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## **Introduction**

The Arctic region is transforming from a relatively isolated region to one of increased human access.<sup>1</sup> As a result of Climate Change, the Arctic continues to heat up, and sea ice continues to melt rapidly. New sea lanes are open and stay open for more extended periods per year. These changes demand greater attention from the United States Navy as the Arctic is primarily a maritime theater. As an emerging theater of operations, the Arctic poses a maritime security challenge in which traditional means of demonstrating naval presence may overstretch a fleet significantly committed to security threats in other regions. The United States can and should adopt a presence and maritime security model using non-traditional assets to amplify presence. Using unmanned vessels and aerial vehicles coupled with artificial intelligence software integration, drones, and other emerging technologies will serve as a more effective and efficient security strategy for the United States Navy than traditional platforms to meet our national security goals in the Arctic region. Similar strategies are already in place in the Fifth Fleet and other regions the Navy operates. This strategy will enable rapid awareness of developments in the region and is a fiscally feasible means to maintain fair and equitable free trade markets, exercise presence, and maximize unity of effort with partners and allies.

## **Why the Arctic?**

The Biden Administration's 2022 National Strategy for the Arctic posits a multiprong approach to a peaceful, stable, prosperous, and cooperative Arctic.<sup>2</sup> However, it recognizes that homeland security comes first, and that significant vulnerability exists in an unsecured Arctic, whereby "Enhancements in military and civilian capabilities are required to deter threats and

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<sup>1</sup> Garcia-Bragiel, Matthew and Simms Brian, "Cost Estimation for Surface Navy Investment in Arctic-Capable Platform to Maintain National Security Interests." Naval Postgraduate School, (December 2014): i, v.

<sup>2</sup> White House, *National Strategy for the Arctic* (Washington, DC: White House, 2022), <https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf>.

anticipate, prevent, and respond to incidents."<sup>3</sup> The security pillars of the strategy has three distinct strategic objectives. First, to improve our understanding of the Arctic operating environment. Second, to exercise presence to support priority goals. Third, to maximize unity of effort with allies and partners.<sup>4</sup> The U.S. Navy has the demonstrated, unique capability to support these three strategic objectives in the Arctic by borrowing on its model employed in the Fifth Fleet Area of Operations of unmanned systems with artificial intelligence software integration.

On a broader level, it is essential to understand the strategic significance of the Arctic and characterize the security environment. The Arctic is emerging as a critical region for U.S. policy for several factors. First, the United States wants to avoid unnecessarily ceding territory in a rapidly changing and potentially lucrative environment. Additionally, the Arctic is the next frontier of great power competition and demonstrates the enduring potential of international cooperation and peaceful dispute resolution. To that end, the U.S. endeavors to ensure fair and equitable resource allocation to all Arctic partners and actively cooperate with all Arctic states to address the region's climate crisis and humanitarian issues. Lastly, the Arctic is ground zero for climate change as Arctic air and water temperatures have warmed far faster than the global average in recent decades.

### **Arctic Environment**

The Arctic consists of eight 'Arctic States,' five of which are coastal. The eight countries with territory north of the Arctic Circle are The United States, Canada, Russia, Norway, Denmark, Finland, Sweden, and Iceland. These eight countries are also member states of the

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<sup>3</sup> White House, *National Strategy for the Arctic*.

<sup>4</sup> White House, *National Strategy for the Arctic*.

Arctic Council.<sup>5</sup> The Arctic Council, established in 1996, "is not a treaty-based international organization but rather an international forum that operates on the basis of consensus, echoing the peaceful and cooperative nature of the Arctic Region."<sup>6</sup> Unsurprisingly, these players and non-Arctic states have various interests in the region. Many, including the United States, tout the ability to maintain a free and open maritime domain to promote free and fair trade. Many others see the region's natural resources as a promise for a more prosperous future.

