (three days onsite and some background preparatory work), the participants were able to generate four plausible future scenarios, briefly summarized below.

> **"Nirvana"** scenario. In this preferred plausible future, the Army invests heavily in the culture of the Arctic force. The Soldiers in this environment are allowed to develop their unique skillsets and become an elite profession.
>
> **"Life As We Knew It"** scenario. In this plausible future where investment in the Arctic is very slow and the US is reticent to capitalize on opportunities. Specifically, the US minimizes its investment in an elite Arctic force, where Soldiers or Joint Warfighters who exhibit a preference/unique capability for cold weather fighting are afforded an opportunity to lengthen their rotation beyond 3 years.
>
> **"Skis Hit The Trail"** scenario. In this plausible future world, Soldiers are highly trained and uniquely equipped for cold weather fighting and the US is engaged in conflict where infrastructure and communications capabilities are targeted.
>
> **"Caught Unprepared"** scenario. This is the least preferred but uniquely informative plausible future scenario where the US Army is unable to compete for talent and is found in a very disadvantaged, conflicted environment. Ultimately, the cost to the Nation would be insurmountable. This Workshop exposed emerging leaders to the importance of generating scenarios. Scenario development is part of the visioning process that creates alignment between the organization's strengths and weaknesses and the anticipated demands of the future external environment. Strategic leaders understand the importance of ensuring the vision and strategy of the organization align to the process, structures, cultures and technology of the organization. Strategic foresight enables teams to craft their vision, the process of imagining an improved future state that the team will make a reality through its work.

This Workshop provided the 70th Brigade Engineer Battalion of the 11th Airborne Division with an opportunity to come together and discuss their innovation efforts. These Soldiers see very clearly that the Arctic and in general, cold weather warfare presents an array of complexities, challenges, and uncertainties. These challenges are not insurmountable but addressing them calls for a transformative approach and unwavering commitment. A deep dive into historical trends, a keen eye for identifying signals and drivers of change, and the ability to interpret these within the context of the future are paramount. They enable us to not only see potential threats but also to identify opportunities for strategic advantage.

RECOMMENDATIONS AND WAY AHEAD

To achieve the most desirable future scenario, it is essential to prioritize the development of a dedicated Arctic Force, focusing on specialized training and equipment designed for the Arctic environment. Since this workshop was held the Division already has improved its investment in equipping soldiers with state-of-the-art gear, such as advanced cold weather clothing, specialized vehicles, and innovative technologies for communication and navigation, which is crucial to enhance their resilience and effectiveness in the Arctic. Moreover, fostering a culture of excellence, collaboration, and innovation within the force is paramount. This includes promoting long-term assignments in the Arctic, creating an Arctic University or specialized training school to ensure soldiers develop the unique skill sets needed to operate effectively in extreme cold weather conditions, providing incentives for talent acquisition and retention, and addressing the unique challenges of life in the Arctic, such as mental health and well-being. In addition, strengthening international partnerships is crucial for success. Increased engagement with

the other US Military branches, NATO partners, and indigenous populations will help increase interoperability, share best practices, and develop joint training exercises. This collaboration will enable more effective responses to potential challenges and threats in the Arctic region.

The innovation team recognizes that the Arctic and cold weather warfare presents an array of complexities, challenges, and uncertainties. These challenges are not insurmountable but addressing them calls for a transformative approach and unwavering commitment. A deep dive into historical trends, a keen eye for identifying signals and drivers of change, and the ability to interpret these within the context of the future are paramount. They enable us to not only see potential threats but also to identify opportunities for strategic advantage. The challenges of the Arctic region demand specialized training and advanced equipment, both of which require significant investment. This investment is an essential steppingstone towards building a formidable Arctic Force that is capable of expertly navigating the intricacies and harsh realities of the Arctic environment. Finally, a culture of excellence and collaboration must be the cornerstone of our Arctic Force. This culture will serve as a magnet for talent, attracting and retaining individuals who have the skills and determination to thrive in this demanding environment.

Our collaborative efforts should also extend beyond our borders. Strengthening international partnerships and fostering a spirit of cooperation with our allies and the indigenous populations of the Arctic region will augment our capabilities. The unpredictable landscape of Arctic and cold weather warfare calls for innovative solutions and adaptive strategies. It is a challenge that we must meet head-on, armed with foresight, preparedness, and a commitment to our people. We need to learn from the lessons of the past and strive for a future where we turn challenges into opportunities, ensuring our success in the Arctic region.

These ideas are those of a group of innovators committed to the future of the Army in the Arctic; these ideas do not reflect the official position of the US Army.

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The *Journal of Arctic Security*, the flagship publication of the Ted Stevens Center for Arctic Security Studies, is committed to innovation and excellence in Arctic defense education, relevant practitioner-focused research, and collaboration with America's Arctic security Allies and partners. The *Journal of Arctic Security* is a forum for interdisciplinary intellectual exchange in the spirit of innovation, experimentation, education, analysis, and engagement.

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