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Report No.2: Integrated Naval Deterrence in the Arctic Region—Strategic Options for Enhancing Regional Naval Cooperation

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Newport Arctic Scholars Initiative Report No.2

Integrated Naval Deterrence in the Arctic Region

Strategic Options for Enhancing Regional Naval Cooperation

Rachael Gosnell and Lars Saunes, Project Directors July 2024

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FOREWORD

I'm pleased to introduce the 2024 Newport Arctic Scholars Initiative (NASI) report, which illustrates the Naval War College's long-standing commitment to advancing excellence in education, research, and international outreach. The world is changing, and what seems inevitable is that the Arctic is increasingly prominent in the defense and security policies of major powers in and outside the region. Arctic states increasingly stress the need to defend their maritime approaches, exercise their sovereign rights, and protect their northern territories and waters.

All Arctic states aim to develop stable security and a sustainable environment where nations will prosper. This comprehensive report is the culmination of the NASI cohort's efforts to describe current and future threats to Arctic development through Climate Change and great power competition. The report provides leaders and academia with standard definitions and strategic options for enhancing regional cooperation among NATO and friendly partners. As the political dialogue with Russia paused, enhancing an integrated deterrence posture in the "High North" provides a policy tool to communicate and support a more predictable security environment in the Arctic region.

This report builds upon the 2023-2024 NASI work, which found that Russia's escalation and continuing invasion of Ukraine paused the existing Arctic security architecture and political dialogue. This report proposes improving deterrence and creating circumpolar situational awareness to prevent war. A posture for Arctic states to manage crisis and escalation from peace to war is necessary for four main reasons.

First, achieving integrated naval deterrence in the Arctic to deter Russia and China requires strategic burden sharing among Allies.

Second, strengthening integrated naval deterrence in the Arctic by enhancing the frequency and duration of Allied naval forces will become more necessary as access to the Arctic increases.

Third, enhancing unity of effort among Allied naval forces through a standing multinational task force is vital to meet challenges and manage escalation in peace, crisis, and war.

Fourth, Allies need to improve prioritization and synchronization of resiliency and operations in response to increasing risks from hybrid and "gray-zone" activities to critical national maritime infrastructure.

Increased maritime activity and potential conflict in the Arctic region require a "whole of alliance" approach to achieve naval dominance and control. Mahan's original concept of "seapower" naval competition has evolved to include space, cyber, air, surface, subsurface, and sea-floor infrastructure along a spectrum from competition, to crisis, and to conflict. The report focuses on the optimized role of naval forces, but the joint combined aspect of maritime operation will apply.

The report builds on currently evolving and potential future acts of military aggression and malign activity in the maritime Arctic through 2045. While allies do not anticipate an increased threat in the short term, Russia remains an acute threat to Arctic security for all Arctic allies. Allies anticipate an increased threat to naval forces and critical marine infrastructure from Russian "grayzone" activities and see the rise of China in the Arctic as a significant future issue. Russian and Chinese strategic cooperation is of growing concern.

The policy proposals and findings outlined in this report reflect the consensus among this group of experts and do not represent the official position or policies of any one organization or government.

I would like to thank the Naval War College Foundation for supporting this vital project. My thanks extend to all the 2023-2024 NASI scholars for lending their knowledge and experience, both in person and virtually. This report would not have been possible without the vision and leadership of CDR Rachael Gosnell from George C. Marshall European Center for Security Studies and NWC's Distinguished International CNO Fellow RADM Lars Saunes(ret), who directed the NASI program and this report. Thank you for taking on such a complex and vital subject.

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ACKNOWLEDGEMENTS

The report of the 2023-24 Newport Arctic Scholars Initiative (NASI) on *Strengthening Integrated Naval Deterrence in the Arctic Region* is the product of its scholars, who graciously shared their time and expertise with us. We are grateful for the input and feedback they provided throughout this 18-month project. In particular, we would like to thank our team leads for their strong leadership and thoughtful vision; it was a genuine pleasure to work with them.

All of the 2023-24 NASI scholars contributed, and a special thanks goes to each and every one of them, who were extremely generous with their time and energy, providing inputs and advice on all the drafts as well as sharing the findings and recommendations with national and naval leaders as the report neared completion. We are also thankful to several individuals from the U.S. Naval War College who provided input and support over the course of our project, including Dr. Paul Brister, Dean, Center for Naval Warfare Studies; Professor Thomas Mangold, Dean, International Programs; engagement specialist international programs Glasier Parker; and Jeffery Landsman for his expertise in planning and executing TTX. We are also grateful to Karen Sellers and Carolyn Sarmento for arranging the logistics for our in-person and virtual seminars. A special thanks to the NWC's press team and the NWC's graphics team for supporting this publication. We also wish to thank Dr. Walter Berbrick for his enduring contributions to NASI.

Further, we appreciate the contributions from NWC's faculty and staff who attended events related to this project, including seminars in Newport, and to those members who lent their time to serve as presiders or panelists for these events. Thanks to the Naval War College Foundation for their generous support throughout this project.

Finally, we are thankful to NWC Presidents RADM Peter Garvin and VADM Shoshana Chatfield for their vision and leadership during the 2023-24 NASI project year.

While this report is the product of the 2023-24 Newport Arctic Scholars Initiative, the responsibility for any omissions or errors is ours. Once again, our sincere thanks to all who contributed.

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EXECUTIVE SUMMARY

As the Arctic becomes more central to the strategic concerns of the Heads of Navies, Coast Guards, and Marines, there are many unanswered questions regarding how and through what mechanisms an integrated naval deterrence posture could emerge. Our mandate for this report was to focus on challenges and opportunities for developing bilateral and multilateral cooperation among naval forces in order to strengthen and develop the concept of Integrated Naval Deterrence in the Arctic. There has never been a more important time to consider these challenges. The rising threat of Russia and concern over the influence of China in the Arctic demand a rethinking of how the threat environment is changing and how navies should respond. Not only is the High North an area of key importance to Russia, but China, too, continues to seek influence in the region. These factors—alongside the recent accession of Sweden and Finland to NATO—as well as an increasingly competitive geopolitical stage, all imply that Allied Navies must be prepared for a competitive Arctic, one that requires the consideration of multiple forms of deterrence both bilaterally and multilaterally.

This report aims to answer four questions to evaluate the role of naval forces in the Arctic:

(1) What are the current and evolving acts of military/naval aggression and malign activity in the maritime Arctic through 2045?

(2) What are the strengths and limitations of deterrence postures (e.g., disposition, strength, and condition of readiness of a country's naval service) of naval forces in the Arctic region and what are the priorities for strengthening these?

(3) What are the role and key contributions of naval forces to deterrence in the Arctic region, and how can these be strengthened?

(4) What are the status and extent of bilateral and multilateral naval deterrence arrangements and priorities for improving cooperation?

To answer the research questions and identify the operating challenges that military assets encounter within the maritime environment, this report offers five general findings that reflect a threat environment that primarily focuses on Russia. First, the Allies anticipate an increased, but not direct, threat to Allied territory and naval forces in the European and North American Arctic. Second, we see Russia as an acute threat to Arctic Allied security. Third, Russian hybrid and gray-zone activities may present an increased threat to Allied naval forces and critical Allied & national marine infrastructure at sea and ashore. Fourth, the rise of China in the Arctic is a concern for the Allies, although there are differences in opinion over the urgency and scale of this challenge. Fifth, the potential of Russian and Chinese cooperation is a growing threat to the Allies.

These findings answer the four guiding questions in the following ways. The current and evolving acts of military/naval aggression in the maritime Arctic through 2045 will be primarily hybrid in nature with an emphasis on threats to subsea infrastructure understanding Russia as the primary threat to Arctic Allied security. These acts of aggression may be conducted in tandem with China, but likely will not rise to the level of direct attacks, as it would neither be in Russia's

military nor economic interests to escalate conflict in the Arctic. Russia has interests in protecting its secondary strike capabilities on the Kola Peninsula in tandem with interests in promoting the Northern Sea Route as a primary shipping route and hydrocarbon extraction for its national economic security. Responding to these acts of aggression via deterrence postures comes with particular strengths and limitations. For example, Finland and Sweden's recent accession into NATO is a key strength, as they increase the disposition and strength of naval forces in the region. Additionally, the increased frequency of Allied exercises expands the readiness of Allied naval services in the Arctic. However, the challenging and costly Arctic operating environment amplifies the difficulty of maintaining presence at all times. Likewise, the potential for NATO's increased presence may lead to unintended miscalculation or Russian counter-escalation. This implies that strengthening this posture most importantly requires synchronizing multilateral presence in a measured and balanced strategy that betters naval readiness and strength.

Allied naval forces in the Arctic possess varying degrees of contributions to deterrence. Nations such as the UK have conducted numerous High North operations in recent years, while other nations are just beginning to contribute to deterrence in the maritime theatre. This includes Finland, which has traditionally been more land-oriented rather than maritime. By contrast, Norway is an important maritime actor in the Arctic and not only leads the biannual Nordic Response (earlier Cold Response) multinational exercise that involves all Western Arctic states, but also works in bilateral arrangements with Arctic Allies to help train their forces in extreme cold weather environments. As a new member of NATO, Sweden is gradually providing increasing contributions to integrated naval deterrence through the purchase of four new surface combatants and two new submarines, acquisitions of airborne and coastal radars, and the re-establishing of their previous ability to conduct naval mining operations, and strengthening of their ability to conduct mine countermeasure operations. While Denmark possesses relatively sparse Arctic naval forces, they are increasing domain awareness and strengthening anti-submarine warfare (ASW) capabilities. The United States similarly has limited capacity to operate in the Arctic but is beginning to recapitalize its assets through the Polar Security Cutter program, and exercises heavily with its Arctic Allies. All Allies are aware of and working toward a stronger deterrent response to hybrid and grey zone threats. These contributions taken together could be strengthened through ensuring that new acquisitions are interoperable with one another, aligning patrols and synchronizing opportunities for multilateral presence on a more regular basis, and through the creation of a Standing NATO Maritime Group or a strengthening of the UK's Joint Expeditionary Task Force's maritime function alongside a C2 multilateral joint interagency task force on hybrid threats. Such actions would demonstrate NATO cohesion and determination.

The status and extent of bilateral and multilateral naval deterrence arrangements are extensive. For example, some Allies cooperate through the UK's Joint Expeditionary Force including the UK, Denmark, Finland, Iceland, Norway, and Sweden, but also include cooperation with Estonia, Latvia, Lithuania, and the Netherlands. In addition, bilateral and trilateral agreements exist between Nordic states as well as with the United States and the long-standing Nordic Defence Cooperation (NORDEFCO). The Nordic states have also recently signaled their intent to create a joint operational air command and military transport corridor which may extend to the maritime environment. The United States and Canada primarily work together through the

auspices of NORAD for naval deterrence. As it stands, the breadth of these initiatives raises important command and control (C2) questions between the synchronization of NATO, NORAD, EUCOM, and INDOPACOM. Thus, the most effective version of multilateral integrated naval deterrence would take place under a common NATO security architecture.

We offer four recommendations. First, we suggest that Allies should undertake strategic burden sharing as a way to preposition multilateral forces to deter both Russia and China. Second, we call for enhancing the frequency and duration of Allied naval forces in the Arctic in order to demonstrate presence and readiness. Third, we suggest that a standing multinational task force is key for showing readiness in the Arctic maritime domain, either in the form of a Standing NATO Maritime Group or potentially the strengthening of the UK's Joint Expeditionary Force's maritime function in the High North. Fourth and finally, we call for an increase in prioritizing and synchronizing responses to hybrid and gray zone activities in regards to critical national maritime infrastructure.

INTRODUCTION

Despite recent advances to strengthen regional deterrence cooperation, questions remain on the evolving role and posture of naval forces in the Arctic region, and what further steps can be taken. At the NASI 2022 seminar in Copenhagen, the Heads of Navy of the Arctic-Seven nations and Arctic stakeholders such as France, Japan, and the United Kingdom asked the NASI 2023 cohort to provide an independent assessment of naval force posture, the trans-Arctic dimensions of national security policies in the context of a more contested "Blue Arctic"[1] and critical dilemmas that regional senior defense and naval leaders could face at the strategic and operational levels. In particular, the NASI 2023 cohort was asked to focus on key challenges and opportunities for further developing bilateral and multilateral cooperation among naval forces to strengthen Integrated Naval Deterrence in the Arctic region.

The United States' unclassified 2022 *National Defense Strategy* defines **integrated deterrence** as "working seamlessly across warfighting domains, theaters, the spectrum of conflict, all instruments of U.S. national power, and our network of Alliances and partnerships." In more familiar terms, integrated means whole-of-government coordination with a shared deterrent objective. Integrated also extends beyond the national view, to include working with allies and partners in pursuit of common security objectives.

In the Arctic, integration increasingly places NATO as the focal point for tactical and operational coordination though other security mechanisms (e.g., via the EU or NORDEFCO) and strong nation-to-nation ties (e.g., Sweden and Finland, the UK and Norway; the US and Iceland) offer a rich constellation of bilateral and multilateral forums for security and integration. That integration, particularly with NATO, also means that deterrence objectives and postures in the Arctic will be increasingly interconnected with security in other parts of the Euro-Atlantic area. Integration at sea is thus not simply a political strategic project—it is a complex technical tactical endeavor that is hardwired into the very fabric of Arctic naval platforms.

[1] Blue Arctic refers to the opening maritime domain due to sea ice melt.

This report is the compilation of the efforts of the NASI 2023 and 2024 cohorts to answer the complex questions posed by the Heads of Navy. It offers the key findings and recommendations that were developed from a professionally facilitated seminar-style wargame that analyzed options for collective deterrence – a tailored combination of national actions, specifically denial, resilience, and directive cost imposition—that our naval forces can take.

For the purposes of this research project, and because no such definition exists, *Integrated Naval Deterrence in the Arctic Region* is defined as the synchronization of actions performed by the naval services[2] of like-minded Arctic and non-Arctic states at the strategic and operational levels in day-to-day operations to convince nation states that the risks and costs of conducting malign influence and aggressive acts outweigh the benefits. While the Arctic is generally defined as the region north of the Arctic Circle, the *maritime Arctic* is further defined to include the sea surface of the Earth, any volume of airspace allocated above it, and below the surface to the sea floor.

Naval services are defined to include the Navies, Coast Guards, and Marines of participating countries (Canada, Denmark, Finland, Iceland, Norway, Sweden, US, France, Japan, and UK). The activities in question center on *force posture*—the overall disposition, strength, and condition of readiness of a naval service. This includes current force capabilities, actions and decisions taken by naval force leaders, and supporting infrastructure. Therefore, naval force posture can be viewed as a comprehensive capability brought about by a number of factors including naval technology, industrial base, national resources, naval strength and readiness, and national resolve aimed at achieving its intended objectives in peace.

For Arctic navies, *integration* with allies and partners implies very specific activities. Integrated planning and intelligence sharing is essential, often in the NATO construct, to ensure unity of action and efficient use of resources in the event of a large military conflict. Integrated systems are another critical feature. At the operational level, common (or, at least, mutually intelligible) communications pathways are essential for enabling commanders at sea and ashore to speak on secured channels. At the tactical level, shared link architectures are critical for ensuring that allied and partner naval forces (surface, subsurface, air, space, and shore-based) can see what others can see, shoot at what others can shoot at, and even cue third parties to shoot on tracks they do not themselves hold. That tactical link is also a key enabler of maintaining a shared common operating picture, through which navies provide maritime domain awareness to joint and combined forces.

In any region, deterrence must have a target, an act that a state or bloc seeks to prevent, and a credible mechanism to convince the adversary not to act. In the Arctic context, what are the actors, actions, and mechanisms that are applicable to the concept of integrated naval deterrence?

First, the seven like-minded Arctic allies and their partners are aligned on deterring Russia from further aggression, although their perceptions of the Russian threat may not be fully in sync. Second, some Arctic states (chiefly, the United States) seek to deter China as well.[3] However, the specific actions that these Arctic states aim to deter are more varied, and consequently require different combinations of levers across the spectrum. Russia poses a range of security threats that the Arctic-Seven and partners aim to deter, from malign gray-zone activities to overt military

[2] Although integrated deterrence certainly goes beyond the scope of the naval services, the focus of this report is on the actions that can be performed by navies.

[3] Pincus, Rebecca, Matthew Tolliver, and Brittany Keates. 2023. No. 19: Seeking Deterrence in the High North. Polar Institute. 8 March 2023.

aggression. The former can include Russian engagement in "lawfare" (such as manipulating public perception over Russia's status and rights in the Svalbard archipelago,[4] or expanding disputed requirements for passage along the Northern Sea Route) or disrupting undersea infrastructure. Pathways for overt military aggression in the Arctic include aerospace (long range aviation and ballistic missile) threats to North America, tactical and long-range aviation threats to northern European states, terrestrial threats to certain northern European states including Norway, Finland, and Sweden, and subsurface and surface naval threats across the circumpolar region. The current "information operations" campaign seems to aim at creating wedges between NATO allies operating in the Arctic and seeking to influence inhabitants in the region.[5] Recently, for example, Russian disinformation was prevalent in Finland and Sweden upon their statement that they would seek NATO accession.[6] Putin has been clear about Russia's aim to become *the* Polar Great Power. As Russia aims to exercise control over the Russian Arctic to facilitate their economic and security interests—particularly focusing on the shipping potential of the Northern Sea Route—the maritime domain will be the center of focus in an effort to incorporate space, cyber, air, surface, subsurface, and maritime infrastructure.

Though there is no clear consensus between the Arctic Seven nations and partners as to China's intentions, China largely poses the threat of influence in the short and medium term, elevating the importance of diplomatic, informational, and economic measures over those of the military. China seeks to operate naval vessels in the Arctic with enhanced cooperation with Russia and could use political and economic influence to pursue access rights with future military implications. The mission is not always fundamentally naval in character, and so other levers must be activated. However, allied naval presence may act as a deterrent for China's nascent military activities in the region. To be better equipped to address China's intentions, we recommend reviewing allied naval presence in the region.

THE ROLE OF NAVAL FORCES IN INTEGRATED DETERRENCE

How might Arctic naval forces, as part of an integrated regional deterrence posture, support each mechanism of deterrence? What adversary actions are naval forces optimized to deter as part of an integrated effort? How do those conclusions inform naval capability requirements in the Arctic? That discussion is at the heart of this report, carrying with it underlying debates on what naval forces are optimized to do and whether that optimization applies equally across all three mechanisms of deterrence in the Arctic.

