

REPORT DOCUMENTATION PAGE*Form Approved*
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Washington Headquarters Service, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

1. REPORT DATE (DD-MM-YYYY) 26 04 2016		2. REPORT TYPE Research		3. DATES COVERED (From - To) Present to 2025	
4. TITLE AND SUBTITLE Arctic Opening: U.S. Joint Force Capabilities in 2025				5a. CONTRACT NUMBER N/A	
				5b. GRANT NUMBER N/A	
				5c. PROGRAM ELEMENT NUMBER N/A	
6. AUTHOR(S) MAJ Jonathan R. Martin, United States Army				5d. PROJECT NUMBER N/A	
				5e. TASK NUMBER N/A	
				5f. WORK UNIT NUMBER N/A	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) USMC School of Advanced Warfighting Marine Corps University 2044 South Street Quantico, VA 22134-5068				8. PERFORMING ORGANIZATION REPORT NUMBER N/A	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A				10. SPONSOR/MONITOR'S ACRONYM(S) N/A	
				11. SPONSORING/MONITORING AGENCY REPORT NUMBER N/A	
12. DISTRIBUTION AVAILABILITY STATEMENT Unlimited					
13. SUPPLEMENTARY NOTES N/A					
14. ABSTRACT <p>Thesis: The United States will be able to achieve its national security objectives in the Arctic in 2025 by developing Arctic capabilities primarily through service and joint doctrine development, joint and multi-national training exercises, and the establishment or improvement of limited base and road infrastructure in the Arctic region.</p> <p>Discussion: The Arctic is opening and Russia has invested significantly in its military capabilities to operate in the region. The United States and some of its North Atlantic Treaty Organization (NATO) allies including Norway and Canada have significant interests in the region. As the United States looks ahead to 2025 and beyond, the Department of Defense (DOD) should consider allocating resources to develop Arctic capabilities through service and joint doctrine development, joint and multi-national training exercises, and the establishment or improvement of limited base and road infrastructure in Northern Alaska.</p> <p>Conclusion: A series of combined joint exercises in Alaska and Norway should begin no later than 2020 to ensure that the joint force is prepared to fight and win in the Arctic in 2025. In Norway, NATO should execute mission command exercises based on a scenario where conflict occurs over the Svalbard archipelago. In Alaska, a combined joint exercise which includes the deployment of ground, air, and naval forces from the United States to establish sea control in the Bering Strait and Beaufort Sea, seize and defend ports and airfields in Northern and Western Alaska will challenge and test the joint forces ability to operate in an Arctic environment. Through these two exercises the United States will be able to effectively develop the capability to operate in the Arctic environment.</p>					

INSTRUCTIONS FOR COMPLETING SF 298

15. SUBJECT TERMS Geopolitics, Arctic Conflict, Military Capability	
---	--

16. SECURITY CLASSIFICATION OF:	17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Marine Corps University / School of Advanced Warfighting			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:33%; padding: 2px;"> a. REPORT Unclassified </td> <td style="width:33%; padding: 2px;"> b. ABSTRACT Unclassified </td> <td style="width:33%; padding: 2px;"> c. THIS PAGE Unclassified </td> </tr> </table>	a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (Include area code) (703) 432-5318 (Admin Office)
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified				

--	--

United States Marine Corps
School of Advanced Warfighting
Marine Corps University
3070 Moreell Avenue
Marine Corps Combat Development Command
Quantico VA 22134

FUTURE WAR PAPER

TITLE:

***Arctic Opening: U.S. Joint Force Capabilities in
2025***

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF OPERATIONAL STUDIES

AUTHOR: MAJ Jonathan R. Martin, United States Army

AY 2015-16

Mentor: Dr. Gordon Rudd, Professor of Military History

Approved: 

Date: 6 MAY 2016

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE SCHOOL OF ADVANCED WARFIGHTING OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

Table of Contents

Page

Disclaimer.....2

Table of Contents3

Executive Summary4

Introduction5

Arctic Operational Environment in 2025.....6

Russia's Arctic Capability.....9

NATO and American Allies in the Arctic 17

United States Joint Force in 2025 21

Conclusion and Recommendation..... 26

End Notes..... 29

Bibliography..... 31

Executive Summary

Title: Arctic Opening: U.S. Joint Force Capabilities in 2025

Author: Major Jonathan R. Martin, United States Army, Currently studying at the Marine Corps School of Advanced Warfighting, Quantico, Virginia.