The Russian–Ukraine conflict and subsequent oil price shocks highlighted the Arctic's natural resources as a potential solution to oil and gas shortages. The Arctic contains a significant portion of the remaining global gas and oil resources.<sup>7</sup> In 2008, A study conducted by a U.S. Geological Survey team of scientists concluded that a large area of the Arctic region (which included areas north of the Arctic Circle - 66.56° north latitude) accounts for more than 95 percent of known oil and gas reserves worldwide, excluding the United States.<sup>8</sup> Estimates since that study have proven to support those original findings. As the Newport Manual on Arctic Security notes, the region is awash in valuable resources of all types. Hydrocarbon deposits, oil, and natural gas are not the only resources attracting the interest of countries around the world, "Fisheries in Arctic waters are also attracting growing attention. Rising ocean temperatures have already prompted fish populations to migrate farther north in search of cooler waters."<sup>9</sup>

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<sup>5</sup> Ronald O'Rourke et al., *Changes in the Arctic: Background and Issues for Congress*, CRS Report No. R41153 (Washington, DC: Congressional Research Service, 2022), <https://sgp.fas.org/crs/misc/R41153.pdf>

<sup>6</sup> O'Rourke, Congressional Research Service (CRS), "Changes in the Arctic."

<sup>7</sup> "Arctic Oil & Gas," National Ocean Economics Program, last modified March 29, 2017, <https://www.oceaneconomics.org/arctic/extractive/extractSearch.aspx?xtype=petro>.

<sup>8</sup> Kenneth J. Bird, et al., "Circum-Arctic Resource Appraisal." December 2008.

<sup>9</sup> Walter Berbrick, Gaelle Piche, and Michael Zimmerman, *Newport Manual on Arctic Security* (Annapolis, MD: Naval Institute Press, 2022), 24.

## China and Russian Interests

These unclaimed resources are a significant reason that non-Arctic states have economic and strategic interests in the region that will ultimately complicate security in the region. Historically the Arctic has remained relatively free from conflict and not vulnerable to skirmishes as in other areas of the world. "The region's inaccessibility explained its low strategic importance, and contributed to the idea of Arctic exceptionalism..."<sup>10</sup> As the region becomes increasingly more accessible, Arctic states are no longer the only players with access to the Arctic. Additionally, shipping lanes through the Bering Straits have doubled since 2007, enabling approximately 400 transit shipments annually.<sup>11</sup> Several non-Arctic states and multinational organizations have given statements, drafted strategic documents, and adopted policies toward the Arctic. These states include but are not limited to, China, Japan, South Korea, the United Kingdom, and the European Union.<sup>12</sup>

Arguably the most notable for the United States on this list is China. Analysts agree that China's approach to the Arctic remains similar to its strategic policies worldwide. China has a long-term goal-based strategy regarding its interest in the Arctic and plans to reach those goals by building partnerships with a wide range of regional partners.<sup>13</sup> The consensus from Arctic states is that non-Arctic states should be transparent, forthcoming, and consistent with domestic and international law about the extent of their activities in the Arctic.<sup>14</sup> Although relationships between China and other Arctic nations have been relatively calm and cooperative, the conditions that exist today that foster peace and stability may not exist in the future. Although

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<sup>10</sup> Berbrick, Piche, and Zimmerman, *Newport Manual on Arctic Security*, 47.

<sup>11</sup> O'Rourke, Congressional Research Service (CRS), "Changes in the Arctic."

<sup>12</sup> Berbrick, Piche, and Zimmerman, *Newport Manual on Arctic Security*, 47.

<sup>13</sup> Elizabeth Wishnick, *China's Interests and Goals in the Arctic*. (CreateSpace Independent Publishing Platform, 2017), 54.

<sup>14</sup> Berbrick, Piche, and Zimmerman, *Newport Manual on Arctic Security*, 47.

cooperation has primarily characterized the interactions among Arctic states in the post-Cold War period, the danger is if conflict over European security issues between Russia and NATO spills into the Arctic.<sup>15</sup>

In addition to a potential threat from China and other non-Arctic players, Russia threatens regional stability. Beginning in 2008 up until 2020, the Russian government's strategy documents have outlined detailed plans to strengthen their capabilities in the Arctic region. Their aim has been to improve territorial sovereignty, increase infrastructure, and bolster their resources.<sup>16</sup> Although the current war with Ukraine may have caused some "tactical pause" in the Russian strategic operations in the Arctic, Russia's long-term strategy remains intact. There is too much for Russia to lose if they cede too much of the landscape regarding presence, freedom of navigation, and Exclusive Economic Zone (EEZ) rights. Russia has the fourth largest EEZ behind France, Australia, and the United States, making it the second largest among Arctic nations consisting of nearly 3 million square miles of area.<sup>17</sup> Russia's actions in the maritime spaces are aligned with their strategic and maritime policy and focused not only on ensuring the implementation of their sovereign rights in their waters but also on ensuring "the Russian control over lines of transport on the world's oceans and unimpeded access to oceanic resources."<sup>18</sup> Tactically, Russian implements this maritime policy through legal means, military operations, and mixed economic, technical, and military levers of influence.<sup>19</sup>

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<sup>15</sup> Wishnick, *China's Interests and Goals in the Arctic*, 61.