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[4] Baudu, Pauline. 2023. Minding the Archipelago: What Svalbard Means to NATO. *Arctic Review on Law and Politics, 14,* 76-82. https://doi.org/10.23865/arctic.v14.5197

[5] See for example: Kertysova, Katarina and Gabriella Gricius. 2023. Countering Russia's hybrid threats in the Arctic. 8 December 2023. European Leadership Network. https://www.europeanleadershipnetwork.org/report/countering-russias-hybrid-threats-in-the-arctic/ and Andreas Osthagen. 2023. The Arctic after Russia's invasion of Ukraine: The increased risk of conflict and hybrid threats. May 2023. Hybrid Centre of Excellence. https://www.hybridcoe.fi/wp-content/uploads/2023/05/20230510-Hybrid-CoE-Paper-18-Arctic-after-Ukraine-WEB.pdf; Edvarden, Astri. 2023. Russia with expert support for development of Research Station with BRICS on Svalbard. High North News. 9 May 2023. https://www.highnorthnews.com/en/russia-expert-support-development-research-station-brics-svalbard

[6] IntelBrief: Disinformation Narratives Related to Sweden and Finland's NATO Applications. https://thesoufancenter.org/intelbrief-2023-february-9/

For the purposes of our analyses, we rely on the three mechanisms of deterrence highlighted in the United States' 2022 *National Defense Strategy* (NDS):

Deterrence by denial: stopping an adversary from achieving the desired objective.

Deterrence by resilience: "the ability to withstand, fight through, and recover quickly from disruption." (2022 NDS)

Deterrence by cost imposition: threatening costs out of proportion to an adversary's perceived gains.

The cohort's vision and conceptualization of these three mechanisms of deterrence as applied to the Arctic maritime domain are detailed in Appendix B.

While deterrence exists at the national, bilateral, and multinational levels, it is the consensus of this cohort that the most effective integrated deterrence exists under the auspices of the common NATO security architecture. At short notice, Arctic navies can posture to serve as the contact or blunt layers before a fight, providing credible forward combat power to signal commitment. How that posture connects to deterrence mechanisms, and what it implies for naval roles and missions, is variable. A contact layer naval force may be of sufficient size to *deny* an adversary of a small or limited objective, perhaps relying on the organic strike capability of a local surface force. Alternatively, naval platforms (particularly those serving as a tripwire linked to NATO's common security architecture) could raise the *cost* to an adversary considering attack. Further still, as maneuverable assets, naval forces in this context may be deterrence by *resilience* through their perceived survivability.[7]

Naval forces in this scenario can contribute to all modes of deterrence, but they do so differently, and with capability requirements that are sometimes overlapping and otherwise distinct. For example, Arctic navies need to show their availability of forces that can dominate the Arctic operational area while also demonstrating capacity on a regular basis so that presence does not simply become part of the opponent's plan. Further, positioning the force to secure an effective deterrence posture may also become necessary in an escalatory situation when events may spiral out of control. Likewise, intelligence, surveillance, and reconnaissance are essential to bolstering the credibility of any deterrent force, as effective ISR is key to avoiding surprise and executing offensive fires. Evolving and emerging technology may also provide opportunities to show availability of presence, for example, through UW sensors or using AUVs. Yet as the scale of a potential conflict intensifies, the necessary naval capabilities to affect deterrence (pre-war and intra-war) further specialize.

The Euro-Atlantic Arctic region is a particularly important subregion of the Arctic that must be carefully examined. The High North is the eastern end of a maritime highway linking North America to Europe, a critical pathway in the delivery of reserves and war stocks to NATO in the event of a major war. The ability to demonstrate that Western navies can secure the movement of ships across the Atlantic and into the High North (sea lines of communication defense) brings credibility to the threats of *resilience* and *cost imposition*. This objective relies principally on theater anti-submarine warfare and air defense, although also may include preemptive strikes of

[7] See Appendix B on a more nuanced discussion of different deterrence mechanisms

submarines, using mines, vessels, and aircraft to create a safe transport route, transporting critical goods with an escort, or using less threatened ports as midway points in order to better utilize inland routes. Further, the High North is the gateway to Russia's northwestern flank and homeport of their Northern Fleet. Capabilities such as strike warfare and amphibious operations are key to the validity of deterrence by *denial* and *cost imposition*. So too is it important to emphasize the importance of the Pacific Arctic, looking forward to 2045 when strategic competition may not be limited to the Euro-Atlantic Arctic region but has expanded to the Pacific where Allied presence is limited.

There exists a growing tension between the NATO community and Russia, yet this is not a return to the "Cold War." We should be cautious about how Russians read our deterrence messages or understand the precise meaning of our actions. This is a dynamic interactive process and we need to better understand how our actions are understood by others. The four distinct Russian Fleets are integrated in regional defense, joint focused and strategically connected.They will interpret our actions based on their regional defensive ends, ways, and means, while strategic deterrence will be determined by Moscow.

METHODOLOGY

A trans-Arctic team of naval officers and scholars based in Canada, Denmark, Finland, Iceland, Norway, Sweden, US, France, Japan, and UK conducted this unclassified study in-person and virtually between January 2023 and June 2024. Data collection relied heavily on focus group discussions during in-person NASI seminars and interviews with current or former civilian and military officials from participating countries, as well as experts outside government. All NASI focus group discussions and most interviews were conducted on a non-attribution basis to facilitate candid discussions. The team reviewed publicly available strategy documents, defense agreements, news articles, and academic literature on recent developments in the Arctic region. The Ministries of Defense and naval services of participating countries also provided copies of speeches and presentations made by leaders over the last several years at think-tanks and similar settings. Seminars and virtual collaboration between in-person seminars were organized to receive feedback on draft findings on topics such as naval force posture, Russian military capabilities, and security cooperation.

A number of caveats, limitations and assumptions should be considered in relation to the findings presented in this study. Most notably, the insights generated during consultations inherently reflect the expertise and background of those engaged. It should also be noted that perspectives from focus group discussion at in-person seminars and interviewees do not necessarily represent the official stance of governments or organizations employed by. Finally, since HoNs asked NASI 2023-24 to develop high-level options for eventual further analysis, this exploratory research does not make recommendations to take specific, implementable actions. Instead, the study's main purpose is to provide independent evaluation of the naval deterrence landscape in the Arctic and offer a framework for pursuing further analysis and action.

In order to further evaluate the role of naval forces in the Arctic, two vignettes were developed and analyzed through robust two-sided wargaming scenarios. The key questions that led to the findings and recommendations of this report are:

(1) What are the current and evolving acts of military/naval aggression and malign activity in the maritime Arctic through 2045?

(2) What are the strengths and limitations of deterrence postures (e.g., disposition, strength, and condition of readiness of a country's naval service) of naval forces in the Arctic region and priorities for strengthening these?

(3) What are the role and key contributions of naval forces to deterrence in the Arctic region, and how can these be strengthened?

(4) What are the status and extent of bilateral and multilateral naval deterrence arrangements and priorities for improving cooperation?

FINDINGS

1. **Allies anticipate an increased threat, but not a direct threat to NATO territory and naval forces in the European and North American Arctic.**

Allies do not anticipate direct threats to Arctic nations in the short term. Instead, the most significant threat is horizontal escalation of a conflict triggered in another region. It is not in Russia's interest to escalate to a direct attack as that would hold its second strike capabilities on the Kola Peninsula, and its prioritization of the Northern Sea Route and hydrocarbon extraction capabilities at risk. However, Allies anticipate increased hybrid and gray zone threats – as detailed below – from both Russia and China, necessitating more serious engagement with both Atlantic and Pacific strategies. Importantly, the analysis above relies on the baseline that Russia has *not* achieved victory or a permanent ceasefire in Ukraine. If such an event were to occur, Russia's attempts to alter Europe's security architecture and thus their willingness to challenge Allied territory and naval forces in the Arctic might change.

2. **Russia remains an acute threat to Arctic security for NATO Allies.**

Through full-spectrum means of aggression and contestation, Russia is an acute threat to Arctic security. In broad strategic terms, Moscow perceives the impact of climate change as a harbinger for increased human (and therefore military) presence close to the Arctic Zone of the Russian Federation (AZRF).[8] However, climate change is simultaneously perceived by Russia as a threat to their national security as the natural protective ice barrier in Russia's North melts, allowing additional access for potential adversaries and altering cover capacities for their submarine fleet. In this, the accession of Sweden and Finland to NATO vindicates Russia's force posture and 'fear of encirclement' of its strategic approaches. Whereas Russia might have considered itself in a relative position of strength in the region, the expansion of NATO is likely to alter Moscow's posture and lead to more assertive actions.[9] Moscow constantly considers military strategic risks

[8] Rumer, Eugene, Richard Sokolsky, and Paul Stronski. 2021. Russia in the Arctic – A Critical Examination. *Carnegie Endowment for International Peace.* 29 March 2021.

[9] Lokker, Nicholas, Jim Townsend, Heli Hautala, and Andrea Kendall-Taylor. 2023. How Finnish and Swedish NATO Accession Could Shape the Future Russian Threat, *Center for a New American Security*, January 2023,

and opportunities in the region and has never excluded the possibility of a military conflict in the Arctic.[10]

While a full assessment of Russian strategic objectives is beyond the scope of this report, Russian strategy and deterrence objectives were analyzed. The updated Maritime Doctrine of 2022[11] recalls that the AZRF and the Northern Sea Route (NSR) are 'vital areas of national interest'. For the Kremlin, the Arctic represents a strategic continuum stretching from the North Atlantic to the North Pacific, with North Pole approaches in the middle. Thus, Moscow understands the Arctic in circumpolar terms, and does not apply a sole focus on the High North. Russia's reinvestment in military capabilities and infrastructure in the region must be understood through the lens of a 'double dual' approach: Arctic infrastructure is being used equally for civilian and military purposes (dual-use), while Russia's military capabilities are blurring the lines between offensive and defensive intent (dual-purpose).[12] Russia is sustaining a network of long-range sensors, surface-to-air missile systems, coastal defense systems, as well as nuclear and EW capabilities aimed at degrading Allied operations in a contested environment. Such capabilities represent a threat to NATO assets in the North Atlantic and the High North.[13]

Innovative approaches to deter Russian activities in the Arctic are necessary to 1) deter incidents of a bilateral nature in the Arctic, and 2) globally deterring Russia by putting their primary escalation control tools - strategic nuclear weapons and capability for direct assault through other means - under pressure. Avoiding miscalculation and tactical errors is key here as well as avoiding risks linked to horizontal escalation from one theater to another (especially to and from the Baltic Sea and the North Atlantic). Moreover, deterring Russia also requires Allies to better take into consideration a combined Atlantic and Pacific approach to the Arctic – expanding the scope beyond NATO with emphasis on the US and Canada and other like-minded allies in the Pacific, specifically Japan.

Despite early reports that Russian forces in the Arctic were being deployed en masse to Ukraine and some Russian naval infantry brigades faced serious losses there – it is assessed that few units of consequence in the Northern Fleet and the Main Directorate of Deep Sea Research (GUGI) have been impacted.[14] In fact, while Russia's land military capabilities have been impacted by the ongoing conflict in and around Ukraine, their air and subsurface sea power have been strengthened through experiential learning. The near-term implications of this are that Allied freedom to maneuver is limited by the 'Bastionization' of the Russian Arctic.[15] Whether or not Russian limitation of the Allied freedom of maneuver is under threat is a point of disagreement within the Allies as some, such as the United States, understand this limitation as a more serious threat and may wish to be more forceful in order to create strategic dilemmas for the Russians.

https://www.cnas.org/publications/reports/how-finnish-and-swedish-nato-accession-could-shape-the-future-russian-threat

[10] Boulegue, Mathieu. 2022. The militarization of Russian polar politics, *Chatham House*, June 2022.
[11] Office of the Russian President. 2022. Russian Maritime Doctrine, http://static.kremlin.ru/media/events/files/ru/xBBH7DL0RicfdtdWPol32UekiLMTAycW.pdf
[12] Boulegue, Mathieu. 2022. The militarization of Russian polar politics, *Chatham House*, June 2022.
[13] Whitehall Paper. 2022. The Balance of Power Between Russia and NATO in the Arctic and High North, Issue 1:100.
[14] Funding diverts could affect long-term material readiness, training, and ship-building programming.
[15] Boulegue, Mathieu. 2022. The militarization of Russian polar politics, *Chatham House*, June 2022.

Others may be more hesitant and focus on the potential for an increasing security dilemma in the Arctic if Russia's secondary strike capabilities and bastion are perceived to be threatened. Such disagreements may not be overt in nature but are likely to play out in the background and determine how an Allied consensus on Arctic matters emerges.

3. **Allies anticipate increased threats of Russian hybrid and gray zone activities to naval forces and critical Allied/national marine infrastructure at sea and ashore.**

By conducting gray zone activities, Russia aims to deter, dissuade, or mitigate Allied competitive advantages and seeks to pressure the United States, NATO, and its partners. Russia has employed many types of gray zone activities, including economic coercion and cyber (or disinformation) warfare. There seems to be a growing pattern in Russian activities regarding the disruption of sub-sea Critical National Infrastructure (CNI), mostly unburied data and communication cables and pipelines. Recent activities in and outside the Arctic – sabotage of the Nord Stream 1 and 2 pipelines, cable-cutting close to Svalbard,[16]damage done to cables near the Faroe and Shetland islands,[17] and drone overflights of energy facilities in Norway,[18] etc. – indicate that seabed warfare must become a concern for Allies given increasing dependency on infrastructure. Such activities are likely to increase in number and impact, not least because they are relatively 'cheap' to conduct with a low risk of attribution, are highly disruptive, may contribute to strategic confusion, and impose cost on Allies. Deterring threats to critical underwater infrastructure, Russian undersea intelligence collection capabilities, malign activity, and securing sea lines of communication remain a top priority. The Arctic continues to be the nexus of undersea deterrence.

4. **The rise of China in the Arctic is seen as a significant issue for Allies, though scholars differ over the urgency and scale of this challenge.**

Although scholars differ over the urgency and scale of the problem, increasing Chinese engagement in the Arctic is fueling a security dilemma with the United States, which sees China as a pacing threat to Arctic security. China has been an observer at the Arctic Council since 2013. Beijing published its first Arctic White Paper in January 2018 which defined China as a 'near Arctic state'[19] – leading to increased pushback from the Arctic community. For China, the

[16] Newdick, Thomas. 2022. Undersea Cable Connecting Norway with Arctic Satellite Station Has Been Mysteriously Severed, *The War Zone,* 10 January 2022, https://www.thedrive.com/the-war-zone/43828/undersea-cable-connecting-norway-with-arctic-satellite-station-has-been-mysteriously-severed

[17] Humpert, Malte. 2022. Fiber-optic Submarine Cable near Faroe and Shetland Islands Damaged: Mediterranean Cables also cut, *High North News,* 24 October 2022, https://www.highnorthnews.com/en/fiber-optic-submarine-cable-near-faroe-and-shetland-islands-damaged-mediterranean-cables-also-cut

[18] Rauhala, Emily. 2022. Norway on edge over drone sightings, arrest of son of Putin confidant, *The Washington Post,* 20 October 2022, https://www.washingtonpost.com/world/2022/10/20/norway-drones-russia-arrests-gas/

[19] The State Council Information Office of the People's Republic of China. 2018. China's Arctic Policy, 26 January 2018, http://english.gov.cn/archive/white_paper/2018/01/26/content_281476026660336.htm.

Arctic should be understood as part of an economic diversification strategy as part of the Belt and Road Initiative (BRI) and a part of China's global strategy to behave like a great power on the world stage.[20]

Beijing is attempting to gain increasing influence in established governance frameworks discussing Arctic affairs, with different views about what future regional governance around 'global commons' should look like. China sees the Arctic as a free for all where Beijing should invest time, effort, and presence to pre-position itself in terms of economic development, fishing, energy exploitation, and commerce. Beijing wants a preemptive seat at the table – if possible, alongside the Arctic 8 – to better spread its terms and views on governance.[21] China's interest in the Arctic also necessitates a focus on the Pacific Arctic from the Allies, particularly as the Allied starting point in the region is significantly lower than in the Atlantic side of the Arctic. Thus, enhancing the linkages between the Atlantic and Pacific sides of the Arctic is key.

There is growing suspicion that China is increasing its military ambitions in the Arctic, notably with the risk of PLA-N deployments. China has blue water ambitions in the region: it is building a new class of nuclear-powered icebreakers under PLA-N specifications. These vessels could be used as escorts for Chinese ships transiting through the Arctic but more importantly to support submarines conducting nuclear deterrence operations against the United States.[22] The PLA-N conducted its first naval operation through the Bering Sea in 2015.[23] It also deployed surface vessels close to the Aleutian Islands in September 2021.[24] China is also interested in Arctic-specific submarine operations across the AZRF[25] and is reportedly investing in cold-water technology for its submarines. China has steadily been building its presence in the European Arctic too: it operates the Huang He (Yellow River) research station in Ny Ålesund on Svalbard, the Aurora Observatory in Iceland, and until recently, operated a satellite ground station at the Esrange Space Center near Kiruna, Sweden.[26] Beijing had looked to open a third station in Greenland, yet these plans did not come to fruition.[27] The nature of Chinese infrastructure in the Arctic is likely to be dual-purpose by nature, namely aimed at military intelligence gathering and domain awareness for military operations. This generally happens under the guise of 'ocean science'.

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[20] Klimenko, Ekaterina. 2018. Shipping along the Arctic's Northern Sea Route will be determined by Russia–China cooperation in the region, *Stockholm International Peace Research Institute,* https://www.sipri.org/commentary/expert-comment/2018/shipping-along-arctics-northern-sea-route-will-be-determined-russia-china-cooperation-region.

[21] Grady, John. 2022. Russia, China Quietly Expanding Arctic Partnership, says Panel. 11 October 2022. USNI News. https://news.usni.org/2022/10/11/china-russia-quietly-expanding-arctic-partnership-says-panel

[22] Boulegue, Mathieu. 2022. The militarization of Russian polar politics, *Chatham House*, June 2022.

[23] DefenseNews via Agence France-Presse. 2015. Pentagon: 5 Chinese Naval Ships Spotted In Bering Sea, 2 September 2015, https://www.defensenews.com/global/asia-pacific/2015/09/02/pentagon-5-chinese-naval-ships-spotted-in-bering-sea.

[24] Pickrell, R. and Woody, C. 2021. US Coast Guard cutters shadowed Chinese warships sailing near remote US territory in Alaska, 14 September 2021, https://www.businessinsider.com/us-coast-guard-shadowed-chinese-warships-near-alaska-2021-9.

[25] Lajeunesse, A. and Choi, T. 2021. 'Here there be dragons? Chinese submarine options in the Arctic', *Journal of Strategic Studies*, 23 June 2021, https://doi.org/10.1080/01402390.2021.1940147.

[26] Radio Sweden. 2020. Swedish Space Terminate Cooperation with China [Svenskt rymdsamarbete med Kina avslutas], 21 September, https://sverigesradio.se/artikel/7558582.