Thesis: The United States will be able to achieve its national security objectives in the Arctic in 2025 by developing Arctic capabilities primarily through service and joint doctrine development, joint and multi-national training exercises, and the establishment or improvement of limited base and road infrastructure in the Arctic region.

Discussion: The Arctic is opening and Russia has invested significantly in its military capabilities to operate in the region. The United States and some of its North Atlantic Treaty Organization (NATO) allies including Norway and Canada have significant interests in the region. As the United States looks ahead to 2025 and beyond, the Department of Defense (DOD) should consider allocating resources to develop Arctic capabilities through service and joint doctrine development, joint and multi-national training exercises, and the establishment or improvement of limited base and road infrastructure in Northern Alaska.

Conclusion: A series of combined joint exercises in Alaska and Norway should begin no later than 2020 to ensure that the joint force is prepared to fight and win in the Arctic in 2025. In Norway, NATO should execute mission command exercises based on a scenario where conflict occurs over the Svalbard archipelago. In Alaska, a combined joint exercise which includes the deployment of ground, air, and naval forces from the United States to establish sea control in the Bering Strait and Beaufort Sea, seize and defend ports and airfields in Northern and Western Alaska will challenge and test the joint forces ability to operate in an Arctic environment. Through these two exercises the United States will be able to effectively develop the capability to operate in the Arctic environment.

Introduction

During the Cold War, the Arctic region was important to both the United States and the Soviet Union. The United States feared that the Soviet Union would launch a nuclear attack over the Arctic. The Soviet Union shared similar concerns, but for it the Arctic was also important due to its geographic position and its limited access to warm water ports. The Soviet Union's northern ports were a critical requirement for its ability to project sea power. These security concerns in the Arctic compelled both the United States and the Soviet Union to develop capabilities to operate in the land, sea, and air domains in the region. However, the posturing by each side in the Arctic never escalated to open conflict. In the immediate aftermath of the Cold War and the close of the 20th century, the United States focus on the region waned and Russia was faced with more pressing problems resulting from the collapse of their empire.

In the last ten years, the Arctic region has re-emerged as an important area prone to conflict in the geopolitical competition between the United States and its allies and Russia. In addition to the United States, the North Atlantic Treaty Organization (NATO) states that have Arctic coastlines are Canada, Norway, Denmark (Greenland), and Iceland. Changes in the regions climate are leading to changes in the character of that competition. The operational environment in the Arctic is changing as the earth's average temperatures rise. The estimates of the pace of change vary, but if current trends continue, humans will have improved access to the Arctic over the next 10 to 15 years. Eased access will allow for the exploitation of the region's energy resources as well as provide new sea lines of communication (SLOC) between the Atlantic and the Pacific Oceans. Additionally, for Canada and Russia, the opening of the Arctic affords them new opportunities to project sea power.

The competition between the United States and Soviet Union was limited to posturing during the Cold War. The potential that future competition between the United States and Russia in the Arctic could escalate into armed conflict cannot be ignored. The Arctic is opening. The Department of Defense (DOD) will need to be capable of achieving its objectives in the region in accordance with National Security Strategy.

As the United States prepares for future war, it would be helpful if American leaders understand: What capabilities will the United States require in 2025 to be able to achieve its national security objectives in the Arctic?¹ The United States should be able to achieve its national security objectives in the Arctic in 2025 by developing Arctic capabilities primarily through service and joint doctrine development, joint and multi-national training exercises, and the establishment or improvement of limited base and road infrastructure in Northern Alaska.

Arctic Operational Environment in 2025

There is debate in the media about the cause and effects of climate change.² The details of that debate are beyond the scope of this paper. It is a valid assumption that current trends with respect to the effects in the Arctic will continue. This assumption suggests that SLOCs in the Arctic will continue to open and that there will be an increase in traffic by military and commercial vessels as well as vessels engaged in scientific research and exploration. This assumption does not mean an easing of the harsh conditions that define the Arctic environment. When planning for operations in the Arctic, the *Rule of Three* is a useful consideration. Mr. Dusty Finley, the Chief of the G37 Force Management Division for U.S. Army Alaska, explains that, “Operations in the Arctic are three times more expensive and take three times longer to execute.”³

The major change to the sea domain in the Arctic is the opening of SLOCs. According to the Council on Foreign Relations (CFR), the Northern Sea Route (NSR) over