<sup>16</sup> O'Rourke, Congressional Research Service (CRS), "Changes in the Arctic."

<sup>17</sup> Geoffrey Migiro, "Countries with the Largest Exclusive Economic Zones," WorldAtlas, last updated June 29, 2018, <https://www.worldatlas.com/articles/countries-with-the-largest-exclusive-economic-zones.html>

<sup>18</sup> Olena Snigyr\*, "Current Russian Practices in Maritime Zones," Beyond the Horizon ISSG, last modified October 25, 2019, <https://behorizon.org/current-russian-practices-in-maritime-zones/>.

<sup>19</sup> Snigyr\*, "Current Russian Practices in Maritime Zones,"

This Arctic security environment necessitates a strategy that can defend U.S. interests and security in the Arctic. However, a persistent, credible presence with traditional forces is difficult to maintain given the security environment in other, more pressing, theaters of operation and the harsh environment of the Arctic. Operating at sea in the Arctic is not a skill set that our Navy practices often unless considering the submarine force operating under the ice cap. However, given the future need for presence and potential response to our strategic competitors, the United States Navy cannot cede the Arctic landscape. It is imperative to invest in Arctic operations, research and develop, and practice our presence strategy now for the United States to have a credible Arctic presence in the future.

**Using Unmanned Vessels with Artificial Intelligence Tools – A case study of Task Force 59  
in Fifth Fleet**

Given the security environment characterized above, the United States Navy has a responsibility and, as we will see, a unique ability to support all three strategic security objectives in the National Strategy for the Arctic Region. As traditional security forces have 'pivoted to Asia,' the commander of the Fifth Fleet has had to do more with less. In response to the loss of surface combatant and carrier strike group presence operations, Admiral Brad Cooper created a new Task Force. He rapidly revolutionized the Navy's presence and maritime domain awareness by experimenting with small, uncrewed surface vessels and artificial intelligence software tools to monitor and secure his water space. According to widespread reports, the efforts of Task Force 59 (TF 59) are enormously successful. Admiral Cooper is confident that the relatively small number of Unmanned Surface Vessels (USVs) will reach upwards of 100 drones

operated by the United States and allied nations by the summer of 2024.<sup>20</sup> These vessels' A.I. and machine learning elements enable the rapid processing of vast amounts of data. The ability of USV operators to control multiple vessels simultaneously and identify potential threats earlier allows the U.S. Navy to position crewed platforms to respond more rapidly and effectively.<sup>21</sup>

These tools and lessons learned in the Commander Fifth Fleet (C5F) area of responsibility are transferrable and offer a means to increase Maritime Domain Awareness (MDA) and enable early warning of potential threats. This early warning, provided by the pattern analysis enabled with A.I. tools, allows traditional forces to be freed up for other missions and only respond when necessary. By building information databases on the pattern of life, these tools enable the Arctic Strategy's first strategic objective of "Improve Our Understanding of the Arctic Operating Environment."<sup>22</sup> Unlike traditional combatants, unmanned vessels, aerial vehicles, and A.I. tools offer partners a low-level, lower-cost means of sharing in the security architecture. Operating a database or fielding a small, uncrewed surface vessel is more accessible and less costly than operating a warship at sea. As seen in C5F, the unmanned platform sensor information is easily shared among partners and allies. Admiral Cooper indicated that the Gulf Coordinating Council (GCC), consisting of seven Gulf states, including Saudi Arabia, the United Arab Emirates, and more, has unanimously agreed to expand unmanned vehicle operations from the Red Sea into the Persian Gulf by the end of this year.<sup>23</sup> Similarly, NATO launched the Maritime Unmanned Systems (MUS) initiative in 2018, which allows nations to "pool their resources, talent, and ingenuity to create better, more flexible and more interoperable unmanned

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<sup>20</sup> John Grady, "Navy Wants More Middle East Countries in Unmanned Maritime Awareness Network" USNI News, last modified February 14, 2023, <https://news.usni.org/2023/02/14/navy-wants-more-middle-east-countries-in-unmanned-maritime-awareness-network>

<sup>21</sup> Grady, "Navy Wants More Middle East Countries in Unmanned Maritime Awareness Network."