[27] Brunnersum, Sou-Jie. 2022. China failed its Arctic ambitions in Greenland. 22 October 2022. Politico. https://www.politico.eu/article/china-arctic-greenland-united-states/

China's People's Liberation Army (PLA) represents a longer-term threat to Allied interests in the Arctic region. In the near term, deterring PRC gray-zone activities in the Arctic—characterized by PLA-N surface deployments, economic coercion, and cyber (or disinformation) warfare—should be a priority for Allies. However, it is key to not treat China like a peer competitor in the Arctic as it is not a peer or even near peer of Arctic states.[28]

5. **Russian and Chinese strategic cooperation is a growing threat to Allies**

There are significant naval risks linked to Russian and Chinese strategic cooperation in the face of these two adversaries. Naval risks are linked to joint posturing as well as potential joint military exercise with an Arctic focus. Russia and China are already conducting joint military exercises in the North Pacific[29] as well as disruptive activities in the region.[30] These operations are not linked to Arctic activities yet but could become Arctic-focused in the coming years, especially to showcase capabilities to access and operate jointly in the region. In April 2023, Russia's FSB and the Chinese coast guards signed a memorandum of understanding outlining increased bilateral maritime security cooperation, which could be a harbinger of wider relations in naval military security.[31] Russian and Chinese cooperation is also particularly important given the role Russia might play in mitigating one of China's central strategic vulnerabilities – namely its dependence on overseas supplies. Should the United States use a blockade as a tactic, Russia could render such a blockade porous and ineffective using the Northern Sea Route, albeit that would require the Bering Strait to remain open.

RECOMMENDATIONS

1. **Achieving integrated naval deterrence in the Arctic requires strategic burden sharing amongst Allies.**

Strategic burden sharing amongst Allies is needed to combat the growing threat of Russia and China through and originating from the Arctic – particularly considering the increase in Russian and Chinese naval activity and build-up near the Bering Sea. In August 2023, a joint Russian and Chinese flotilla of eleven ships sailed near Alaska and the Aleutian Islands, the second time such an incident has occurred since 2020. While four U.S. Navy destroyers and a P-8 Poseidon

[28] Lackenbauer, Whitney P., Adam Lajeunesse, and Ryan Dean. 2022. Why China is Not a Peer Competitor in the Arctic, *Journal of Indo-Pacific Affairs.*

[29] Recent drills included joint air defense and anti-submarine warfare during the October 2021 *Maritime Interaction* bilateral exercise in the Sea of Japan. See Takenaka, K. 2021. China, Russia navy ships jointly sail through Japan strait, *Reuters*, 19 October 2021, https://www.reuters.com/world/asia-pacific/china-russia-navy-ships-jointly-sail-through-japan-strait-2021-10-19.

[30] See for instance regular violations of the regional airspace as well as incursions into the airspace/ADIZ of Japan and South Korea. Shin, H. 2021. South Korea scrambles jets as Chinese and Russian warplanes enter air defense zone, *Japan Times*, 19 November 2021, https://www.japantimes.co.jp/news/2021/11/19/asia-pacific/south-korea-china-russia-aircraft-air-defense-zone.

[31] Nilsen, Thomas. 2023. FSB signs maritime security cooperation with China in Murmansk, *The Barents Observer,* 25 April 2023, https://thebarentsobserver.com/en/security/2023/04/fsb-signs-maritime-security-cooperation-china-murmansk

maritime patrol aircraft were dispatched to monitor the formation, such events may occur more frequently as the Russian-Chinese relationship strengthens.[32]

This increase in Chinese and Russian naval activity requires not just a response from a single state but rather a multilateral response. While single national conventional forces are overmatched regionally by Russian naval forces, when burden sharing is implemented, the Allies' combined forces outmatches the Russians. Strategic burden sharing can offset challenges, particularly those for the U.S. in the Arctic. For example, with increasing U.S.-China tensions, the U.S. Pacific Fleet is primarily focused on China and Taiwan. Thus, they have less resources to focus on the Bering Strait. The formation of a multilateral Northern Pacific Task Group, as one concrete suggestion, could involve incorporating a Canadian vessel with the U.S. Third Fleet.

By sharing the burden in this way, it allows NATO Allies to preposition multilateral forces in key positions with the capabilities necessary to deter both Russia and China. In doing so, it could limit Arctic escalation.

2. **Strengthen integrated naval deterrence in the Arctic by enhancing the frequency and duration of Allied naval forces.**

Enhancing the frequency and duration of Allied naval forces involves showing presence and readiness in the Arctic. Persistent naval presence in the region, built around the Arctic seven and supported by neighboring Allies – including the United Kingdom, Germany, France, the Netherlands, Japan, and South Korea – would ensure regional forces and national capabilities, cohered under a NATO umbrella, that are better synchronized and thus more effective particularly on, below, and above Arctic waters, including task group operations in the Barents Sea and in the Bear Gap. This would not only maximize extant capabilities, drive operational efficiency and effectiveness, but also – when supported by additional mass and specific Arctic capabilities held at readiness as well as adequate strategic communication – more effectively signal Allied cohesion and will. However, increasing presence begs the question of *where* such presence should occur. For example, should Allied forces begin to turn towards the Pacific to deter increasing Chinese and Russian presence in the Bering Strait? Moreover, how far should INDOPACOM and NORTHCOM, supported by Asian partners, go into the Arctic Ocean? These questions also raise important C2 issues such as how NATO, NORAD, EUCOM, INDOPACOM, and other multilateral and bilateral (or binational) activities can better be synchronized and coordinated in different parts of the Arctic. Answering these questions is key to creating an integrated naval deterrent posture in the Arctic.While Russia has a naval advantage due to shorter lines of communication and geographic advantage in its Arctic region, the Allies can overcome this shortcoming through an alignment and synchronization of multilateral presence through, for example, exercises. Importantly, over-exercising can be expensive, overbearing, and hard to maintain. Therefore, we suggest shared multilateral patrols along EEZs and demonstrations on a more regular basis in tandem with the continuation of regular NATO

[32] Mahadzir, Dzirhan. 2023. Russian, Chinese Warships Operated Near Alaska, say Senators. 6 August 2023. USNI News. https://news.usni.org/2023/08/06/russian-chinese-warships-operated-near-alaska-say-senators. Accessed 30 January 2024.

exercises (e.g., *Trident Juncture* and *Cold Response*) to demonstrate cohesion of Allied intent and capabilities. When exercises do occur, we suggest a particular emphasis on exercising against hybrid attacks on critical maritime infrastructure to demonstrate our readiness to respond to, and our resiliency against these threats.

Russia's sensitivity to the vulnerability of its Arctic bases and offshore resources means that it will take any perceived threat to its ability to protect them seriously.[33] Keeping in mind that Vladimir Putin cites NATO expansion as a principal *casus bello* for the invasion of Ukraine,[34] actions to further encircle Russia must be weighed against their potential for triggering additional aggressive acts. Increasing presence may drive Russia to invest further in nuclear and/or cyber counter-escalation and other asymmetric tactics if it perceives that it cannot compete otherwise. Such potential for escalation however is also part of the strategic rationale for enhanced presence as it forces Russia to engage with strategic dilemmas of whether they want to prioritize defensive ASW capabilities or force projections in other parts of the globe such as in Ukraine or the Baltics. This balance between counter-escalation and forcing Russias to reckon with strategic dilemmas should be constantly re-evaluated over time. Russia has already demonstrated a preference for third-strike[35] nuclear capabilities with the recent launch of its Belgorod "Doomsday" submarine, reportedly equipped with nuclear-armed and powered torpedoes with nearly unlimited range.[36]

A greater concentration of naval capabilities in the Arctic inherently involves the risk of unintended miscalculation. Proximity and mistrust are an unhealthy mix. Therefore, any shift to a denial strategy must be well communicated; not only to deter adversaries and signal intent, but also to reassure Allies and partners that a more persistent and Allied approach is an appropriate response to the growing threats in the region. The aim of the 7 Arctic NATO allies is to create a stable security environment. With the current security situation in Europe, trust has vanished, dialogue has become almost non-existent, and there is a need for increased deterrence. NATO, viaNorway on the northern front, had prioritized a bridging role regarding (Soviet) Russia. Today, self-imposed limitations in NATO's deterrence activities may encourage Russia's regime to continue or strengthen their influence operation campaign. Consistent, predictable Allied presence in the Arctic may contribute to stabilizing the region, while a sudden presence with offensive capabilities in time of increased tension risks escalation. Here, it is important to draw attention to the potential for available capability over permanent presence. For example, increasing presence via available capability may mean ensuring that existing expeditionary capabilities are suitable for and exercised in the Arctic but not based there. Such an approach may be able to achieve deterrence objectives without incurring the high cost of permanent presence, and opens the door to Nordic countries when and if they have the resources available

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[33] Wall, Colin, and Njord Wegge. 2023. The Russian Arctic Threat: Consequences of the Ukraine War, CSIS, January. https://www.csis.org/analysis/russian-arctic-threat-consequences-ukraine-war.

[34] President of Russia. 2022. Address by the President of the Russian Federation, 24 February 2022, http://en.kremlin.ru/events/president/news/67843

[35] Third strike nuclear doctrine is the idea that a third strike nuclear capability can make a first strike a viable military option.

[36] USNI News. 2022. Doomsday' Submarine Armed with Nuclear Torpedoes Delivers to Russian Navy, 8 July 2022. https://news.usni.org/2022/07/08/doomsday-submarine-armed-with-nuclear-torpedoes-delivers-to-russian-navy

to take part. It is also clear that adversaries may seek to exploit greater military (naval) cohesion amongst the Arctic states as a provocative measure, presenting greater Allied naval activity as aggressive or escalatory.[37] A sudden significant increase in overt physical NATO capabilities in the Arctic would exacerbate this risk, particularly an increase in what could be characterized as "offensive" military capabilities.

3. **Enhance unity of effort amongst Allied naval forces through standing multinational task force.**

The creation of a standing Allied multinational naval task force is key for showing increased presence and readiness in the Arctic. The expansion of an Allied naval presence synchronized under NATO Command and Control (C2) capabilities is recommended, as it will help bridge situational awareness gaps and reinforce deterrence through direct cost-imposition via long range capabilities as well as collective cost imposition in the form of signaling strength through a diversified Allied naval presence. Increasing solely U.S. presence in the Arctic could be perceived as escalatory by Russia and would contravene the interests of countries that must coexist and cooperate with Russia. Therefore, we recommend a European-led force composition with increasing number and frequency of forces. This approach would allow for the effective balancing of defensive and offensive capabilities. The former would be persistent and aimed at blunting the efficacy of Russian military capability and setting the conditions for follow-on forces – thus reducing the likelihood of any successful aggression. U.S., French, or British credible and conventional strike capabilities must underpin this approach to make it effective. Whilst some of these may already be persistent in the region, additional mass may be provided by Allies and partners from outside of the region and coordinated through NATO. Additional regular and planned NATO task group operations in the region would send powerful signals of Allied resolve and capability – whilst mitigating the risk associated with greater persistence. This would maximize extant capabilities and offer comparative national advantages. That being said, the extent to which a European-led force would minimize the Russian perception of an increased U.S. presence in the Arctic, as well as the subsequent potential for escalation, remains debated.

The formation of this multinational task force could take the form of a Standing NATO Maritime Group or a strengthening of the U.K.'s Joint Expeditionary Force (JEF) maritime function to be included in NATO's Standing Force Structure as necessary. For example, this could involve the major combatant groups from northern European navies with experience operating in the Arctic including submarines with an emphasis on ASW operations, aircraft carriers, amphibious forces, ISR capabilities, and icebreakers.

The creation of a peacetime readiness force has many benefits. First, increasing presence leads to better all-domain awareness in the region, a current weakness for many naval and joint forces operating in the Arctic. Second, by demonstrating presence to local communities – it normalizes the idea of geopolitical competition. One example of this already in action is the June 2023 visit

[37] It is widely recognized that deterrence by denial strategies actively seek to avoid vertical escalation, but may lead to horizontal escalation.

of a U.S. Ohio class submarine to the Faroe Islands.[38] Therefore, increasing presence through the strategic deployment of naval forces may influence public perception and trust in the Allies in and through the Arctic. However, Allies must also be cognizant that the narrative around NATO presence is important and how such shifts are framed is essential.

Importantly, this task force would be scalable and led by nations, not by NATO. This flexibility would allow the Allies to respond to threats without invocation of NATO's Article 5. It is both beneficial for deterring actions in peacetime and for potential integration into NATO in a force situation.

4. **Improved prioritization and synchronization of resiliency and operations in response to increasing risks from hybrid and gray zone activities to critical national maritime infrastructure.**

The increasing threat and pace of hybrid and gray zone activities in the Arctic both by Russia[39] and China suggest that the Allies must prioritize and synchronize their efforts to combat this threat. The damage to the Nord Stream pipelines in September 2022 was a key moment and reminder of how vulnerable communication cables, pipelines, and other key subsea infrastructure are. Russian mapping and targeting of undersea cables are noticeable in the Arctic, and incidents across the Arctic indicate how sensitive this issue is. Such infrastructure has been targeted in the past and will only increase in significance in the future due to increasing interconnectedness. In the Arctic, Russia has conventional preponderance in regards to its regional naval forces. However, it does not serve Russia's interest to escalate in the Arctic due to their economic interests related to oil and gas extraction as well as their long-term investment in the Northern Sea Route. This situation implies that Russia is more likely to use gray zone and hybrid threats to hold the Allies at risk.

First, NATO Allies must gain faster and more complete domain awareness to detect, unmask and expose gray zone activities. Such a task should incorporate advanced maritime technology such as unmanned systems. NATO Allies should aim to identify specific technology early in the development process to gain an advantage. This could, for example, involve a sponsorship or grant from naval forces or another government agency to help develop the technology necessary to compete against Russia. Increasing all domain awareness would also involve engaging with the private sector to improve monitoring, response, and capability to secure sea lines of communication and making Arctic infrastructure climate resilient. Increasing this awareness is a long-term investment but necessary. One concrete example of this is Norway's military collaboration with its civilian maritime sector to establish control over 9,000 km of pipelines within weeks of the Nord Stream incident.

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[38] U.S. Naval Forces Europe-Africa/U.S. Sixth Fleet Public Affairs. 2023. USS Delaware Arrives in Faroe Islands. 27 June 2023. https://www.usff.navy.mil/Press-Room/News-Stories/Article/3440480/uss-delaware-arrives-in-faroe-islands. Accessed 30 January 2024.

[39] Kertysova, Katarina and Gabriella Gricius. 2023. Countering Russia's hybrid threats in the Arctic. 8 December 2023. European Leadership Network. https://www.europeanleadershipnetwork.org/report/countering-russias-hybrid-threats-in-the-arctic/

Second, NATO Allies should create a C2 multilateral joint interagency task force to counter the gray zone and hybrid threat. This task force should incorporate the Navy, Coast Guard, as well as industry. Currently, there is no standing command structure to address hybrid threats although member countries certainly have more police-based forces to respond to such threats. By contrast, the Arctic Coast Guard Forum was established in 2015 to respond to specific operational concerns that Arctic-based coast guards share. As it stands, many Allies' Coast Guards are exploring hybrid threats, but they do so independently and often not in connection with one another.

Third, NATO Allies and their partners should collaboratively create a Rules of Engagement for Hybrid Threats. By creating a common vision across the Allies for responding to hybrid threats, this recommendation would facilitate synchronization. For example, although hybrid threats often occur at a national level – particularly those involving threats to critical maritime infrastructure in one country's EEZ – the impacts are felt across a region. These rules would involve setting up rules and routines for how nations should respond to such threats, followed by coordinated strategic communications on a multilateral level in order to harmonize an Allied response. Further, this recommendation would include clear communication on resource allocation in the case of an attack, and ideally set up red lines that would be communicated to Russia and China.

In October 2023, the Chinese ship *Newnew Polar Bear* sailed through the Baltic Sea damaging the Baltic Connector gas pipeline and two underwater communications cables linking Finland-Estonia and Sweden-Estonia respectively. Estonian and Finnish authorities conducted an investigation, eventually concluding that the likely culprit was the *Newnew Polar Bear* and asked to send representatives to examine the vessel in Beijing. Attention was given to the matter in NATO, the EU, and on a national level through close monitoring by allied naval vessels and surveillance aircraft as the ship sailed through the sea. With the introduction of improved international regulations and comprehensive guidelines, an Allied response would not just include Estonia, Finland and Sweden, but would incorporate the entire strength of the alliance – communicating credibility and clarity to adversaries.

Appendix A: Allied Perspectives and Deterrence Activities in the Arctic

Canada

Naval Deterrence in the Arctic – A Canadian Perspective

By LCdr Peter Goff (Royal Canadian Navy) and Dr. Gaëlle Rivard Piché (Defence Research and Development Canada)[40]

Flanked by three oceans and with the United States as its sole neighbor, Canada's unique geography has long contributed to the country's sovereignty and sense of security. In the north, the Arctic offered important natural defenses due to its sheer size and inaccessibility. At the same time, while Canadians usually see the Arctic as a fundamental part of their identity, the region has typically stayed at the periphery of national affairs given its austerity, remoteness, and sparse population. As a result, while the Arctic accounts for 40% of the country'slandmass, 75% of its coastline and over 20% of the circumpolar Arctic,[41] Canada's attention as a maritime nation has historically been directed to the Atlantic and Pacific Oceans. Over the last 15 years however, the Canadian Arctic has become progressively more accessible due to the accelerating effects of climate change and rapid technology developments. Thus, the region has attracted growing attention from domestic and foreign actors, both state and non-state.

The rapid evolution of Canada's Arctic operating environment is only compounded by an increasingly challenging strategic environment. The sanctuary Canada's geography once offered is fast eroding due to new domains of operations and technologies that manages to shrink time and space. Furthermore, acute rivalry among major powers on the global stage has turned the Arctic into an arena for strategic competition. In Europe, Russia's invasion of Ukraine has had profound implications for Canada's partnerships and alliances, Arctic governance, continental defense, and the role of NATO in the Arctic. Looking west, China has grown increasingly assertive in the Indo-Pacific region and declared itself a near-Arctic state in 2018. Since then, China has increased its presence and shown a keen interest in the North American Arctic, its waters, and natural resources. While Russia mostly poses a strategic and conventional threat to North America through the Arctic, China is increasingly challenging Canada's strategic interests through hybrid and unconventional means, including dual-purpose scientific research, undue influence on Canadian soil, and other nefarious activities across the competition spectrum.

Taking stock of those important trends, Canada released in April 2024 a Defence Policy Update, titled *Our North, Strong and Free: A Renewed Vision for Canada's Defence* (ONSF).[42]The strategic document designates Canada's sovereignty in the Arctic as its top priority, highlighting the critical importance of the region to the country's overall sovereignty, safety and security. . In the words of Canada's Minister of Foreign Affairs: "Canada must meet these new and emerging

[40] The views expressed in this document are the authors' own and do not represent DRDC, the Royal Canadian Navy, the Department of National Defence, the Canadian Armed Forces, or the Government of Canada.
[41] The Arctic Institute, Center for Circumpolar Security Studies, https://www.thearcticinstitute.org/country-backgrounders/canada/ (accessed 24 June 2024).
[42] Government of Canada, *Our North, Strong and Free: A Renewed Vision for Canada's Defence*, https://www.canada.ca/en/department-national-defence/corporate/reports-publications/north-strong-free-2024.html (accessed 24 June 2024).

threats with resolve. Vigorous assertion of our sovereignty, particularly in the Canadian Arctic, is a fundamental priority."[OBJ] This is a substantial change in tone from the 2017 Defence Policy and the 2019 *Arctic and Northern Region Policy Framework* thatboth emphasized a holistic approach to Arctic security and did not identify specific state-based threats or challenges.