Eurasia and through Russian claimed territorial waters first opened in 2005.⁴ The Northwest Passage (NWP) through Canadian territorial waters opened for the first time in 2007.⁵ Dr. Scott Borgerson, the visiting fellow for ocean governance at CFR and an adjunct senior research scholar at Columbia University estimates that a voyage from Shanghai, China to Hamburg, Germany via the NSR is 30 percent shorter than travelling through the Strait of Malacca and the Suez Canal. In 2009, five cargo vessels used the NSR, it increased to 71 vessels in 2013. In 2013, the Danish vessel *Nordic Orion* saved an estimated \$80,000 in fuel by transiting the NWP.⁶ Dr. Borgerson expects that by 2025 a SLOC will open across the North Pole outside of the jurisdiction of any state.⁷ The change in the sea domain in the Arctic presents obvious opportunities, but with opportunity comes some risks. First, there is the risk associated with the *Rule of Three*. While transiting the Arctic may offer some savings in international shipping, the costs of preparing for and executing search and rescue operations cannot be ignored. Second, with competition comes the potential for conflict.

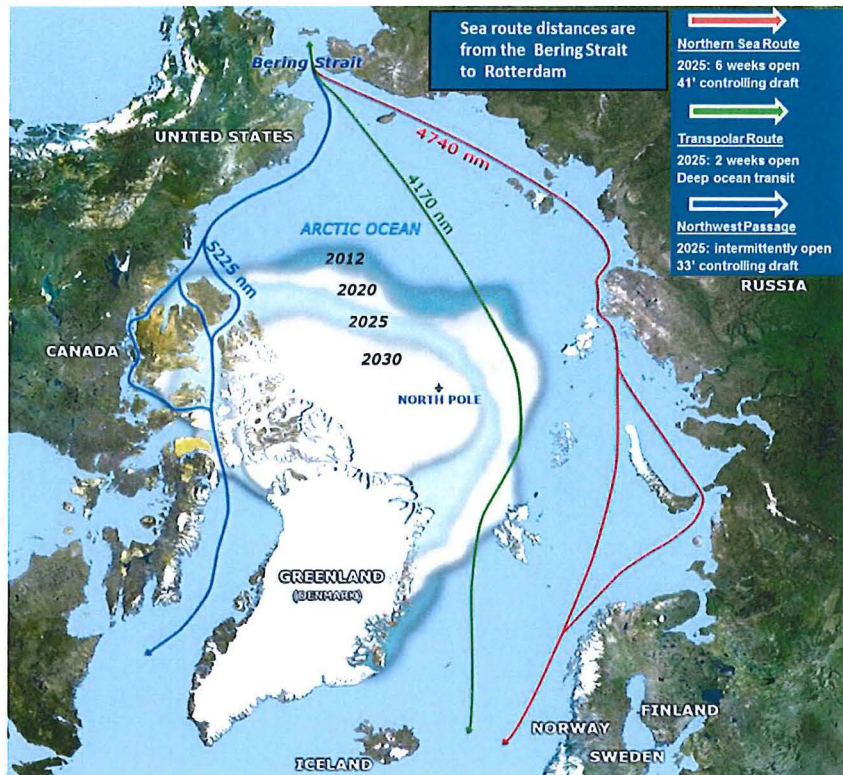


Figure 1: Arctic Seasonal Ice Lanes

Source: RADM Jonathan White, “United States Navy Arctic Roadmap Update,” 6th Symposium on the Impacts of an Ice-Diminishing Arctic on Naval and Maritime Operations, July 15, 2015, 2.⁸

In addition to opening of SLOCs, rising temperatures are also affecting key ground lines of communication (GLOC) in the Arctic. Many outposts in the Arctic region rely on ice roads during the winter. As temperatures rise the period that those roads are open each year is decreasing.⁹ Developing an understanding and accounting for changes to both SLOCs and GLOCs is the most critical factor when considering the development and maintenance of joint capabilities for the Arctic. While the changing climate will not significantly affect the air domain in the Arctic, it is still important to consider the effects that changes to the sea and land domains will have on air operations in the region. Figure 2 depicts the road network in Alaska as well as the C17 capable airfields. The road network North and West of Fairbanks is extremely limited.