<sup>22</sup> White House, "National Strategy for the Arctic Region."

<sup>23</sup> Grady, "Navy Wants More Middle East Countries in Unmanned Maritime Awareness Network."

maritime vehicles and systems."<sup>24</sup> This interoperability and the subsequent sharing of data and information will enable the Navy to maximize operational effectiveness in the Arctic region. Examples such as the GCC and MUS are promising and critical enablers for accomplishing the third strategic pillar in the National Security Strategy for the Arctic, maximizing unity of effort with allies and partners.

The momentum of Fifth Fleet's TF 59 is rapidly building and is already moving into other areas of responsibility for the Navy. Fourth Fleet is beginning to expand the role of unmanned vessels within their waters where the demand for ships is increasingly higher than the supply. In an interview in early April, the secretary of the Navy, Carlos Del Toro, commented on the build-up of unmanned vessels in the Fourth Fleet, stating that it "will help inform the service's eventual transition to a "hybrid" fleet of manned and unmanned ships around the world."<sup>25</sup> Fourth Fleet is looking to increase their maritime domain awareness capabilities while the number of available naval vessels has decreased in recent years in the Caribbean and other areas of U.S. Southern Command. Employing uncrewed vessels is a clear path to success for the Commander Fourth Fleet (C4F) operations, where most interactions can be discovered by USVs and UAVs and tipped to other assets in the area, specifically the U.S. Coast Guard. Increasing maritime domain awareness and strengthening cross-service interoperability, as well as exercising partner relationships, will increase the effectiveness of conducting missions such as counter-narcotics, human trafficking, and illegal or unregulated fishing.<sup>26</sup> Using unmanned platforms provide the Fourth Fleet, and any other that uses them, with the ability complement the

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<sup>24</sup> "Maritime Unmanned Systems (MUS) Initiative Fact Sheet." North Atlantic Treaty Organization, November, 2020, [https://www.nato.int/nato\\_static\\_fl2014/assets/pdf/2020/11/pdf/2011-factheet-mus.pdf](https://www.nato.int/nato_static_fl2014/assets/pdf/2020/11/pdf/2011-factheet-mus.pdf).

<sup>25</sup> Jared Serbu, "Navy to Deploy Unmanned Vessels, AI in Region Where It's Struggled to Meet Demand for Ships." Federal News Network, last modified April 5, 2023, <https://federalnewsnetwork.com/navy/2023/04/navy-to-deploy-unmanned-vessels-ai-in-region-where-its-struggled-to-meet-demand-for-ships/>

<sup>26</sup> Serbu. "Navy to Deploy Unmanned Vessels, AI in Region Where It's Struggled to Meet Demand for Ships."

operations crewed platforms by allowing them the freedom focus on other missions.<sup>27</sup> Adopting a strategy utilizing unmanned vessels with AI tools in conjunction with joint interoperability with coalition and partner sharing similar to that in the Fifth and Fourth Fleet's area of responsibility, will enable to U.S. Navy to more effectively meet the emerging demands of its resources and capabilities in an ever more complex Arctic.

### **Ukraine's Successful Use of Drones Against Russia**

Up to this point, the Arctic has been a relatively peaceful cooperative area for those engaged in its operations. However, there is no certainty that these conditions will continue. The U.S. Navy should leverage drones and unmanned vehicles to defend its interests in the region against potential future aggressors, much like the Ukraine-Russia conflict. Russia is extremely good at electromagnetic defense, such as frequency jamming and GPS spoofing. Consequently, Ukraine developed many other, more expensive communication systems and vehicles, getting them closer to a long-term solution for success.<sup>28</sup> In stark contrast to the beginning of the conflict, Ukraine is now experiencing much success against Russia utilizing drones and unmanned aerial vehicles. Both sides, especially Ukraine, have been successful using drones like the DJI Mavic 3. This UAV and similar types of drones are small and cheap commercial models that cost only \$2,100.<sup>29</sup> This price point makes it highly cost-beneficial for a country to procure on a large scale and implement rapidly into its offensive strategy. Ukraine has used drones such as the Mavic 3 fitted with cameras to locate and monitor Russian troop movements. They have

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<sup>27</sup> Serbu. "Navy to Deploy Unmanned Vessels, AI in Region Where It's Struggled to Meet Demand for Ships."