ONSF lists continental defense as its second priority. The North American Aerospace Defense Command (NORAD), a unique bi-national command, is responsible for aerospace warning, aerospace control, and maritime warning over Canada, the US, and their air and maritime approaches. After the end of the Cold War, the lack of clear military threats to North America led to a decline in investments to maintain NORAD capabilities. Today, in the face of Russia's remilitarization of its Arctic and acquisition of a new generation of intercontinental weapon systems, NORAD capabilities have fallen behind with implications for continental defense and deterrence. Consequently and in partnership with the US, Canada has announced major investments (approximately 40 billions CAD) in the modernization of NORAD to restore defense and deterrence across all domains of operations (sea, air, land, space and cyber).

Looking specifically at the maritime domain, increasing maritime access to the Canadian Arctic and its approaches is creating new operational challenges. In 2023, the Royal Canadian Navy (RCN) published its *Arctic & Northern Strategic Framework,* [43] which provides strategic guidance on how the RCN will operate in the Arctic. The RCN's three key strategic objectives in the Arctic are:

1) Enhance the ability to project and sustain military force as well as prevent and respond to safety and security incidents in the Arctic and the North;
2) Strengthen sustainable maritime domain awareness, surveillance, and control capabilities in the Arctic and the North; and,
3) Strengthen cooperation and collaboration with domestic and international partners on safety, security, and defense issues, including territorial authorities, local communities, Inuit, and Indigenous peoples.

The current RCN fleet comprises twelve frigates, twelve maritime coastal defense vessels (MCDVs), four diesel submarines, four (of six planned) Arctic offshore patrol vessels (AOPVs), and one auxiliary oiler replenishment vessel (AOR). The new *Harry DeWolf* class AOPV is significantly increasing the RCN's capacity to operate in the Arctic and secure Canada's northern maritime borders.[44] The AOPVs are polar-class 5 rated icebreaking vessels capable of year-round operation in medium first year ice and a range of 6800NM. Two additional AOPVs will also be built for the Canadian Coast Guard. Finally, ending years of ambivalence over a new generation of submarines and in response to the growing challenges in the Arctic, ONSF tasked the RCN with the stand up of a new Canadian Patrol Submarine Project (CPSP) to replace the existing

[43] Royal Canadian Navy Arctic & Northern Strategic Framework, https://www.canada.ca/en/navy/corporate/what-we-do/vision/arctic-and-northern-strategic-framework.html (accessed 24 Jun 2024).

[44] The AOPVS are just the first stage of Canada's overall National Shipbuilding Strategy (NSS) to build the future RCN fleet. The NSS also includes the acquisition of two Joint Support Ships (JSS) and fifteen Canadian Surface Combatant (CSC). The first JSS, a 20,000 ton replenishment vessel, is nearing completion and will be delivered to the RCN by 2025. The first CSC, an 8,000-ton warship modelled upon the British Type-26 design, should be delivered by 2030 and the CSC class will replace our aging *Halifax-class* frigates.

four Victoria Class submarines with eight to twelve conventional submarines. These new submarines will be able to operate North of 60 degrees and be key to Canada's deterrence posture in the Arctic.

Beyond naval platforms, Canada's capacity to deter threats to its Arctic and North America will depend on increased situational awareness across domains, especially under water and in space, readiness levels, and capacity to collaborate and integrate quickly across CAF and with domestic partners and allies. To that end, since 2007, Canada has hosted Operation NANOOK, the CAF' signature northern umbrella operation. Every year, NANOOK comprises a series of comprehensive activities designed to exercise the defense of Canada and to secure our northern regions. It delivers Arctic training, develops domestic and foreign partnerships, fosters productive and respectful relations between Northerners and the CAF, and improves readiness of participants.

Outside the region, the RCN also participates in Operation REASSURANCE in Europe and three warships each year in the Indo-Pacific theater to participate in international training, exercises, and engage with regional partners. While these activities take place outside the Arctic, it signals the RCN's ability to project force and operate alongside its allies.

Ensuring Canada’s sovereignty in the Arctic and restoring continental defense to deter adversaries are daunting tasks, especially in the current fiscal context. Force employment and sustainment across the North American Arctic are extremely challenging due to environmental and geographic conditions, as well as extremely limited civilian and military infrastructure. Within military circles, the Canadian Arctic is often described as an expeditionary theater within national borders. Ensuring situational awareness across the region and domains, projecting force in a timely manner, and sustaining operations while mitigating negative impacts on northerners and the fragile Arctic environment are formidable challenges for Canada’s national security and defense community. It will require not only significant investments, but also innovative ways of doing things to bridge gaps between capabilities and authorities among CAF elements and domestic partners.

Furthermore, in the current global pan-domain environment where threats manifest simultaneously across the competition spectrum, effective deterrence in the maritime domain may lead to horizontal escalation in other domains, underscoring the importance of integrated approaches and increasing resilience across domains and sectors of society. Building deliberate nexus among environments such as the triad composed of special operations forces (SOF), cyber and space commands are essential for a credible deterrence posture. For example, Canadian SOF is called upon to play an important role in national and continental defense by enabling the rest of the CAF and partners through sensing, signalling, and integrating functions, while frustrating the objectives of adversaries and imposing costs on them.

Finally, global burden sharing among partners and allies will be critical to an effective deterrence posture in North America and beyond. Dealing with two adversarial major powers who are willing to collaborate requires a grand strategy that crosses regional boundaries and prioritizes burden sharing. Now that the US has designated China as the pacing threat and is rebalancing US Navy capabilities toward the Indo-Pacific, Washington is likely to ask Ottawa to bolster its

defense posture and potentially serve as the main deterrent in the North American Arctic. ONSF directs the CAF to support allies and partners in Europe and the Indo-Pacific. This might well best be achieved by prioritizing Canada's sovereignty in the Arctic and restoring continental defense, preventing Canada's overextension and enabling the US to focus on other theaters.

Denmark

The Danish Approach to Naval Deterrence in the Arctic

By Jon Rahbek-Clemmensen, Royal Danish Defence College

The analysis expressed in this document are solely the viewpoints of the author. It does not represent the official view of the Danish government or any Danish agency, including the Royal Danish Defence College.

The Kingdom of Denmark is an Arctic nation by virtue of the location of the Faroe Islands and Greenland within the region.[45] While not situated within the Arctic, Denmark is responsible for managing the foreign, security, and defense policies of the entire Kingdom of Denmark and issues related to naval deterrence therefore fall within Copenhagen's purview. The Faroe Islands and Greenland have increasingly become involved in the formulation of Danish positions within these policy areas and they have begun to formulate their own foreign, security, and defense strategies. Denmark supports the formulation of these visions as well as the involvement of the Faroe Islands and Greenland in security and defense policy deliberations. Denmark also recognizes the right to independence of the Faroe Islands and Greenland, while preferring to maintain the current composition of the Kingdom of Denmark. Although there are several significant disagreements between the three constituent parts of the Kingdom of Denmark when it comes to foreign, defense, and security policy, most Faroese and Greenlandic priorities in the naval domain largely align with Danish strategy.

The Kingdom of Denmark has not had a common Arctic strategy since 2020 due to internal disagreements among the three constituent parts of the Kingdom, but a Danish approach to naval deterrence in the Arctic can be elucidated from stated positions and enacted policies.

Danish naval deterrence in the Arctic is mainly concerned with deterring territorial encroachments and hybrid activity against the Kingdom of Denmark in the Arctic as well as military threats originating in the Arctic against other NATO allies and the alliance as such. It is based on the underlying assumption that the threat of a direct military occupation of or attack against the Faroe Islands and Greenland is minimal in the short to medium term. China does not have a significant military presence in the region and does not pose a direct military threat. While Russian military capacities in the Arctic are much more formidable, Russia has little incentive to occupy either the Faroe Islands or Greenland. Even though it is plausible that Danish

[45] The Kingdom of Denmark comprises of three constituent parts – Denmark, the Faroe Islands, and Greenland – where foreign, security, and defense policy falls within the Danish purview. The following document therefore focuses squarely on the *Danish* approach to Arctic security and only includes Faroese and Greenlandic perspectives insofar as they are relevant for Denmark. According to the definition of the Arctic used by the NASI project, which includes the Greenland-Iceland-United-Kingdom gap in the Arctic, the Faroe Islands are included in the Arctic and therefore help make the Kingdom of Denmark an Arctic nation.

and allied military installations and capacities in the Faroe Islands and Greenland, such as the American Pittufik Space Base in Northwestern Greenland, could become targets of Russian military attacks, this would likely only occur in the event of a high-intensity conflict verging on the threshold of nuclear war after allied deterrence efforts further east in the Barents Sea and in northern Fenno-Scandinavia have failed. By supporting allied deterrence efforts in other parts of the Arctic, Denmark is thus indirectly deterring Russian policies that could potentially put the Kingdom of Denmark at risk, while simultaneously demonstrating its value as a good ally.

At the same time, however, the wish to deter Russian aggression is tempered by an interest in minimizing tensions with Russia. At least some Danish policymakers are concerned that a too forceful allied presence in the Arctic will enhance the security dilemma vis-à-vis Russia and create unnecessary tensions. This is especially the case if these efforts are located close to or in Russian territorial waters or if they threaten the Russian submarine-based second-strike capability, which is mainly located in the Barents Sea. The Danish hesitation in this regard is compounded by the fact that while the Faroe Islands and Greenland both support deterrence of Russian aggression, including defensive ASW efforts in the GIUK gap, Faroese and Greenlandic policymakers are likely to be critical of a more forceful approach further north. It is therefore possible that Danish participation in such forceful efforts could cause tensions within the Kingdom of Denmark.

In that sense, there is a potential contradiction between Denmark's disposition to support allied deterrence efforts and its concerns about unnecessary forcefulness vis-à-vis Russia, which can be activated if the alliance pursues efforts against the Russian bastion that requires Danish participation. Like other smaller Arctic allies, Denmark tries to find a balance between deterrence of Russian aggression and reassurance efforts that are aimed at diminishing regional tensions. Denmark has not formulated an official position in this regard and it is therefore not possible to pin-point exactly how Denmark will approach such questions, but it seems likely that Denmark prefers to concentrate its efforts in its own territorial waters and in the GIUK gap. If requested to participate in more forceful efforts further north, Denmark is likely to prioritize alliance solidarity and therefore warily support and participate in these efforts, while advocating for a less forceful approach.

It is unclear to what extent Denmark's future naval force in the Arctic will be designed for operations beyond coast guard duties, most importantly anti-submarine warfare (ASW). Given the immense size of the area of responsibility of the Danish Joint Arctic Command (JACO) in Nuuk, which covers both the Faroe Islands and Greenland, the Danish naval presence is relatively sparse. Denmark's current Arctic capacities are primarily designed to demonstrate Danish sovereignty and fulfill coast guard duties around Greenland (the Faroe Islands have their own coast guard). However, over the past few years, Denmark has taken some steps towards building a more capable force in terms of domain awareness and ASW. Most importantly, two Danish Absalon class ships have been reclassified as ASW frigates and are being equipped with new capacities such as towed array sonar, anti-submarine torpedoes, and sonar buoys.

The question remains if this development towards a stronger ASW capability will continue as many decisions about the future force set-up are yet outstanding. Denmark has announced that it

will procure two long-range surveillance drones and while these capacities are likely to be ASW capable and are likely to primarily be designated for Arctic operations, these decisions have not been made officially. Denmark is expected to replace its aging Thetis class patrol vessels with newer platforms that will be better equipped for ASW. The decision about the exact design of the new ships has yet to be made and it is unclear how capable the new platforms will be. There has been some speculation that Denmark will also invest in P8 Poseidon Maritime Patrol Aircraft, but these plans have seemingly been shelved. While there has been some debate about procuring submarines (Denmark scrapped its submarines in 2004), Denmark is unlikely to move in this direction.

In sum, while Denmark has placed more emphasis on naval deterrence in the Arctic over the past few years, taking steps to increase its domain awareness and ASW capabilities, several questions still remain regarding the Danish approach. While prioritizing alliance solidarity and deterrence of Russian encroachments, Denmark is likely to favor defensive activities, such as ASW in the GIUK gap, to more forceful activities further north. Denmark is currently investing in new platforms that enhance Denmark ASW capabilities, but the exact potency of these capabilities has yet to be determined, as many of the relevant decisions are still in the pipeline.

Finland

Finland Strategic Considerations

The 2021 strategy for Arctic Policy highlights Finland's key objectives in the Arctic region and outlines the main priorities for achieving them. The priorities of the new strategy are:

1. Climate change mitigation and adaptation
2. Inhabitants (promotion of welfare and the rights of the Sami as an indigenous people)
3. Arctic expertise (livelihoods, top research)
4. Infrastructure and logistics

Finland's goal is a peaceful Arctic region marked by constructive cooperation. It is therefore important to avoid increasing tensions and conflict potential.[46]

Finland is an Arctic country. Finland's geographical position as a northern country in the north-eastern corner of the EU and NATO is of military strategic importance. Finland has no land connection to the Arctic Ocean what makes Finland a different Arctic actor where our focus is more land and air oriented. From Finland's perspective, Northern Europe, including the Arctic region, the Baltic Sea region and the North Atlantic form a single strategic entity in which different regions are interlinked. The escalating situation elsewhere is also likely to be reflected in the Arctic region or tensions in the Arctic region may be reflected in Baltic Sea region. As far as possible, Finland strives to be predictable towards Russia in its own military activities in order to avoid misunderstandings and unintentional escalation. Finland aims to promote these practices

[46] Finland's Strategy for Arctic Policy - Prime Minister's Office (vnk.fi)

in various international Arctic forums including European security and defense cooperation and NATO.

The northern direction has not been one of the NATO's top priorities. This changed in 2014, not least after the start of the war in Ukraine. As a new NATO member state Finland will add significantly alliance AOR next to Russia's western borders and Kola peninsula. This is certainly not likely to reduce tensions between Russia and NATO. From Finland's point of view, it is essential that NATO has a credible deterrence in the Arctic region, avoiding misunderstanding and unintended escalation. This should be reflected in NATO's capability development and operational planning, based on the principles of the 360 degrees security model. It is important to us that all domains have the capability and ability to operate in the Arctic conditions. NATO must have the capacity to receive allied support and secure the northern sea routes. Finland has a strong profile as an expert in Arctic warfare and develops related international exercises and training, offering it to allies. Finland wants to be actively involved in the processing of Arctic issues, the development of critical infrastructure, security of supply and resilience as part of an alliance. Finland aims to promote the Allies' general understanding of the special characteristics of Arctic security and defense issues and the situation in the region.

Iceland

The Land of Fire and Ice Must Crack On

- *The Icelandic Perspective - by CDR Snorre Greil*

Views expressed are my own and not necessarily those of my employer.

Strategic Considerations

Iceland being a nation without a military does not free it from the necessity and obligation to uphold a collaborative defense with its allies of the North Atlantic Treaty Organization (NATO). As per Iceland's National Security Policy (NSP), NATO is a key pillar in Iceland's defense and the principal forum in which it participates on a civil basis to promote the security of the Alliance. Inarguably, the 1951 Defence Agreement between Iceland and the United States of America (US) is another indispensable pillar in that defense substructure.[47]

Furthermore, the policy addresses Nordic, bi-lateral and international co-operation on security and defense. Respectively, and in addition to the previously mentioned pillars, the Nordic Defence Cooperation NORDEFCO, bi-lateral co-operation with Denmark, and the Joint Expeditionary Force (JEF) are examples to mention.[48] Carrying equal weight, capabilities as well as the capacity and expertise to fulfil international obligations are mentioned. To this end, emphasize is put on protection and uninterrupted operation of critical infrastructure and the strengthening of the society's resilience to any kind of threat.

[47] Parliament of Iceland. (2016). *Parliamentary Resolution on a national security policy for Iceland.* Parliament of Iceland - Althingi.
[48] Stjórnarráð Íslands. (2024, 04 22). Retrieved from Stjornarradid.is: https://www.stjornarradid.is

Iceland's Role in Deterrence and Defense

Iceland's location in the middle of the North Atlantic, half way between North America and mainland Europe has historically been critical for forward posturing of forces and most certainly still is. The so-called Greenland-Iceland-United Kingdom-Norway, or simply put GIUK-N, Gap, forms a naval choke point,[49] which would be key to securing strategic lines of communication during conflict.[50]

As Iceland has no military and consequently co-operates with other states on a civil basis, defense co-operation is handled by the Directorate for Defence residing at the Ministry for Foreign Affairs (MFA) and by agencies residing at the Ministry of Justice performing defense related tasks as overseen by the MFA. Of the latter, the National Commissioner of the Icelandic Police performs the role as the National Security Authority and the Icelandic Coast Guard (ICG) performs operational tasks including daily operation of the NATO Control and Reporting Centre and other Keflavik Air Base facilities, four remote radar and communication sites, host nation support, and surveillance.

Focussing on surveillance and training, Iceland recurrently hosts deployments of so-called Airborne Surveillance and Interception Capabilities to meet Iceland's Peacetime Preparedness Needs. Deployed fighter aircraft, when placed on quick reaction alert, can exercise patrolling of the Icelandic airspace. Then, Iceland hosts Allied Maritime Patrol Aircraft critical for Anti-Submarine Warfare (ASW). Iceland also frequently hosts Allied high-end capabilities such as the UK aircraft carrier HMS Prince of Wales, US B-2 Spirit Bomber Task Force, and US nuclear-powered submarines.

In an aligned effort to strengthen collective deterrence, Allies, including and not least US and Iceland, invest in critical enablers in support of delivering the above mentioned capabilities. One tangible location of focus to mention is Keflavik Air Base, which lately has seen expansion, beddown site preparations, and other upgrading,[51] while the co-located NATO port of Helguvik is seeing additions to its quayside and oil storage capacity.[52] On the NATO operational level, the third and latest established Joint Force Command in Norfolk USA will have its focus on multi-domain protection of the trans-Atlantic link and the Arctic.[53] Given the importance of Iceland to this region in terms of vigilance, deterrence and promotion of stability, as pointed out

[49] Center for Strategic & International Studies. (2024, 04 24). *The Ice Curtain: Modernization on the Kola Peninsula*. Retrieved from https://www.csis.org/analysis/ice-curtain-modernization-kola-peninsula
[50] NATO AIRCOM. (2024, 04 30). *Commander Joint Force Command Norfolk, "Connecting dots in the North Atlantic"*. Retrieved from https://ac.nato.int/archive/2021/COM_JFCNF_ISL
[51] United States Air Force Website. (2024, 04 30). *Air Force awards multiple contracts for airfield construction at NAS Keflavik*. Retrieved from https://www.af.mil/News/Article-Display/Article/2359356/air-force-awards-multiple-contracts-for-airfield-construction-at-nas-keflavik/
[52] Iceland Monitor. (2024, 04 30). *NATO fully funds construction in Helguvík*. Retrieved from Iceland Monitor: https://icelandmonitor.mbl.is/news/news/2023/06/15/nato_fully_funds_construction_in_helguvik/
[53] Joint Force Command Norfolk. (2024, 04 22). Retrieved from jfcnorfolk: https://jfcnorfolk.nato.int/about-us

by commander Joint Force Command Norfolk, we may be seeing Iceland paying increased attention to the command in the near future.[54]

In 2023, the Joint Expeditionary Force (JEF), led by the United Kingdom, exercised the deployment of its headquarters to Iceland to exercise various hybrid scenarios and develop response options.[55] Further, with respect to training and exercises, Iceland hosts or participates in several large scale exercises including the defense exercise Northern Viking, NATO ASW exercise Dynamic Mongoose, and the explosive ordnance disposal exercise Northern Challenge. After Russia's full-scale invasion of Ukraine, Iceland has provided humanitarian, economic and security related support to Ukraine. This has primarily been done through international organizations; however, the MFA and the ICG have also provided training to Ukrainian personnel in Explosive Ordnance Disposal (EOD) and on board of ICG vessels.