Figure 2: Alaska Road Network and C-17 Capable Airfields

Source: Base map is from *Northwest Explorer Blog*, Airfield locations have been added.¹⁰

Most research on the Arctic has focused on future opportunities for resource exploitation and commercial shipping as well as the environmental and safety risks associated with those activities. When thinking about future conflict, another consideration is the effect of changes in the Arctic on Russia's geostrategic position in the world. Before developing a strategy and Arctic capabilities for the joint force, the United States should consider the implications of Arctic opening in the context of its relationship with its NATO allies and Russia.

Russia's Arctic Capability Development

Russia has invested heavily in the Arctic region over the last 15 years while the United States has been focused on a "pivot" to Asia and perpetual conflicts in the Middle

East and South Asia. The development of Russian commercial and military capabilities in the Arctic has been coupled with some diplomatic initiatives, including the planting of the Russian flag on underwater Lomonosov Ridge at the North Pole and an increase in bellicose rhetoric. It is too early to tell if Russia will reap what it hopes to sow in terms of resource exploitation and commercial opportunities in the region, but as *The New York Times* recently noted, “The dream of an Arctic Klondike, made possible by the rapid warming of once-icebound waters, has been at the core of Russia’s national ambitions and those of the world’s biggest energy companies for more than a decade.”¹¹ Figure 3 depicts the Lomonosov Ridge and the territorial claims in the Arctic. Further discussion of the issues and circumstances surrounding those claims as well as an explanation of the role of the Arctic Council can be found in the end notes.¹²

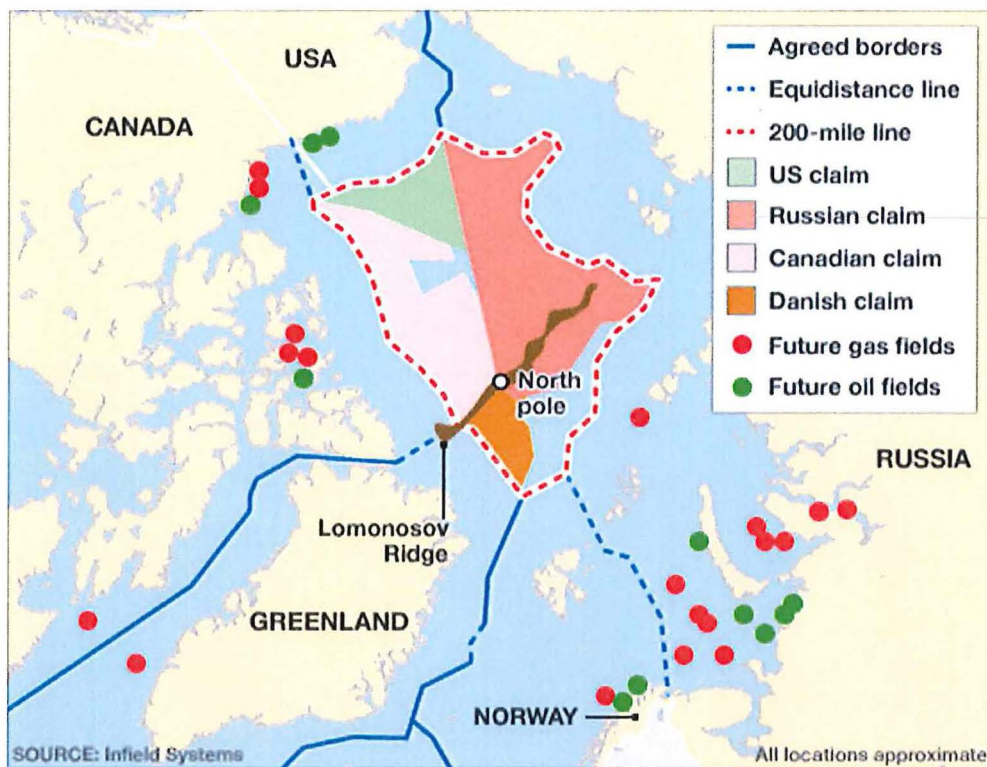


Figure 3: Arctic Territorial Claims

Source: Rajesh Mirchandani, “The struggle for Arctic riches,” *BBC News* September 22, 2015.¹³

Russia's investment has included significant improvements in the structure and capacity of its Arctic forces. The Russian Arctic is divided into four military districts: Leningrad, Volga-Urals, Central, and Far East and two regional border commands at Murmansk and Petropavlovsk-Cmchatka. The two border commands fall under the purview of the Federal Security Service (FSB). The FSB is responsible for protecting Russia's land borders, its Arctic coastline, and will monitor activity along the NSR.¹⁴