<sup>28</sup> "Ukraine Is Betting on Drones to Strike Deep into Russia," *The Economist*, last modified March 20, 2023, <https://www.economist.com/europe/2023/03/20/ukraine-is-betting-on-drones-to-strike-deep-into-russia>

<sup>29</sup> "How Are 'kamikaze' Drones Being Used by Russia and Ukraine?," *BBC News*, last modified January 3, 2023, <https://www.bbc.com/news/world-62225830>

also equipped the Mavic 3 with small bombs in direct attacks against Russian troops, tanks, and other targets of interest.<sup>30</sup>

In addition to the Mavic series, Ukraine has successfully utilized several other drones against Russia, including the Orlan-10, Bayraktar TB2, Switchblade 300, and several others.<sup>31</sup> Ukraine's multi-axis and asymmetrical approach to drone use, coupled with the overwhelming volume of military and commercial drones, has required Russia to focus on an unanticipated threat in this conflict. This relatively new strategy is arguably a hidden advantage to the underdog or a blind spot in Russian defenses. By learning from and adopting portions of Ukraine's strategy and tactics regarding drones and unmanned vehicle use, the U.S. can bolster its defense forces and be better prepared against potential future adversaries in the Arctic.

#### **Comparison to traditional means of Security and Other Counterarguments**

Some may argue that a more traditional approach to security in the Arctic could look like bolstering our ice-breaker fleet and procuring more ships that could withstand the harsh conditions of the Arctic. The demand for a traditional U.S. naval presence in the Arctic is increasingly required. A 2014 study conducted at the Naval Postgraduate School yielded a cost estimation of what it would cost the U.S. Navy to procure an Arctic-capable Arleigh Burke destroyer class of ship or the DDG/A. One specifically tailored to Arctic Operations without a sonar dome and including a strengthened hull and improved ice capability. This cost analysis concluded that the first DDG/A would cost approximately \$1.507 billion in FY15 dollars. A three DDG/A fleet would cost between \$3.95 and \$4.33 billion; a five-ship fleet would cost between \$6.70 and \$7.03 billion; and a ten-ship fleet would cost between \$10.72 and \$13.49

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<sup>30</sup> BBC News, "How Are 'kamikaze' Drones Being Used by Russia and Ukraine?"

<sup>31</sup> Amos Chapple, "The Drones Of The Ukraine War." Radio Free Europe Radio Liberty, last updated November 17, 2022, <https://www.rferl.org/a/ukraine-russia-invasion-drones-war-types-list/32132833.html>

billion.<sup>32</sup> This estimate accounts for the costs of attempting to take existing platforms like the Arleigh Burke, refit them with hardened hulls with thicker steel, and remove fragile equipment susceptible to damage in the Arctic's icy waters.<sup>33</sup>

An unknown and potentially costly issue is the challenge of outfitting unmanned craft for the harsh maritime environment. Sensor, cameras, and communication equipment will have to be ruggedized and thoroughly tested to withstand the extreme cold temperatures. Cost growth and schedule delays are also current issues with fielding uncrewed vessels. This uncertainty often goes hand-in-hand with fielding new and emerging technologies.

Finally, the potential for miscalculation and escalation at sea while operating uncrewed vessels are significant concerns for Geographic Combatant Commanders.<sup>34</sup> Scholars have recently suggested that unmanned aircraft may be de-escalatory assets due to a perceived norm of countries being less likely to face harsh 'blood-for-blood' retaliation if shot down since the absence of a pilot.<sup>35</sup> However, they caution against applying this belief to similar situations in the maritime domain for two reasons. First, the risk of miscalculation is higher with uncrewed ships and submarines than their aerial counterparts because uncrewed vessels are decades behind UAVs in sophistication. Second, because uncrewed vessels could be partially or optionally crewed, it creates uncertainty for adversaries to believe a vessel is unmanned when crews are not visible. This uncertainty complicates rules of engagement and creates unrealistic expectations for

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<sup>32</sup> Garcia-Bragiel and Simms, "Cost Estimation for Surface Navy Investment in Arctic," 64.