In terms of deterrence by resilience, as addressed by the Newport Arctic Scholars Initiative, Iceland operationalizes its NSP in various ways. The talk on resilience and hybrid challenges, including threats to Critical National Infrastructure, is rooted in Article 3 of the North Atlantic Treaty and guided by the NATO Resilience Committee and thus central to the Allies. Iceland has proven robust and adaptable in times of economic, health, and natural critical events. There is however more for Iceland to prove in preparing for any major shock such as a natural disaster, failure of critical infrastructure, or a hybrid or armed attack.[56] It is thus not the time to rest on our laurels. Iceland is walking the talk, albeit - given the challenges that Iceland, yes, but also, and incomparably other likeminded nations are facing - the land of fire and ice must crack on.

Norway

Norwegian National perspectives on Deterrence

This analysis has been formulated by Commander Tor Ivar Strømmen at the Royal Norwegian Naval Academy. It is based on the latest national white paper; however, it does not represent the official or formal viewpoint of Norway, nor should it be regarded as such.

With extensive maritime zones, one of the longest coastlines globally, and as a neighbouring state to Russia—particularly adjacent to Russian existential strategic interests and capabilities—Norway is compelled to maintain stability and national operational freedom. In relation to Russia, Norway's capability to merge deterrence, reassurance, predictability, and

[54] United States Air Force Website. (2024, 04 30). *Air Force awards multiple contracts for airfield construction at NAS Keflavik*. Retrieved from https://www.af.mil/News/Article-Display/Article/2359356/air-force-awards-multiple-contracts-for-airfield-construction-at-nas-keflavik/

[55] Government of Iceland. (2024, 04 18). *JEF deploys its Headquarters to Iceland*. Retrieved from https://www.government.is/diplomatic-missions/embassy-article/2023/06/01/JEF-deploys-its-Headquarters-to-Iceland/

[56] NATO. (2024, 4 17). *Resilience, civil preparedness and Article 3*. Retrieved from nato.int: https://www.nato.int/cps/en/natohq/topics_132722.htm

long-term strategies has consistently been instrumental in contributing to regional stability. This is a strategic course that Norway intends to continue.

The principal deterrent effect and combat power for Norway's defense resides in allied support and the collective warfighting potential of the alliance, about which there is no doubt. Another substantial deterrent stems from the geostrategic significance of Norway's geographical positioning to major global powers. Given its proximity to the Arctic and the North Atlantic, Norway serves as a strategic nexus in the geopolitical calculations of both Western and Eastern powers. Consequently, the United States and European nations would perceive significant disadvantages if Norway, or more specifically, its geographical territories, were to be utilized as a base of operations by Russia. Such a scenario would alter the balance of power in the region, potentially giving Russia enhanced capabilities to project power into the North Atlantic and Arctic, areas critical for transatlantic security and resource exploration.

Recognizing these strategic implications, it becomes a pivotal imperative for both the United States and European countries to prevent any development that could lead to Norway serving as a Russian military or strategic foothold. This awareness underpins the security guarantees extended to Norway by its NATO allies and informs their military and diplomatic engagements in the region. The preservation of Norwegian territorial integrity and the prevention of its use by adversarial powers are thus central to maintaining the current balance of power and ensuring the stability of broader European security architecture.

In the prevailing security-political environment, as well as in most foreseeable future scenarios, Russia is expected to continue prioritizing its strategic deterrence forces. These include strategic and multi-role submarines, along with advanced long-range precision weapons systems. These assets, strategically deployed in close proximity to Norway, extend beyond a direct concern to Norway and, in themselves, represent only a limited direct threat. However, the critical factor lies in their operational requirements, which necessitate Russian control—or at the very least, significant influence—over Norwegian territory, airspace, and maritime zones. This control is not solely for the sake of dominance but is a strategic necessity to protect these assets and to potentially neutralize NATO’s capacity to conduct offensive operations in these strategically sensitive areas.

Furthermore, the strategic importance of Norway's geography, particularly the Arctic regions close to Norwegian territories, is likely to escalate as a focal point of international military interest. Over time, this region may not only see heightened Russian military activities but could also increasingly draw the attention of the People’s Republic of China. The potential for Chinese strategic deterrence capabilities, such as the deployment of Chinese strategic submarines in the Arctic, possibly utilizing operational bases established in conjunction with Russia, underscores a broader geopolitical dynamic. Such developments could significantly alter the strategic landscape, prompting a recalibration of military strategies not only for Norway but also for NATO and other regional stakeholders concerned with maintaining balance and preventing unilateral advantage in this pivotal region.

During the Cold War, Norway developed a security strategy that involved combining deterrence and reassurance towards the Soviet Union with a policy of integration and screening in relation to the USA and NATO. In this context, reassurance is defined as measures aimed to prevent Russia from perceiving Norway as a source of direct strategic threats—Norway should simply not be seen as a nation posing an imminent security and military threat to Russia.

Both deterrence and reassurance serve as strategies designed to prevent an attack or mitigate a serious escalation of tensions. Within the framework of NATO, Norway could avoid direct bilateral conflicts, assured by the prospect that the USA would support Norway if a conflict with the Soviet Union were to materialize. Simultaneously, Norway actively sought to maintain a low level of tension in the northern regions through both diplomatic discourse and concrete actions. The cornerstone policies that facilitated this approach included an exceptionally restrictive base policy, prohibiting the establishment of foreign military bases on Norwegian soil; a nuclear visitation policy, disallowing the presence of nuclear weapons on Norwegian territory, including on ships docked in Norwegian ports; and stringent restrictions on allied military operations, particularly in Finnmark, where allied forces were barred from deployment and allied aircraft could not venture east of the North Cape from Norwegian airbases.

These policies were predominantly upheld in the post-Cold War era concerning Russia and continue to significantly shape Norway’s defense strategy. This consistent approach not only underscores Norway’s commitment to maintaining sovereignty and regional stability but also reflects its strategic intent to balance deterrence with diplomatic reassurance, thus preventing escalation and fostering a secure and stable northern geopolitical environment.

In the face of a more unstable and unpredictable security-political situation, allied cohesion and stability in the northern regions are increasingly crucial. Concurrently, facilitating increased allied military activity in the north has long been a central part of Norwegian security and defense policy. Reinforcement in times of crisis and conflict must be practised and prepared during peace to be effective in times of crisis and war. This necessitates enhanced allied activity in Norway and its surrounding areas, particularly as our geography presents significant operational challenges regarding oceanography, topography, communications, weather, and climate—conditions that preclude effective operations without substantial local knowledge and experience with operations under these conditions.

Consequently, the Norwegian government wishes, among other objectives, to enhance the Norwegian Defence Force's capability to operate in conjunction with allied forces in Norway and its proximate areas. As the potential for conflict in our regions increases, our ability to understand, shape, coordinate, and participate in allied activities in these areas becomes more crucial in preventing escalation, primarily through demonstrating a joint allied capacity for denial, endurance, and offensive operations.

Moreover, Norwegian security derives considerable advantages from enhancing both Norwegian and European deterrence capacities. There exist myriad conflict scenarios that do not necessarily require the involvement of the entire alliance or specifically the USA, as such engagements could quickly escalate beyond controllable bounds. This strategic diversification is increasingly

pertinent given that the global dominance of the USA is diminishing, compelling it to prioritize other geopolitical concerns, notably the rising influence of China. Within this context, collaboration with Finland and Sweden is particularly vital. Their integration into NATO substantially fortifies European security and cohesively strengthens the northern dimension of the European security architecture.

A united Nordic front within NATO presents a formidable barrier against potential Russian aggression. Collectively, the Nordic countries enhance regional stability and diminish the necessity for extensive early stage allied support. This unity affords both Europe and NATO increased flexibility in their strategic decision-making and force deployment, allowing for a more adaptive and responsive military posture within the broader European theatre.

NATO membership is at the core of Norway's capability for credible deterrence. Credible deterrence is to be achieved through a combination of robust national capabilities and an active alliance policy that is predictable, long-term, and conflict-preventive. This task necessitates a defense force that is actively and visibly present in our areas of interest, operates in conjunction with our allies, and possesses relevant and credible operational capability.

Visible capability to reinforce the defense of Norway also contributes to effective deterrence. Allied presence on a daily basis, and Norway's ability to operate with and receive allied reinforcement forces, are crucial for both deterrence and reassurance. The defense force should contribute to shaping allied operations in Norwegian proximate areas to align as much as possible with Norwegian security interests. The defense force should promote strategic stability by acting consistently, predictably, and transparently. The most significant component in this latter aspect is the Norwegian Coast Guard—which serves as Norway's administrative and regulatory body in the inherently politically uncontrolled sea. A large, efficient, and fair Coast Guard effectively prevents any escalation of initially peripheral security interests.

Norway's strategic objectives regarding deterrence are bifurcated: firstly, to dissuade Russia from perceiving any strategic advantage in initiating force or threatening force against Norway in scenarios of limited conflict involving both Russian and Norwegian interests, thereby averting bilateral conflicts; and secondly, to maintain a robust national capability to counteract force with commensurate counterforce, equipped with adequate military resources and the diplomatic agility to either escalate or de-escalate conflicts as is most beneficial for Norway. Thus, it is imperative for Norway to be capable of deploying sufficient countermeasures to either deter any potential aggression or, if necessary, to elevate the situation to a matter of concern for its strong allies, ideally within the framework of a unified alliance.

This approach to deterrence is anchored in three principal components: first, Norway’s autonomous defense capabilities; second, the strategic alliances with proximate Nordic countries and other Northern European nations, particularly those with aligned interests or those reliant on regional stability such as the security of Norwegian energy exports; and third, the overarching support of the broader alliance, with a particular emphasis on the United States. This multifaceted strategy ensures that Norway can secure its sovereignty while contributing effectively to regional stability.

Norway is cognizant of how its geostrategic position constrains its operational flexibility in the event of direct confrontations between major powers, especially between the USA and Russia. This limitation stems from Russia's stature as a great power and its foreign policy influence over NATO and the USA, which are significantly underpinned by its nuclear deterrent capabilities. These capabilities are predominantly stationed in proximity to Norway and operational within maritime zones that intersect with Norwegian waters.

Russia's strategic military assets enable it to apply pressure on Western capabilities, particularly targeting the second-strike capacity of NATO primarily through its submarine fleet. Furthermore, Russia maintains both second- and third-strike capabilities, enhancing its potential for retaliation in escalating conflict scenarios. This strategic arsenal also grants Russia the capacity to deploy conventional weaponry deep into NATO's strategic rear, targeting critical infrastructure and capacities essential for NATO’s rapid and heavy response against key Russian targets during crises. Thus, Norway's geographical location near these significant Russian military assets places it at a strategic nexus, influencing its defense posture and diplomatic engagements significantly.

Given the fundamental, and potentially existential, importance of these interests to both Russia and the USA, Norway alone cannot effectively deter Russian aggression if Russia deems it crucial to protect its strategic capabilities. Therefore, if Norway aims to avert a conflict between NATO and Russia, it is imperative that the alliance collectively possesses a credible capacity to react and engage in actions designed to deny, withstand, and retaliate, thereby discouraging Russia from undertaking political and military actions that could escalate into open warfare or conflict-like scenarios with NATO.

In this context, Norway is committed to enhancing the American and allied ability to monitor and effectively neutralize Russian strategic capabilities, particularly focusing on Russia's strategic submarines, its long-range air power, and its tactical submarines capable of operations in the Atlantic. Concurrently, direct engagements between major powers, such as potential confrontations between American and Russian naval forces in the Barents Sea, carry a heightened risk of escalation compared to interactions involving Norwegian and Russian vessels. This increased risk arises because conflicts involving major powers tend to engage their broader strategic interests and national prestige.

Therefore, Norway is determined to uphold a robust national presence in strategically important areas, aiming to manage direct interactions with Russian military forces using national resources. This approach is designed to mitigate risks while maintaining strategic stability in the region.

In summary, Norway's strategy for deterrence is structured across three distinct levels: Firstly, it aims to avert any bilateral conflict with Russia through a combination of national defense capabilities and its membership within the alliance, bolstered by a credible ability to counteract force sufficiently to potentially trigger Article Five. Secondly, Norway seeks to reinforce the integrity of the alliance by sustaining a robust national defense that does not necessitate immediate, extensive support from other alliance members. This approach frees up the alliance's offensive and defensive capabilities for deployment on other fronts, allowing for a more strategic allocation of military resources. Part of this strategy includes a future-oriented commitment to

enhancing the support and reinforcement capabilities for Norway's nearest allies—Sweden and Finland. Thirdly, Norway is dedicated to contributing to the collective credibility of the alliance in terms of denial, resilience, and punitive capabilities.

Norway's latest defense strategy involves a significant enhancement of its national defense capabilities, which includes a substantial increase in the defense budget from approximately 1.6-1.8 percent of GDP in the 2021-2023 period to a projected 3-3.5 percent by 2036. This escalation in spending reflects more than just a commitment to national security; it represents a strategic move to augment the collective deterrence capabilities of the alliance. This is critical not only for the defense of Norway but also for pre-empting conflict through a stronger joint military posture, particularly in the geopolitically sensitive Arctic region and the Barents Sea. This area, being Russia's strategic core zone, necessitates a vigilant and robust alliance presence to manage and mitigate the risks associated with potential confrontations.

The enhanced budget and strategic focus aim to deter incidents that carry a significant risk of escalation—risks that may transcend the typical bilateral frictions between Norway and Russia. By bolstering its defensive and deterrent capabilities, Norway also seeks to sustain and perhaps increase its sovereignty in defense matters, ensuring that decisions about engagement or conflict are not solely influenced by external powers such as Washington, Brussels, London, and Paris. The goal is to preserve a degree of national autonomy in strategy and decision-making processes, enabling Norway to navigate complex international waters more independently while still aligning closely with NATO's broader strategic objectives. This dual approach not only strengthens Norway's position within the alliance but also contributes to a more balanced, responsive, and unified NATO presence in one of the world's most strategically contested regions.

Sweden

Naval Deterrence in the Arctic – A Swedish Perspective
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The thoughts presented in this document are the views of the author. They do neither represent the official view of the Swedish Government, nor those of the Swedish Armed Forces or the Swedish Defence University.

Sweden in a Transforming High North: An Arctic state but not an Arctic coastal state

The Arctic is a vast and contested region, subject to geo-economic and geopolitical transformation that result from climate change. Sweden is an Arctic state – but not an Arctic coastal state – with significant interests in the High North. The High North forms part of the Barents Region in the European Arctic, host to political and administrative frameworks such as the Barents cooperation that since 1993 has offered Finland, Norway and Sweden a forum for dialogue with Russia – the dominant player in the region. As Arctic security dynamics are no longer isolated from global security dynamics,[57] military tensions mount while the former

[57] Kennedy-Pipe, C. & Depledge, D. (2023). "Afterword: Rising temperatures", *The Geographic Journal*, 189, Available from: https://doi.org/10.1111/geoj.12489: 438.

strength of existing regional political and administrative cooperation regimes whittle away. Russia, for its part, is deepening its partnership with China and a significantly expanded set of BRICS-members in the Arctic.[58] In response to Russia's war on Ukraine and explicit interest in dominating its Western neighbours, Finland and Sweden have joined NATO and effectively transformed the High North into its "Northern Flank". While Finland, Norway and Sweden jointly contribute to a comprehensive NATO deterrence strategy, "people-to-people cooperation" remains a key complementary mechanism of reassurance, since maintaining regional stability is a key objective.[59]

Prior to assuming its first Arctic Council Chairmanship in 2011, Sweden adopted its first national strategy on the Arctic region. At this time, the Swedish Government placed emphasis on promoting economically, socially and environmentally sustainable development of the Arctic – and maintaining the Arctic as a zone of exceptionalism, free from hard security considerations. To this end, it spearheaded the establishment of a permanent Arctic Council Secretariat in Tromsø, Norway, in 2013. Since 2020, Sweden assigns equal strategic importance to the (European) Arctic and the Baltic Sea Region/BSR) for reasons of national security. The High North is the region that is likely most affected by the Swedish Government's decision to place "Swedish interests and democratic values at [the] core" of its foreign policy.[60]

Sweden has pursued a strategy for the Arctic region that includes polar research and environmental monitoring for years, but the increasing importance of the space domain to promote geo-economic and geopolitical interests has induced notable policy shifts. In December 2023, the Swedish Government assigned the Swedish Polar Research Secretariat the task to identify strategic priorities for the conduct of Swedish research also in Antarctica. In May 2024, Swedish Minister for Foreign Affairs Tobias Billström declared that Sweden, possessing an advanced space industry, was "actively pursuing space diplomacy" and called for "partnerships" and "international collaboration" on space defense.[61] He offered EU and NATO member states the opportunity to launch military satellites from the *Esrange Space Center*, located North of the Arctic Circle, stressing Sweden's "unique abilities for rapid operational delivery".

The role of strategically located ground stations to naval – and multi-domain – operations cannot be over-emphasised, since they allow for seamless communication with earth-orbiting satellites. As these satellites use tracking systems and communication protocols that optimise signal reception and transmission, they are integral to national systems that provide continuous global surveillance coverage. The strength of these geopolitical dynamics on Swedish policy on space activities is illustrated by the fact that the Swedish Space Corporation cancelled in 2020 its contract with China, which was signed in 2008 and allowed it to operate four antennas at a

[58] Jütten, M. & Falkenberg, D. (2024). "Expansion of BRICS: A quest for greater global influence?", European Parliament Research Service, 19 March. Available at: https://epthinktank.eu/2024/03/19/expansion-of-brics-a-quest-for-greater-global-influence/ (accessed 3 June 2024).
[59] Knutsen, B.O. & Pettersen, E. (2024). "War in Europe, but Still Low Tension in the High North? An Analysis of Norwegian Mitigation Strategies". *Arctic Review on Law and Politics* 15: 25–46: 37-39.
[60] Billström, T. (2023). "Statement of Foreign Policy 2023", Government Offices of Sweden, 15 February. Available at: https://www.government.se/speeches/2023/02/statement-of-foreign-policy-2023/ (accessed 3 June 2024).
[61] Swedish Space Corporation (2024)."Esrange and SSC noted as key in Swedish space diplomacy", News, 17 May. Available at: https://sscspace.com/esrange-ssc-noted-as-key-in-swedish-space-diplomacy/ (accessed 3 June 2024).