When it comes to power projection in the Arctic, Russia made significant changes to the command structure of its Arctic forces in 2014. On December 1, 2014, the Northern Strategic Joint Command, also known as the Northern Fleet United Strategic Command (OSK Sever), was established to provide command and control of all Russian military forces operating in the Arctic.¹⁵ The OSK Sever has the equivalent status of a military district and reports directly to the National Defense Control Center in Moscow.¹⁶ The missions that fall under the purview of OSK Sever include coastal patrolling, installation security, ensuring free passage of the NSR, and anti-terrorism operations to protect oil and gas installations as well as tanker traffic on SLOCs.¹⁷ Additionally, OSK Sever plays an important role in Russia's nuclear arms capability since it is estimated that 81 percent of Russia's 576 sea based nuclear warheads are on submarines in the Northern Fleet.¹⁸

In the past few years, Russia has constructed 14 airfields, 10 search and rescue (SAR) stations, 16 deep water ports, 10 air defense radar stations, and one drone base in the Arctic.¹⁹ The drone base in Anadyr is located within 420 miles of mainland Alaska and approximately 300 miles from St. Lawrence Island.²⁰ In the Eastern Arctic, Russia has re-opened bases in the Arctic on Wrangel Island and Camp Smith. Russia conducted landing exercises with a Tactical Airborne Battalion from the 83rd Separate Air Assault Brigade and the 155th Separate Marine Brigade from Pacific Fleet upon the re-opening of these facilities.²¹

When it comes to sea power, Russia's Northern Fleet is its largest fleet and as noted earlier consists of most of Russia's missile carrying strategic submarines.²⁵ The Northern Fleet Naval forces are dispersed among 12 bases, which are all located in the Arctic. The composition of the fleet is 33 submarines of which nine are strategic and 24 are tactical, the fleet has 11 surface combat ships, nine patrol and coastal combat vessels, and four amphibious landing ships.²⁶ Russia has 40 ice breakers with six under construction and five more planned for construction giving them a significant advantage in terms of ice breakers. This fleet includes seven large, nuclear power ice breakers. Russia is the only state in the world with nuclear powered ice breakers.²⁷

As far as airpower in the Northern Fleet, Russia has 18 Su-33 fighter aircraft, five Su-25UTG attack aircraft, 13 Tu-142M/MR anti-submarine aircraft, three electronic warfare aircraft, nine military transport aircraft, one Ka-27 anti-submarine warfare helicopter, and one Ka-29 transport helicopter.²⁸ As of 2013, there were two surface-to-air missile (SAM) regiments and all 18 Su-33 fighter aircraft on the Kola Peninsula, while another SAM regiment was located in vicinity of Archangel at Severodvinsk base.²⁹ There was group of MiG-31s at Rogachevo airfield on the Novaya Zemlya archipelago. Russia plans to double the forces on Novaya Zemlya by 2020.³⁰