<sup>33</sup> Garcia-Bragiel and Simms, "Cost Estimation for Surface Navy Investment in Arctic," 29.

<sup>34</sup> Ronald O'Rourke, *Navy Large Unmanned Surface and Undersea Vehicles*, CRS Report No. R45757 (Washington, DC: Congressional Research Service, 2023), <https://sgp.fas.org/crs/weapons/R45757.pdf>

<sup>35</sup> Jonathan Panter, "Naval Escalation in an Unmanned Context | Center for International Maritime Security." CIMSEC, last modified April 26, 2023, <https://cimsec.org/naval-escalation-in-an-unmanned-context/>

retribution for how states view and potentially target these uncrewed vessels.<sup>36</sup> Absent a manned back-up fleet or ready-response fleet, the issues of rules of engagement are especially significant.

### **Rebuttal**

The U.S. commitment to Arctic-specific defense spending must still be aligned with the demand for increased ice-breaking and Arctic-capable naval vessels. Given higher National Defense priorities than that Arctic, we may not see significant funding allocations to Arctic in the near future equitable to other areas of responsibility. The 2022 National Defense strategy clearly highlights this point by stating, “U.S. activities and posture in the Arctic should be calibrated, as the Department preserves its focus on the Indo-Pacific region.”<sup>37</sup> A modest three Arctic capable ships are almost 10% of the Navy's 2024 readiness budget.<sup>38</sup> An investment of this size toward an Arctic-specific procurement schedule is unrealistic for policymakers and their constituencies. The likelihood of cost growth and schedule delays is far greater with traditional naval platforms than with unmanned vessels and other emerging technologies. The Zumwalt DDG, the Littoral Combat Ship (LCS), and the Joint Strike Fighter (JSF) are a few recent examples. Instead of spending an inordinate amount of time and incredible sums of money building platforms that take decades to field and will continue to stretch the defense budget, the U.S. should leverage unmanned systems with A.I. tools to meet the National Strategy for the Arctic Region.

The possibility of miscalculation in warfare is always present. Although the degree of miscalculation is potentially higher with USVs and unmanned underwater vehicles (UUVs)

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<sup>36</sup> Panter, “Naval Escalation in an Unmanned Context | Center for International Maritime Security.”

<sup>37</sup> U.S. Department of Defense, *National Defense Strategy of the United States of America* (Washington, DC: The Pentagon, 2022), <https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF>

<sup>38</sup> Todd C. Lopez, “Competition With China Drives FY 2024 Budget Request.” U.S. Department of Defense, last modified March 28, 2023, <https://www.defense.gov/News/News-Stories/Article/Article/3343663/competition-with-china-drives-fy-2024-budget-request/>

compared to UAVs, unmanned vessels will eventually reach the sophistication level of UAVs, thereby minimizing the potential for miscalculation. With the amount of research and development the Navy is applying to this field, the level of sophistication in these vehicles will rise proportionately. The Joint Force relies heavily on data-driven technologies and the integration of systems. Therefore, one of the of the Defense Department's priorities within the 2022 National Defense Strategy is to create institutional changes allowing for integrated artificial intelligence coupled with data-driven tools and software, delivered rapidly to tactical units ready for deployment.<sup>39</sup> Additionally, USVs and UUVs will undoubtedly become more commonplace in all maritime domains worldwide, and states will be more versed in operating amongst and communicating with unmanned vehicles in all domains.

### **Conclusion**

The use of unmanned vessels and aerial vehicles coupled with artificial intelligence software integration, drones, and other emerging technologies is a more effective and efficient security strategy for the United States Navy than using traditional platforms to meet our national security goals in the Arctic region. This strategy enables rapid awareness of developments in the region and is a fiscally feasible means to maintain fair and equitable free trade markets, exercise presence, and maximize unity of effort with partners and allies. To implement a strategy in the Arctic as described above, the following recommendations should be adopted by the Defense Department and the Navy. First, assign an Arctic Fleet Commander with an established area of responsibility and a proportional allotment of resources and assets. Second, field a fleet largely of unmanned vessels and aerial vehicles with artificial intelligence software to patrol the maritime domain while integrating and operating with coalition and allied partners. And third,

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<sup>39</sup> U.S. Department of Defense, *National Defense Strategy*.

establish a “hybrid” fleet command that leverages multi-national partner patrols, technology, and information sharing.

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