Remote Sensing Satellite Ground Station on Esrange Space Center.[62] The maritime strategic implications of allowing China to operate such a strategically located satellite ground station are illustrated by China's claim to having successfully deployed dual-use vector hydrophone boys in the Arctic, aimed to support a massive sub-sea listening programme.[63]

Sweden's contribution to allied joint and naval deterrence in the Arctic

It is widely understood that an actor must possess "the capability, will, and ability to communicate" with an adversary to effectively counter its activities "through the threat of denial or punishment."[64] To Sweden, NATO's collective defense guarantees is the kingpin of NATO's deterrence capability and is instrumental to preserving peace in the Euro-Atlantic area.[65] Sweden honours its collective defense commitment in NATO, which are integral to Swedish security and defense policy. The security of Sweden is integral to the security of the Nordic-Baltic region, in which the foremost aim is to preserve freedom and democracy. Russia holds the world's largest and most diversified nuclear arsenal. A substantial portion of that capability is based in the High North and in the Baltic Sea Region,[66] and to a large extent carried by its nuclear attack submarines. Sweden is strengthening its military and civilian capabilities because of the ever-increasing level of military threats, and actively participates in NATO's joint operational planning.[67] The ability of the alliance to operate in North Europe is critically dependent on active contributions from its allies, including through host nation support. Sweden contributes to strengthening NATO's collective defense and collective deterrence by enabling early allied action below the threshold of war. Here, Sweden suggests that NATO addresses the Nordic region as a whole in its defense planning, facilitating significant military operational depth and the joint and coordinated use of available resources.

Sweden recognises that to facilitate Reception, Staging and Onward Movement (RSOM) of allied military support on the Scandinavian Peninsula, in Finland and in the Baltic Sea Region,

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[62] Barrett, J. & Ahlander, J. (2020). "Exclusive: Swedish space company halts new business helping China operate satellites". *Reuters*, 21 September. Available at: https://www.reuters.com/article/idUSKCN26C1ZS/ (accessed 3 June 2024).

[63] Chen, S. (2023). "China plans massive listening programme at the North Pole after declaring success in Arctic test of underwater device". *South China Morning Post*, 9 July. Available at: https://www.scmp.com/news/china/science/article/3226755/china-plans-massive-listening-programme-north-pole-after-declaring-success-arctic-test-underwater (accessed 3 June 2024).

[64] Pickler, Jeffrey W. (2023). "21st Century Warfare Requires 21st Century Deterrence". *Per Concordiam*, 12 July. Available at: https://perconcordiam.com/modern-deterrence/ (accessed 3 June 2024).

[65] Government Offices of Sweden (2024a). "Stärkt försvarsförmåga: Sverige som allierad [Strengthened defence capability: Sweden as a NATO ally]". Available at: https://www.regeringen.se/contentassets/79646ada8654492993fe7108d95ac6d5/starkt-forsvarsformaga-sverige-som-allierad-sverige-som-allierad-ds-20246.pdf (accessed 3 June 2024): 15

[66] Government Offices of Sweden (2023). "The Swedish Defence Commission's report on security policy, 2023, Summary in English". 19 June. Available at: https://www.regeringen.se/contentassets/de808e940116476d8252160c58b78bb7/sammandrag-pa-engelska-av-allvarstid-ds-202319.pdf (accessed 5 June 2024): 66

[67] Government Offices of Sweden (2024a). "Stärkt försvarsförmåga: Sverige som allierad [Strengthened defence capability: Sweden as a NATO ally]". Available at: https://www.regeringen.se/contentassets/79646ada8654492993fe7108d95ac6d5/starkt-forsvarsformaga-sverige-som-allierad-sverige-som-allierad-ds-20246.pdf (accessed 3 June 2024): 101-103

NATO must take into consideration all relevant geographical and military strategic conditions.[68] The defense of allied territory in this wider region is dependent not only on allied capability to maintain uninterrupted Sea Lines of Communication in the Atlantic and in the Baltic Sea. On the contrary, it depends also on the capability and willingness of NATO member states to contribute naval forces to operations in the Norwegian Sea; basing Air Forces on the Scandinavian Peninsula; and executing RSOM of ground forces on Swedish territory and projecting them across land borders. As Sweden recognises the High North and the Baltic Sea Region as a joint Area of Operation, in which capability to simultaneously pursue operations in multiple domains is decisive, it is implementing a set of measures aimed at building the capabilities it needs to fulfil its obligations to NATO. Some measures are legal. The Swedish Government submitted in April 2024 a Bill to the Parliament to sign and implement the NATO *Status of Forces Agreement* and the *Protocol on the Status of International Military Headquarters* established under the North Atlantic Treaty, i.e. the *Paris Protocol.*[69] This Government Bill also addressed the need for Sweden to sign the *Agreement for the Mutual Safeguarding of Secrecy of Inventions Relating to Defense* the *Agreement Between the Parties to the North Atlantic Treaty for the Security of Information*. By thwarting remaining ambiguities and uncertainties regarding Sweden's full integration into NATO, it will strengthen allied deterrence on the Scandinavian Peninsula and in the Nordic region.

Other Swedish measures relate to investing in increased military capability. In addition to increasing the strength of the Swedish Army to include a "Norrland infantry regiment", three mechanized brigades and one infantry brigade by 2030, Sweden is procuring four new surface combatants for its navy.[70] These corvettes of *Luleå*-class will be built by UK-based Babcock International and Saab, with deliveries starting in the early 2030s. Their length overall will exceed 100 metres (rendering them the largest surface combatants operated by the Royal Swedish Navy since 1982). They will include an organic ASW helicopter capability and be capable of conducting protection of shipping operations. The *Luleå*-class vessels will strengthen Sweden's combined air defense capabilities and contribute to NATO's Integrated Air and Missile Defence. To further strengthen the Swedish Armed Forces capability to conduct Multi-Domain Operations, Sweden invests in a new capability for Airborne Early Warning and Control (AEW&C) by expediting the commissioning of the previously ordered Saab *GlobalEye* AEW&C systems – equipped with the *Erieye* extended range radar – and confirms an new order of two

[68] Government Offices of Sweden (2024a). "Stärkt försvarsförmåga: Sverige som allierad [Strengthened defence capability: Sweden as a NATO ally]". Available at: https://www.regeringen.se/contentassets/79646ada8654492993fe7108d95ac6d5/starkt-forsvarsformaga-sverige-som-allierad-sverige-som-allierad-ds-20246.pdf (accessed 3 June 2024): 101-103.

[69] The Swedish Parliament (2024). "Sveriges tillträde till vissa Natoavtal [Sweden's accession to certain NATO agreements]". Proposition 2023/24:133. Available at: https://www.riksdagen.se/sv/dokument-och-lagar/dokument/proposition/sveriges-tilltrade-till-vissa-natoavtal_hb03133/html/#page_23 (accessed 3 June 2024).

[70] Government Offices of Sweden (2024a). "Stärkt försvarsförmåga: Sverige som allierad [Strengthened defence capability: Sweden as a NATO ally]". Available at: https://www.regeringen.se/contentassets/79646ada8654492993fe7108d95ac6d5/starkt-forsvarsformaga-sverige-som-allierad-sverige-som-allierad-ds-20246.pdf (accessed 3 June 2024): 138-139

airborne radars of this type.[71] Sweden is also strengthening its capability to conduct mine countermeasure (MCM] operations by acquiring unmanned, autonomous and remotely controlled underwater vehicles. Finally, Sweden is increasing its coastal missile defense capability and capacity – and strengthening its capability to conduct stealth mining operations by the procurement of new torpedo mines for its submarines.

The profound change in Sweden's defense and security policy demonstrates that this small state on the Scandinavian Peninsula has understood the existential character of the threat posed by a revisionist and imperialist Russia. Its leaders are aware that Russia, aided by its partners, is determined to re-write the security architecture of Northern Europe and aims to establish spheres of interest in which it can dominate its neighbours. In light of Russia's invasion of Ukraine and the realisation that "conflicts over territory by military means are once again a reality", Sweden is rapidly integrating itself in the defense and security architecture of its fellow Nordic neighbours.[72] Sweden invests in capabilities to deter Russian acts of aggression, mainly by rebuilding its total defense capabilities to deny it from achieving its ends. To this end, Sweden's defense spending will exceed the NATO target of 2% of its BNP in 2024. It is a net contributor to NATO's deterrence by its denial capabilities in the Baltic Sea Region, and Sweden's naval capabilities remain optimised for operations in the narrow, brackish and shallow Baltic Sea.

While Sweden's air force and submarine capabilities are deterrent capabilities in their own right, a credible defense of Swedish territory must begin at the Russian borders. Since it lacks the capability to deter Russia from moving borders by force through posing threats of punishment, "Sweden is best defended within NATO."[73] To this end, Sweden is rebuilding the resilience capacity of its ones famous concept of total defense. It has a clear purpose, although its leaders abandoned it after the end of the Cold War. In 2024, it is clear that the widely understood fact that an actor must possess "the capability, will, and ability to communicate" with an adversary to effectively counter its activities "through the threat of denial or punishment" is more relevant than ever.[74] N.B. total defense includes civilian maritime capabilities, and the Baltic Sea Region and the High North represent a coherent operational area in which military activities across all operating domains and environments must be synchronised with non-military activities. Here, NATO must create desired outcomes at the right time and the right place, and naval capabilities

[71] Government Offices of Sweden (2024b). "Militärt stödpaket 16 till Ukraina – ny förmåga som stärker Ukrainas luftförsvar och stöd som möter Ukrainas prioriterade behov [Military Support Package 16 to Ukraine – New Capability Strengthening Ukraine's Air Defense and Support Meeting Ukraine's Priority Needs]", Press Release, 22 May. Available at: https://www.regeringen.se/pressmeddelanden/2024/05/militart-stodpaket-16-till-ukraina--ny-formaga-som-starker-ukrainas-luftforsvar-och-stod-som-moter-ukrainas-prioriterade-behov/ (accessed 4 June 2024).

[72] Government Offices of Sweden (2023). "The Swedish Defence Commission's report on security policy, 2023, Summary in English". 19 June. Available at: https://www.regeringen.se/contentassets/de808e940116476d8252160c58b78bb7/sammandrag-pa-engelska-av-allvarstid-ds-202319.pdf (accessed 5 June 2024).

[73] Government Offices of Sweden (2023). "The Swedish Defence Commission's report on security policy, 2023, Summary in English". 19 June. Available at: https://www.regeringen.se/contentassets/de808e940116476d8252160c58b78bb7/sammandrag-pa-engelska-av-allvarstid-ds-202319.pdf (accessed 5 June 2024).

[74] Pickler, Jeffrey W. (2023). "21st Century Warfare Requires 21st Century Deterrence". *Per Concordiam*, 12 July. Available at: https://perconcordiam.com/modern-deterrence/ (accessed 3 June 2024).

are integral to multi-domain deterrence. Military capabilities posing threats in, to, or from the European Arctic can be deterred, targeted and neutralised by allied naval capabilities in the Baltic Sea Region.

United Kingdom

The United Kingdom perspective and Deterrence in the Arctic
by Lieutenant Colonel Thomas Scott UK Royal Marines

Although not an Arctic nation *per se,* the UK has maintained longstanding interests in the region, particularly the European High North, and recognises its importance to its "environment, prosperity, energy supply, and security"; it is key to UK strategic interests.[75] As such, the UK strives for a peaceful and stable Arctic in which it is an active and reliable partner. From A UK perspective there is clear interconnectedness between the Arctic and other regions; the Arctic cannot be viewed as separable or separate from wider geopolitics and cannot be isolated from UK interests in adjacent regions.[76] It is contiguous with the North Atlantic, and more broadly, by linking the North Atlantic and Pacific Oceans, has a bearing on all seafaring nations across the globe. It is the responsibility of those nations, including the UK, to ensure it is a stable and peaceful region.

NATO had key role to play in ensuring this stability; it must be able to defend that territory if the need arises. The UK advocates NATO taking a more proactive approach, acknowledging the leadership and expertise of the 'Arctic Allies'. This approach must be calibrated and proportionate, and noting the region's interconnectedness, must acknowledge the region's importance within a 360-degree approach to collective deterrence and defense.[77]

The Royal Navy has the capability to project force in the High North. In the past four years it has conducted 13 Deliberate Operations in the High North, in support of the international community's commitment to Freedom of Navigation, upholding the Rules Based International System, and to disrupt Russian attempts to destabilise the region. [78] It has sought to integrate with our partner navies and reassure allies, as well as closely monitor and deepen our understanding of Russian activity. Over the last year in the High North the Royal Navy has operated 14 ships, from aircraft carriers to survey vessels, as well as submarines, working alongside the US, Norwegian, Danish, and Icelandic units. This includes the PRINCE OF

[75] UK Ministry of Defence, The_UKs_Defence_Contribution_in_the_High_North.pdf (publishing.service.gov.uk), p.1.
[76] Including Northern Europe and the Baltic Sea. This Euro-Atlantic security dynamic is particularly acute given the ongoing Ukraine War.
[77] Within the Alliance, UK Defence, particularly the Royal Navy, plays particular role in protecting underwater critical national infrastructure and ensuring freedom to operate in the North Atlantic, especially in the Greenland-Iceland-UK (GIUK) Gap (including its crucial importance in helping to enable reinforcement across the North Atlantic). The Royal Air Force (RAF) also contributes in the maritime domain through its MPAs (Boeing P-8A Poseidon) operating from Northern Scotland, which have recently exercised alongside Allies in Iceland.
[78] In support of the UK Government's aim to preserve the stability and security of the Arctic region, the UK MOD has the following objectives: to protect our Critical National Infrastructure and our other national interests, and those of our Allies; to ensure our freedom to navigate and operate across the wider region; to reinforce the rules-based international system, particularly UNCLOS; and to contest malign and destabilising behaviours. See: The_UKs_Defence_Contribution_in_the_High_North.pdf (publishing.service.gov.uk)

WALES Carrier Strike Group deployment to the High North in 2022 (Op ACHILLEAN), the QUEEN ELIZABETH Carrier Strike Group deployment (Op FIREDRAKE) in 2023, and elements of NATO Exercise STEADFAST DEFENDER operating on the fringes of the High North earlier this year. The UK, along with several other nations, also participated in Ex NORDIC RESPONSE 24. This exercise saw the UK's Northern Littoral Response Group (one of two LRGs currently operating around the globe) take another step forward in demonstrating the Commando Force's 'Arctic Commando' capability through its integration into NATO force structures, whilst helping develop integrated Formation-level NATO Advance Force Operations.

The Royal Navy will continue to maintain a periodic presence in the High North, alongside Arctic Allies and partners, to demonstrate its commitment to freedom of access and navigation in the region. Key to the ability to deliver persistent effect in the region is the commitment outlined in the UK's Defence Command Paper to establish a standing response force built around the Littoral Response Group (North) which comprises comprise dedicated Commando Forces, ships, and helicopters optimised for operations in the High North. This Group is able to operate alongside NATO and JEF Arctic partners in the High North, with the ability to partner, operate, and fight wherever needed. The Defence Command Paper also announced major investments in a new generation of Anti- Submarine Warfare frigates and support shipping, enabling us to project UK force into the High North, and ensuring our freedom to operate in the North Atlantic. Additionally, the UK will maintain an ability to operate under the Arctic ice. The Royal Navy is also investing heavily in military data gathering capabilities for use in all environments, to better understand the High North underwater environment, protect our underwater critical national infrastructure and improve our ability to detect threats. These include the purpose-built Ice Patrol Ship HMS Protector, and the new Multi-Role Ocean Surveillance Ship, now at sea in the form of RFA PROTEUS.

United States

U.S. Perspective and Deterrence

By Dr. Lillian Hussong (U.S. Strategic Command) and Dr. Abbie Tingstad (U.S. Coast Guard Academy)[79]

Strategic Considerations

The United States has numerous strategic interests in the Arctic region. Alaska is the 49th state and is the traditional home of 228 federally recognized Native Alaskan Tribes. The United States' Arctic territory houses tremendous conventional energy reserves and renewable energy potential, as well as valuable mining opportunities. The largest portion of the United States' exclusive economic zone (EEZ) - one of the largest in the world - surrounds Alaska and contains important fisheries and strategic waterways. Due to the strategic location, the United States has situated important deterrence, power projection, and domain awareness capabilities in the north.

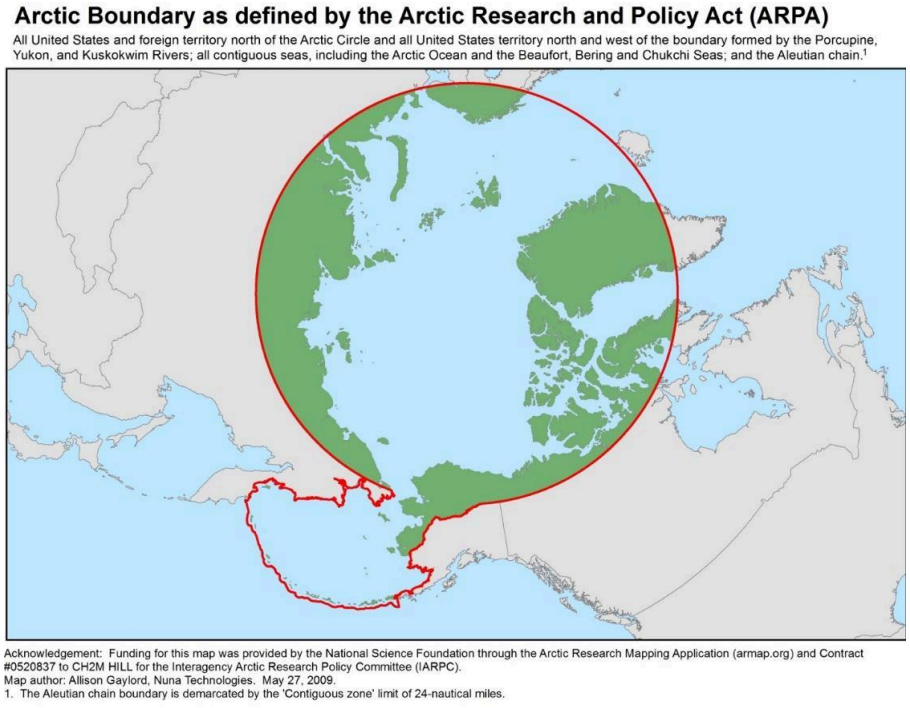
[79] The views expressed in this document are the authors' own and do not represent U.S. Strategic Command, the Center for Arctic Study and Policy at the U.S. Coast Guard Academy, the Department of Defense, the U.S. Armed Forces, or the Government of the United States.

At the same time, the Arctic Council, Arctic Coast Guard Forum, and other venues have afforded valuable opportunities to engage in constructive diplomacy and planning.

Throughout the Cold War, the United States' preeminent national security concerns were to deter the Soviet Union from using nuclear weapons and to protect the homeland from Soviet attack. The Arctic region, while not necessarily regarded as a theater of conflict, served as an arena in which the Soviet Union could deploy cruise missiles from heavy bombers, launch cruise missiles from submarines, or launch ballistic missiles from land. These threats continue to exist today, and the rhetoric of Great Power competition has returned to U.S. strategic thinking and decision-making. A key distinction from the Cold War, however, is how the Arctic has been securitized from an avenue of approach into a region with its own strategic considerations.

While the Arctic region is commonly associated as the area north of the Arctic Circle (approximately 66.5°), the United States has codified a more specific definition of the Arctic in the 1984 Arctic Research and Policy Act. The U.S. defines the Arctic as "All United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi Seas, and the Aleutian chain."[80] This definition broadens the aperture for strategic consideration in the Arctic region, especially in the maritime domain, by increasing the area in which U.S. forces should operate.

Figure 1: U.S. Arctic Definition and Boundary[81]



[80] U.S. National Science Foundation, "Arctic Research and Policy Act of 1984 (amended 1990)," https://www.nsf.gov/geo/opp/arctic/iarpc/arc_res_pol_act.jsp.
[81] U.S. Arctic Research Commission, "Maps," https://www.arctic.gov/maps/.

The U.S.' Arctic policy, issued in 2009, articulates key strategic policy objectives. *National Security Presidential Directive 66 / Homeland Security Presidential Directive 25* (NSPD-66/HSPD-25) lists five policies, with national security and homeland security needs as the principal policy objective.[82] NSPD-66/HSPD-25 states that the fundamental national security interests in the Arctic include "missile defense and early warning; deployment of sea and air systems for strategic sealift; strategic deterrence; maritime presence; maritime security operations; and ensuring freedom of navigation and overflight."[83] These interests are inherently multi-domain and require close collaboration with international partners to maintain offensive and defensive capabilities in the Arctic.

While many of the core strategic considerations remain the same, the conditions under which those interests are challenged has changed with the advancement of new technology. As noted earlier, the Soviet Union's ability to deploy air and naval assets to launch ballistic and cruise missiles in and from the polar region was a key national security concern. To maintain indications and warning for nuclear command, control, and communications, the U.S. and Canada built a series of early warning radar assets covering nearly 3,000 miles across North America, and the U.S. additionally built [now] Upgraded Early Warning Radars (UEWR) in Greenland and Alaska. As missile technology develops and the Russians continue to invest in their submarine fleet, the aging North Warning System is no longer solely sufficient to provide indications and warning, complicating U.S. strategic considerations in the Arctic.

Maritime presence in the Arctic represents another way in which conditions are changing in the region. For example, China's interest in operating in Arctic waters has increased significantly over the past few decades, as it develops its icebreaker program, or fishes in northern waters. These types of presence have elicited concern, as they may be a mechanism by which China engages in dual-use activities that provide benefit for military and intelligence purposes.

Since 2009, several presidential administrations have released national Arctic strategies to articulate its Arctic policy. The most recent *National Strategy for the Arctic Region* (NSAR), released in 2022, lists four pillars upon which the U.S. seeks to advance its interests: security, climate change and environmental protection, sustainable economic development, and international cooperation and governance. It further lists three strategic objectives to meet its security interests: increased knowledge of the multi-domain Arctic operating environment, maintain a presence in the Arctic, and international cooperation with Arctic allies and partners, as well as NATO.[84]

The U.S. *National Security Strategy* issued in 2022 states that the U.S.' greatest strategic challenges are handling increasingly aggressive Russian and Chinese activities in Eurasia and around the world. The 2022 NSAR notes, however, that the U.S. continues to seek a "peaceful, stable, prosperous, and cooperative" Arctic region that has historically been an area of U.S.-Russian [scientific] cooperation in the post-Cold War era.[85] However, Russian activities

[82] Federation of American Scientists, "NSPD-66 / HSPD-25," https://irp.fas.org/offdocs/nspd/nspd-66.htm
[83] https://irp.fas.org/offdocs/nspd/nspd-66.htm.
[84] The White House, "National Strategy for the Arctic Region," October 2022, https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf.
[85] The White House, "National Strategy for the Arctic Region," October 2022, https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf.

along its Arctic coastline (to include naval and non-naval coastal activity) have shown that Russia is increasingly relying upon its northern territory as an area of economic development, and thus accordingly building up its border. These activities include modernizing Cold War-era military installations, building new dual-use installations, investing and deploying new missile defense systems, investing and constructing new submarines, and continuing to signal its military capabilities through Arctic training exercises.[86]

The 2022 NSAR only briefly mentions China's Arctic ambitions, noting that "over the last decade, the PRC has doubled its investments, with a focus on critical mineral extraction; expanded its scientific activities; and used these scientific engagements to conduct dual-use research with intelligence or military applications in the Arctic."[87]

The Department of Defense has aligned under national strategies, with a 2019 DoD Arctic Strategy and all services developing Arctic Strategies. A new DoD Arctic Strategy is expected in summer of 2024.

NATO

With the recent accessions of Finland and Sweden, seven of the eight Arctic countries are now NATO allies. The increase in territory—including territory north of the Arctic Circle—protected under the NATO nuclear umbrella may affect strategic nuclear planning for the region. The accessions shift NATO's center of gravity northward and impact deterrence and defense posture. Specifically, the United States may need to increasingly plan for defense of the European Arctic, in addition to its historical focus on the Alaskan Arctic. At the operational and conventional levels, Finland and Sweden's accession will help Nordic interoperability and add ground, air, and maritime capabilities to defend the High North], as well as the greater European region. This may also provide additional opportunities for information and capability sharing.

Evolving (current/future) role and contribution of their country's naval forces, including key operations, activities, and investments.

The United States is investing in a new heavy icebreaking fleet via the Polar Security Cutter program and has also been working to expand the Port of Nome in Alaska to enable operations by larger vessels. The United States is also examining solutions for important capability issues related to domain awareness, communications, and various forms of logistics, including for energy and medical treatment. Notably, the United States, Canada, and Finland recently announced a trilateral pact to increase cooperative shipbuilding with a goal of creating a stronger Arctic fleet more quickly. The Icebreaker Collaboration Effort, or "ICE Pact" ist a muli-year, multi-billion dollar investment that promises to greatly enhance allied polar icebreaking capability and capacity.[88]

[86] The White House, "National Strategy for the Arctic Region," October 2022, https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf
[87] The White House, "National Strategy for the Arctic Region," October 2022, https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf
[88] https://www.whitehouse.gov/briefing-room/statements-releases/2024/07/11/joint-statement-on-ice-pact/

U.S. forces have participated in dozens of multi-domain cold-weather and Arctic exercises throughout the twentieth and twenty-first centuries. Since the 2010s, the Department of the Navy has issued a series of Arctic strategic documents that reflect the Navy and Marine Corps' growing imperative to project naval power and expeditionary power unilaterally and with allies and partners. In accordance with the *National Defense Strategy*, the Department of the Navy's key Arctic objectives are the ability to deter strategic and conventional threats, establish sea control, project power, ensure maritime security, and conduct logistics and maintain sea lines of communication.[89] Major naval exercises include :

- ICE CAMP (Formerly known as ICEX): a recurring exercise since the 1950s designed for "research, development, test and evaluation, operational readiness, and combined forces interoperability."[90]
- TRIDENT JUNCTURE: a NATO exercise in 2018 which included 250 aircraft and 65 ships from all NATO Allies + Sweden and Finland. The inclusion of the *USS Harry S Truman* Carrier Strike Group "mark[ed] the first visit by a U.S. carrier group to Norwegian waters since 1987" to demonstrate its deterrent power.[91]
- ARCTIC COMBINED EXERCISE (ACE): an international exercise that tested interoperability in the High North. The *USS Gerald Ford*, the U.S. Navy's largest aircraft carrier, trained with the Royal Norwegian Navy and Air Force.[92]

These exercises occur within a broader ecosystem of tactical and operational Arctic engagements, which also include Arctic Challenge, Arctic Shock, Noble Defender, Op Nanook, and various search and rescue exercises (SAREXs).

Appendix B: An Overview of Integrated Deterrence

A FRAMEWORK FOR INTEGRATED NAVAL DETERRENCE

The "integrated" in integrated naval deterrence, highlights the importance of employing all available levers of power and influence in pursuit of a security objective. The United States' unclassified 2022 National Defense Strategy defines integrated deterrence as "working seamlessly across warfighting domains, theaters, the spectrum of conflict, all instruments of U.S. national power, and our network of Alliances and partnerships."[93] In more familiar terms, integrated means whole-of-government coordination, producing a unity of effort aimed at achieving a shared deterrent objective. And while this section discusses integrated deterrence in its Arctic naval context, we should begin with the recognition that integrated deterrence's use of

[89] Department of the Navy, "A Strategic Blueprint for the Arctic," 2021.
[90] Chief of Naval Operations https://media.defense.gov/2020/May/18/2002302034/-1/-1/1/NAVY_STRATEGIC_OUTLOOK_ARCTIC_JAN2019.PDF.
[91] North Atlantic Treaty Organization, "NATO Secretary General visits USS Harry S. Truman, en route to Exercise Trident Juncture," October 12, 2018, https://www.nato.int/cps/en/natohq/news_159343.htm.
[92] Defense Visual Information Distribution Service, "U.S. Navy's largest aircraft carrier teams with Norway, U.K. militaries for Arctic exercises," June 7, 2023, https://www.dvidshub.net/news/446418/us-navys-largest-aircraft-carrier-teams-with-norway-uk-militaries-arctic-exercises.
[93] US Department of Defense (2022) 2022 National Defense Strategy of the United States of America, https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF

all levers of national power implies the importance of wielding soft power, often as a prelude or mitigator to hard power solutions.

The spectrum of state power is often discussed as a series of related spheres of action across the diplomatic, informational, military, and economic (DIME) realms. In the Arctic, navies likely have the greatest capability of any armed forces service to operate not only in a military capacity, but also as significant instruments of information and diplomacy, and in some smaller measure an economic one. In this way, as hard power assets with soft power implications, Arctic navies offer some of the best return on investment as deterrent forces, with particularly valuable peacetime and early crisis roles. This is because of their inherent maneuverability, the ability to calibrate visible and media presence according to need and position, the public diplomacy and commercial value of port visits, and the quick and scalable means of integrating other nations into naval formations.

For Arctic navies, integration with allies and partners implies very specific activities. Integrated planning is essential, often in the NATO construct, to ensure unity of action and efficient use of resources in the event of a large military conflict. Integrated systems are another critical feature. At the operational level, common (or, at least, mutually intelligible) communications pathways are essential for enabling commanders at sea and ashore to speak on secured channels. At the tactical level, shared link architectures are critical for ensuring that allied and partner naval forces (surface, subsurface, air, space, and shore-based) can see what others can see, shoot at what others can shoot at, and even cue third parties to shoot on tracks they do not themselves hold. That tactical link is also a key enabler of maintaining a shared common operating picture, through which navies provide maritime domain awareness to joint and combined forces.

Deterrence by Denial

> "To have an adequate denial capability, preferably one situated near or in a threatened area, is the surest sign we can make to the enemy that the area is valued highly by us."[94]

Deterrence by denial strategies seek to deter named adversaries from taking specific actions by making it infeasible or unlikely for them to succeed, thus denying a potential aggressor confidence in attaining its objectives. It is, in essence, the overt application of an intent, will or effort to defend a commitment. In the Arctic, successful deterrence by denial would need to convince Moscow and/or Beijing that the required use of force to attain their respective objectives is simply too great; that we value the region highly enough to fight for. Since "deterrence and defense are analytically distinct but thoroughly interrelated in practice", credible denial requires the capability to defend.[95] As such, the most common way of measuring the health of a deterrence by denial strategy is the immediate balance of forces and capability in the contested territory. However, this does not necessarily require overwhelming or even superior regional forces. The key is having *enough* local force, with the right capabilities, to deny an

[94] Snyder, Glenn H., Deterrence by Denial and Punishment, Princeton, *Center of International Studies*, January 1959, pp. 4–6, 38.
[95] Morgan, Patrick M., Deterrence: A Conceptual Analysis, 2nd ed., California: Sage Publications, 1983, p. 32.

aggressor the advantage of rapid aggression, raise the immediate cost of an attack, make escalation inevitable, and therefore, deny the opportunity for a "low-risk" fait accompli.[96]

Most case studies support the thesis that deterrence by denial is more effective than deterrence by punishment.[97] Paul Huth's analysis of 58 historic deterrence cases demonstrates that deterrence by denial was more dependable than deterrence by punishment and had a higher chance of success.[98] More recently, Alex Wilner's analysis showed that in 'Western' grand strategy, deterrence by denial has had a much greater influence than is often characterized.[99] There are two broad reasons for this. First, the credibility of relying solely on nuclear (punishment) strategy is questionable – not least in respect to limiting proportionate response options in the context of growing sub-threshold threats in, and from, the Arctic. A punishment-based strategy of deterrence also fails to accommodate the asymmetry of stakes between parties. Russia may be willing to bear greater costs in the Arctic and thus perceive itself less vulnerable to threats of punishment if it perceives its stakes are significantly higher than the stakes of NATO.[100] Secondly, and more positively, the signal sent by a credibly resourced deterrence by denial strategy is less ambiguous[101] – it communicates clear interest in the region, and a willingness to respond to aggression to defend it. However, there are some risks with an overt shift to a denial strategy, not least that the failure of deterrence by denial risks immediate armed conflict. This places credibility as well as a presupposition on understanding precisely what is to be denied at the heart of any denial strategy. In an Arctic context, Arctic states, supported by non-Arctic allies and partners, must therefore demonstrate that they can feasibly mount a military effort to rebuff[102] or respond to the full range of potential Russian (and Chinese) military activity in the Arctic. In a European Arctic content, a deterrence by denial strategy involves denying Russia the ability to enhance the security of its submarines, including 1) preventing Russia from extending its Anti-Access/Area Denial (A2/AD) capabilities to encompass NATO territory and adjacent waters, 2) denying Russia to ability to only conduct bilateral conflicts with NATO members, and 3) denying Russia operational access to Russia's rear area, particularly in the Barents Sea. Given such considerations, crafting an effective denial strategy requires a comprehensive assessment of the specific threats posed by Russian military capabilities and strategic objectives in the Arctic such as enhancing surveillance and reconnaissance capabilities, strengthening ASW operations and bolstering air defense systems.

Deterrence by Resilience

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[96] Mazarr, Micheal J,, "Understanding Deterrence", *RAND*, (2018). https://doi.org/10.7249/PE295

[97] Chen Xi, Ge Tengfei, "An Analysis of the United States' Deterrence by Denial Strategy Against China" *Interpret: China*, CSIS, 2022. https://interpret.csis.org/translations/an-analysis-of-the-united-states-deterrence-by-denial-strategy-against-china/

[98] Huth, Paul and Bruce Russett, "Deterrence Failure and Crisis Escalation", *International Studies Quarterly*, Vol. 32, No. 1, March 1988, pp. 29–45.

[99] WIlner, Alex S. and Andreas Wenger, *Deterrence by Denial: Theory and Practice*, Amherst, NY: Cambria Press, 2021, 5.

[100] For a similar argument, see Klein, Robert M., Stefan Lundqvist, Ed Sumangil and Ulrica Pettersson, *Baltics Left of Bang: The Role of NATO with Partners in Denial-Based Deterrence*, Strategic Forum No. 301, Washington D.C.: NDU Press, 2019, p. 4.

[101] Possession of sufficient deterrence capabilities is key to successful deterrence. See Pape, Robert A., (1992), "Coercion and Military Strategy: Why Denial Works and Punishment Doesn't," *Journal of Strategic Studies* 15(4).

[102] Sisson, Melanie W 2022. Taiwan and the Dangerous Illogic of Deterrence by Denial, *Foreign Policy at Brookings*, May 2022.

Deterrence by resilience involves both ensuring the resilience of our military, and that of our Northern communities. A strong and secure Arctic is necessary to healthy, resilient communities, and healthy and resilient communities are necessary to a strong and secure Arctic. It gives a prominent role to non-military and local means, which also have the added benefit of being regarded as less escalatory for the overall security situation in the region. Integrated deterrence by resilience can be strengthened in a maritime context through specific operations, activities, and investments, and supported by critical, resilient, and redundant infrastructure ashore. There are a number of crosscutting key concepts that are relevant throughout to ensure allied resilience in the Arctic. These include a harmonization of approaches amongst allies and partners as well as the diverse range of agencies involved, diversification and decentralization of assets, redundancy, flexibility, response-time reduction, and inclusiveness through a combined civilian-military approach inclusive of local and native communities, as well as strategic communication throughout. Attention needs to be paid to the signals that operations, activities, and investments towards strengthening resilience send to four core audiences: a) adversaries, b) allies and partners, c) a nation's own population and d) local communities in the Arctic region in particular.

To increase naval deterrence by resilience in the Arctic, potential activities to consider require a whole-of-government effort coordinated across military, economic, diplomatic and legal tools.

Deterrence by Cost Imposition

A cost-imposition strategy focuses on creating an adversary reaction that imposes upon them a hardship differential that is advantageous to the nation(s) imposing it. To this end, achieving deterrence by cost imposition requires an assessment of the adversary, as well as the maneuver space. A well-executed strategy will seek to identify weaknesses of the adversary - but also to prioritize those weaknesses that will be the most costly for the adversary to fortify in an attempt to overcome the deficit. Cost-imposition strategies succeed when one can appropriately predict adversary responses and account for the security costs involved. Integrating a cost-imposition strategy was effective in ending the Cold War, though the strategy is best employed as part of an integrated deterrence strategy.

There are many types of costs that one can impose on an adversary in order to deter their behavior. For example, physical costs through kinetic action against strategic targets would impose significant costs but would not be used unless at a more heightened period of competition. However, non-kinetic options such as information warfare and/or cyber-attacks leading to disruption of strategic services (power, water, transport) and communications (inc banking), would result in financial costs and time penalties. Such information attacks may be preferred due to the ability of plausible deniability, but this risks reputational costs to NATO which is directly linked to legitimacy of actions. It would be very difficult to impose reputational costs on the Russian Federation as this would only have a desired effect against an adversary that cares about reputation.

Here we should consider three factors that offer different opportunities to impose costs across the spectrum of integrated naval deterrence

- Time: Time delays, seasons, duration based on distance to travel

- Space: Geographical, maritime domain as the global commons, rules and laws, freedom of movement and sea control/denial

- Force: Personnel, resources, equipment, logistics, industrial complex, economic sanctions

Deterrence through cost imposition seeks to raise the stakes of malign actions such that perceived risk always outweighs expected benefit is always in a strategic calculation. As described above, the naval dimension of a cost imposition strategy for the Arctic entails investing in capabilities that require an adversary to invest in countermeasures to maintain relative strength (e.g. unmanned systems, directed energy, hypersonics), demonstrating solidarity and interoperability amongst Arctic and other partner nations through naval drills, exercises, and exchanges, and committing additional naval forces to the Arctic region.

Biographies

CAPTAIN CRAIG ALLEN JR. is the Chief of Emerging Policy for the Coast Guard's Deputy Commandant for Operations. A career cutterman, his most recent operational assignment was commanding officer of the CGC STEADFAST, homeported in Astoria, OR. Previous afloat assignments include commanding officer of cutters WILLIAM FLORES (Miami, FL) and BARANOF (Manama, Bahrain), executive officer of cutters WAESCHE (Alameda, CA) and TORNADO (Pascagoula, MS), and assistant operations officer of cutter VENTUROUS (St. Petersburg, FL). Ashore, Allen served as a nautical science instructor at the US Coast Guard Academy and action officer in the Office of Counterterrorism and Defense Operations at Coast Guard Headquarters. Prior to his current assignment, he was a Harvard National Security Fellow in the 2022-23 cohort. He holds a Bachelor of Science in Government from the US Coast Guard Academy, and a Master of Military Studies from the US Marine Corps Command and Staff school.

COMMANDER JENS PETER HOLST ANDERSEN is currently the Commanding Officer of a THETIS-Class Arctic OPV. Having served in the Danish Navy, Defence Command and Ministry of Defence Jens Peter has more than 20 years' experience with the Arctic region from both tactical, operational, strategic and political levels. Jens Peter was the head of delegation for the Kingdom of Denmark to the Arctic Council working group Emergency Prevention, Preparedness and Response, EPPR, from 2013 to 2017. From 2017 to 2021 he was the Chair of EPPR. Jens Peter took part in the founding team of the Arctic Coast Guard Forum.

MS. PAULINE BAUDU is a researcher and policy analyst in international relations and defense issues, with a focus on the intersection between climate change, geopolitics and security, particularly in the Arctic and as it relates to NATO's climate-security agenda. She recently joined the Conference of Defence Associations (CDA) Institute as a Managing Fellow-Climate Security Programme, in addition to pursuing a PhD in Political Science at Université du Québec à Montréal. She is a Senior Fellow with Arctic360, an associate with Arctic Security Consultants, and a member of the NATO Research Task Group on the Effects of Climate Change on Security (SAS-182). Past affiliations include The Center for Climate and Security and the Wilson Center Polar Institute and Environmental Change and Security Program. Her work is informed by her prior nine-year experience in human rights and refugee law, as she served as a public official and

legal expert at the French National Asylum Court, and previously with the UN Human Rights Office and diverse civil society organizations.

MR. MATHIEU BOULEGUE is a freelance researcher and consultant in international conflict and security affairs, with a focus on the Former Soviet Union and on polar affairs. He is a Consulting Fellow with the Russia and Eurasia Programme at Chatham House – The Royal Institute of International Affairs as well as Non-resident Senior Fellow with the Transatlantic Defense and Security Program at the Center for European Policy Analysis (CEPA) and Global Fellow with the Polar Institute at the Wilson Center. In his research, he focuses on Russian defense policy and military affairs, Ukraine, Russia-NATO relations and Transatlantic security, Russia-China defense and security relations, as well as military-security issues in the Arctic and the Antarctic.

LCDR PETER GOFF obtained a B.A. in Honours History from Canada's Royal Military College in 2004 and joined the Royal Canadian Navy (RCN) in 2005 as a Naval Warfare Officer. Throughout his Naval sailing career, he has enjoyed several different positions onboard Halifax class frigates as Bridge Watchkeeper, Shipborne Air Controller Officer, and Weapons Officer to all corners of the North Atlantic Ocean as well as deployments in the Mediterranean, Caribbean and Norwegian Seas as well as the Canadian Arctic. Since 2022 he has held the position of Arctic Strategy Officer for the RCN at Naval Headquarters in Ottawa.

CDR RACHAEL GOSNELL is a European Foreign Area Officer and Navy Strategist, with extensive academic and operational expertise in maritime security, strategy, and the Arctic. As a Surface Warfare Officer, she served onboard the USS SHILOH (CG-67), USS HARRY S. TRUMAN (CVN-75), and USS STOCKDALE (DDG-106). CDR Gosnell is a doctoral candidate in International Security and Economic Policy at the University of Maryland, with a focus on U.S. Arctic strategy. She holds a Masters in International Security Studies from Georgetown University, a Masters of Engineering Management from Old Dominion University, and a Bachelors of Science degree in Political Science from the U.S. Naval Academy. She currently serves as military faculty in the Strategic Security Studies Department of the George C. Marshall European Center for Security Studies.

COMMANDER SNORRE GREIL holds a staff officer position as planner in a NATO Joint Force Command, employed by the Icelandic Ministry for Foreign Affairs. Succeeding an officer career in the Danish Navy and Merchant Fleet, he joined the Icelandic Coast Guard in 2006, where his last ashore position was Project Manager in the Operations Division. Greil holds a master's degree in military studies from the Danish Defence College. As Command Duty Officer and Project Manager Greil exercised responsibility within maritime security and safety, maritime law enforcement, maritime surveillance, fisheries control, border control, and marine environmental response. International cooperation assignments include National Official, XO on Icelandic Offshore Patrol Vessel in Joint Operation, UAS Deployment Manager, and action officer in Arctic Security Forces Round Table, Arctic Coast Guard Forum, NACGF, ECGFF, EPPR, NEAFC, NAFO, and the EU-funded projects ARCSAR and AI-ARC.

MS. GABRIELLA GRICIUS is a PhD Candidate at Colorado State University in the Political Science Department and a Research Fellow and Media Coordinator at the North American and Arctic Defence and Security Network (NAADSN). She is also currently a Summer Associate with the RAND Corporation. Her research interests broadly cover international relations, Arctic security, and the role of experts in security decision-making processes. Outside of academia, she also works with the European Leadership Network (ELN) on research on hybrid threats and is a Fellow with the Younger Generation Leaders Network on Euro-Atlantic Security (YGLN). Her writing is published in *Foreign Policy,* the *Journal of Contemporary European Studies*, *International Politics*, *European Security*, *Global Studies Quarterly*, among other outlets. Previously she has worked at New America, Vrije Universiteit Amsterdam as a Junior Lecturer, a Senior Research Associate at the Public International Law and Policy Group's Netherlands Office, the International Criminal Court, and the Hague Center for Strategic Studies. She received her BA from Boston University and MA from Rijksuniversiteit Groningen.

INA HOLST-PEDERSEN KVAM is a Researcher at the Section for Sea Power and Naval Leadership at the Royal Norwegian Naval Academy (RNoNA) with the Norwegian Defence University College (NDUC). She graduated from the University of Bergen (UiB) in 2018 with an MA in Comparative Politics, specializing in Russian maritime defence planning and the implications for Norwegian maritime strategy in a NATO framework. She has previously held the position of Researcher at the Norwegian Institute of Foreign Affairs (NUPI) and worked as a Research Assistant at UiB and the Academy. Her research areas include the Russian armed forces with particular focus on Russian strategic thinking and operational art as well as sea power and structural developments, military strategy and naval doctrine.

DR. LILLIAN HUSSONG is an analyst at U.S. Strategic Command (USSTRATCOM). She previously served as a Postdoctoral Fellow in the Strategy & Policy Department at the U.S. Naval War College. She earned a Ph.D. in Global Affairs from Rutgers University where she wrote her dissertation on U.S. grand strategy in the Arctic and Baltic theaters. She also worked for The Arctic Institute | Center for Circumpolar Security Studies for four years. Dr. Hussong has been invited to speak about Arctic issues at USSTRATCOM, NORAD-U.S. Northern Command, the U.S. Air Force Academy, the U.S. National War College, The Woodrow Wilson International Center for Scholars, the Konrad Adenauer Stiftung, the International Studies Association, the International Arctic Social Sciences Association, and Rutgers University. She has also been interviewed for *Fortune*, *The Guardian*, *Inside Climate News*, and The Arctic Institute's podcast. She is currently working on two peer-reviewed articles on the intersection between nuclear threats and Arctic security.

LIEUTENANT COMMANDER DANIEL M. JONES is currently serving as a Fellow at the Ted Stevens Center for Arctic Security Studies and pursuing a master's degree with the University of Alaska-Anchorage in Arctic Security. Previously, he was the Commanding Officer of CGC Thunder Bay in Rockland, ME. He is a graduate of the Coast Guard Academy with a Bachelors in Marine and Environmental Science and earned a Masters in Organizational Performance and Workplace Learning from Boise State University. LCDR Jones has served onboard 3 icebreakers with over 7 years of icebreaking experience. The rest of his service time has been spent overhauling internal assessments, inspections, and audits with USCG Force

Readiness Command and as a liaison officer onboard USS Comstock during its first Arctic-focused deployment.

CAPTAIN (N) JANNE ILVONEN is chief of readiness FN (ACOS N3). He is surface warfare officer by trade and has a long involvement in the Arctic issues. He is an alumnus from USNWC NCC class 2019.

MAJ STEEN KJÆRGAARD is the head of The Center for Arctic Security Studies at the Royal Danish Defence College based in Copenhagen. Steen holds a Master's degree in Military Studies from The Royal Danish Defence College and a Master's degree in International Security Studies from the University of Leicester, (UK).

DR. WHITNEY LACKENBAUER is the Canada Research Chair (Tier 1) in the Study of the Canadian North and Professor in the School for the Study of Canada at Trent University. He was Honorary Lieutenant-Colonel of 1st Canadian Ranger Patrol Group based in Yellowknife, Northwest Territories from 2014-2020 and was reappointed to this position from 2022-2025. He is also a Fellow with the Bill Graham Centre for Contemporary History at the University of Toronto; the Arctic Institute of North America; the Centre for Military, Security and Strategic Studies at the University of Calgary; and an adjunct professor with the Brian Mulroney Institute for Government at St. Francis Xavier University and the Department of Homeland Security and Emergency Management and the Center for Arctic Security and Resilience, School of Management, University of Alaska Fairbanks. Whitney specializes in Arctic security, sovereignty and governance issues, modern Canadian military and diplomatic history, and Indigenous-state relations.

CDR Stefan Lundqvist Ph.D. serves in the Department of War Studies and Military History at the Swedish Defence University, where he has been employed as a military lecturer since 2010. He is an active duty officer who earned his Ph.D. degree in Political Science at Åbo Akademi University, Finland, in 2017. Until his marked turn towards academia, Stefan Lundqvist served in various sea- and shore-based positions at the tactical and operational levels of command. His functional areas of expertise include International Relations, grand and military strategy, maritime security, NATO operations planning and assessment, Force Protection and CBRN Defence. Stefan Lundqvist is Pro-Dean at SEDU and a member of the University Research and Education Board, chairing its Syllabus Committee. His research has appeared in edited volumes and journals including Defence Studies, Studies in European Affairs and the RUSI Journal. His research focuses on security in the Arctic and Baltic Sea regions, as well as on pedagogy. Former assignments in the Swedish Armed Forces include serving in various positions on navy vessels, as well as sea- and shore-based staff positions at tactical and operational levels of command.

COMMANDER DAVID PUDDINGTON was born in Toronto, Canada and attended Royal Roads Military College in Victoria, BC, graduating with a Bachelor of Arts in Military and Strategic Studies in 1988. He is a graduate of the Joint Command and Staff Programme, and the

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DR. JON RAHBEK-CLEMMENSEN is an Associate Professor at the Institute for Strategy and War Studies at the Royal Danish Defence College, where he is also the head of research, development, and education at the Center for Arctic Security Studies.

COMMANDER JIM ROBERTSEN is currently Head of the Norwegian Submarine Service stationed at Haakonsvern outside Bergen. In 1995 he started the Naval Academy which led him to the Norwegian Submarine Service where he has spent a significant part of his navy years, including 5 years as CO of a submarine. During his 10 years onboard submarines he conducted several deployments in the Arctic. Jim has also served as a senior staff officer at the NATO joint Force Command in Brunssum and in the Norwegian Defence Staff in Oslo. In 2021 he graduated from NATO Defence College in Rome.

DR. GAELLE RIVARD PICHE is a defense scientist with Defence Research and Development Canada, the research & development branch of the Canadian Department of National Defence. In that function, she has worked closely with the Royal Canadian Navy and the Canadian Special Operations Forces Command. She co-authored The Newport Manual on Arctic Security with Walter Berbrick and Michael Zimmerman. Her most recent work focuses on special operations forces, hybrid threats, and the Arctic. In September 2024, she will join the DRDC operational research & analysis team at NORAD in Colorado Springs.

CAPT (RET.) TONY RUSSELL is the Executive Director of the Center for Arctic Study and Policy (CASP) at the U.S. Coast Guard Academy. CASP contributes to the modernization of Arctic governance by supporting and informing U.S. Coast Guard decision-making and innovation to advance the objective of progressing holistic security across the Arctic region. He is a graduate of the Coast Guard Academy and holds three master's degrees, including Mass Communication, Military Studies, and History, specializing in crisis communication, Arctic strategy, and national strategy and decision making. As a career cutterman, he served in command positions on six cutters in the Bering Sea, Eastern Pacific, Caribbean, and Gulf of Mexico. He served in special staff assignments as Chief of Staff to the Director of Net Assessment in the Office of the Secretary of Defense, Coast Guard Executive Fellow to the RAND Corporation, and Press Secretary to the Commandant of the Coast Guard and National Incident Commander for the Deepwater Horizon oil spill response.

RADM (RET.) LARS SAUNES retired from the Navy from the position as Chief of Royal Norwegian Navy in August 2017 and is now CNO Distinguished International Fellow at the USNWC. He is a Submariner by trade and has held different command position on Kobben and

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LIEUTENANT COLONEL THOMAS SCOTT is currently a Commanding Officer at the UK's Commando Training Centre, where he is responsible for all command, leadership and ethics training for the UK's Commando Forces. Previously he has held a number of operational, planning, policy and strategy roles, including in the Royal Navy's strategy team during the last Integrated Defence and Security Review. In 2022-23 he was the Royal Navy Hudson Fellow at the University of Oxford and a Visiting Research Fellow with the Changing Character of War Programme, where his research focussed on the militarisation of the arctic and the region's potential role as a nexus for strategic competition. A former First Sea Lord Academic Fellow, he remains an Associate Fellow of the Royal Navy Strategic Studies Centre.

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DR. JOSHUA TALLIS is a political-military analyst studying maritime security, polar affairs, and the role of seapower in U.S. strategy. He serves as a research scientist at the Center for Naval Analyses and an adjunct professor at The George Washington University. His field research experience includes embedding as the command analyst with the Truman aircraft carrier strike group on the U.S. Navy's first Arctic carrier deployment since the end of the Cold War. Dr. Tallis' research from that deployment represented the first assessment of real-world Arctic carrier operations in nearly 30 years. He is the host of the CNA podcast "Polar Politics," and his research on the Arctic and U.S. maritime strategy has been published in outlets such as *Proceedings* magazine, Defense One, Defense News, and CIMSEC. He is the author of the book, *The War for Muddy Waters: Pirates, Terrorists, Traffickers, and Maritime Insecurity*, and holds a Ph.D. in international relations from the University of St Andrews.

DR. AMELIE THEUSSEN is an associate professor at the Royal Danish Defense College. Her interdisciplinary research focuses on the effects of changes to war and warfare on international legal and political norms regulating the use of force. Additionally, she writes about German and Danish defense and security policy, Arctic and Baltic Sea security. Amelie also designs and conducts award winning simulation games and exercises for universities and military institutions. Some of her latest publications are an edited volume on war and temporality, War Time (with Sten Rynning and Olivier Schmitt), published with Brookings and Chatham House, the article "International law is dead, long live international law: the state practice of drone strikes" in International Politics, and "Assessing negotiation skill and its development in an online collaborative simulation game: A social network analysis study" (with Zhiru Sun) in the British Journal of Educational Technology.

CAPT JOSEPH "GRANT" THOMAS, JR is the U.S. Coast Guard's liaison to the Ted Stevens Center for Arctic Security Studies. Previously he was the military deputy Chief of Operations (J3) at Joint Interagency Task Force South in Key West, FL. He is a native of Louisville, Kentucky and was commissioned in February of 2003 through Officer Candidate School. CAPT Thomas holds a B.A. in Political Science from the University of the South in Sewanee, Tennessee and an M.S. in Science and Technology Intelligence, with a certificate in Denial and Deception, from the National Intelligence University in Washington, D.C. He has served aboard five U.S. Coast Guard cutters, three of which he commanded. While serving ashore CAPT Thomas has served in various roles including as a military aide, a counterintelligence agent, and as Commanding Officer of Coast Guard Cryptologic Unit Colorado. He is a licensed U.S. Coast Guard 200-ton master mariner, a nationally registered Emergency Medical Technician (EMT), and serves on the Board of Directors for the Anchorage Fire Department Explorer Post.

DR. ABBIE TINGSTAD is a visiting professor of Arctic research at the Center for Arctic Study and Policy, U.S. Coast Guard Academy. Her research focuses on Arctic governance and cooperation, high latitude threats and hazards, and the intersection of Arctic physical and social science in the far north. Recent research examples include: examining different pathways for Arctic development, documenting the Arctic capabilities of the U.S. Armed Forces, examining the potential implications of U.S. extended continental shelf claims, analyzing needs for digital modernization, understanding priorities for technology research & development, and developing methods for foresight activities including analytic gaming. Dr. Tingstad is also an adjunct physical scientist at the RAND Corporation. She received a B.S. in Mathematics from the Massachusetts Institute of Technology, an M.Sc. in Environmental Geomorphology from the University of Oxford, and a Ph.D. in Geography from the University of California, Los Angeles.

COMMANDER STEVEN WHITE has 20-years operational experience at sea as a Commanding Officer, Principal Warfare Officer, and as a Mine Warfare Clearance Diving Officer. This career has taken him from Ex Trident Juncture inside the Arctic Circle to the South Atlantic, and from counter narcotic operations in the Caribbean Sea to the Indian Ocean, in a

variety of ships (Destroyers, Frigates, MCMVs) and battle-staffs. A 2022 graduate of the US Naval War College, Senior Leaders Course and MA programme, on completion he joined the faculty of the Joint Military Operations Department. Along with teaching, he is also undertaking a Graduate Certificate in Ethics and Emerging Military Technology. His research is focused on the ethical dilemmas facing navies developing an Arctic Strategy to counter revisionist powers in an era of Great Power Competition, while concurrently striving towards net-zero emissions.

CAPTAIN (N) VELI-PETTERI VALKAMO was born in 1966 in Helsinki, Finland and graduated from Naval Academy in 1990. As a junior officer he served in Navy Divers School and and Patrol Squadron and was later as CO in both units. After General Staff Officers Course, he was posted to the Gulf of Finland Naval Command first to the 5th Mine Warfare Squadron and later on to the Operations Division as Chief of Sea-Surveillance. During 2003-2010 he served in different posts in national intelligence, in KFOR, Finnish Intelligence Research Establishment and at the Defense Command J2. In 2010 he was assigned to Defense Attaché to Poland and Ukraine. After returning to Finland 2013 he was posted to the Navy Command and served in various post, latest DCOS OPS, COO. From 2021 he was assigned to Supreme Allied Command Tranformation as a Partner National Liaison Representative and Liaison Officer to Joint Forces Command Norfolk.

CAPTAIN TOMOAKI HIRARO (OBSERVER) is a liaison officer from Japan Maritime Self Defense Force (JMSDF) to the U. S. Naval War College. He holds a Master's degree in Media and Governance from Keio University (Japan). Previously, he was the Chief Staff Officer of JMSDF Air Training Group Tokushima.