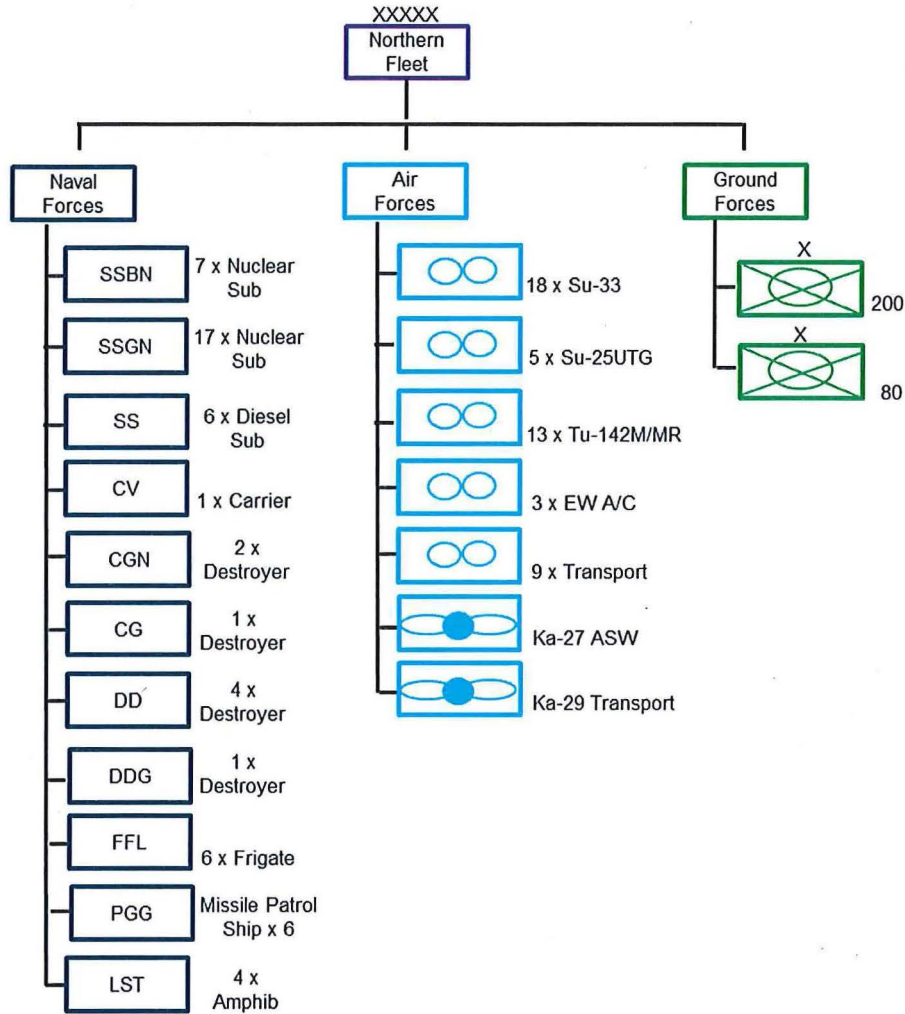


Figure 5: Northern Fleet Joint Capabilities

Source: Heather A. Conley and Caroline Rohloff, “The New Ice Curtain: Russia’s Strategic Reach to the Arctic,” *Center for Strategic and International Studies*.³¹

The activity of Russia’s strategic bombers in the Arctic has been of concern to the United States and NATO since 2007. The Tupolev Tu-95 and the supersonic Tu-160 and Tu-22M3 regularly patrol over the Arctic and often violate the airspace of the United States and its allies. In 2007, Russia violated American airspace in Alaska 18 times and since the annexation of Crimea there has been a marked increase in which Russian bombers enter the airspace of our NATO allies as well as Finland and Sweden.³² For example, in 2014 Russian jets were intercepted by Norway 74 times, which is an increase of 27 percent of violations of

Norwegian airspace in 2013. In conjunction with the escalation of Russian air incursions, there has also been an increase in activity of Russian submarines in the North Atlantic and North Pacific. The Greenland-Iceland-United Kingdom (GIUK) gap is important in this regard as it is the primary SLOC for Russian submarines based in the Kola Peninsula to project into the Atlantic.³³



Figure 6: GIUK Gap

Source: National Snow and Ice Data Center, “All about Arctic Climatology and Meteorology.”³⁴

Russia’s effort to develop its military capabilities in the Arctic is significant. Given the size of their Arctic coast and the importance of the Arctic region to their economy, this is a rational allocation of their military resources. The United States and its allies can use

Russia's current strategy in the Arctic to frame development of each states own Arctic strategy as well as a strategy for NATO. The importance of the Arctic to Norway and Canada is on par with the importance of the region to Russia. The region does not rate the same level of importance on the list of national security priorities for Denmark or the United States. Therefore, the United States should consider the broader interests of states and take into account their national security strategies and other regional strategies.

NATO and American Allies in the Arctic

The change to the operational environment in the Arctic and Russia's development of its military capability in the Arctic is not occurring in isolation of other international events. The tension between Russia and the West over the annexation of Crimea and operations in Ukraine is significant. Therefore, it is important to consider the interests of NATO members in the Arctic as both independent states and members of the Alliance. The claims made by the NATO states with Arctic coastlines can be seen in Figure 3.

Norway is the only NATO member that has both an Arctic coastline and physically borders Russia. Given this circumstance, Norway has the most to be worried about when it comes to the Arctic opening. Norway's primary concerns are the proximity of Russian military forces to its border and the potential for conflict with Russia over the Svalbard archipelago.³⁵ Since 2010, Norway has been implementing a military strategy that focuses funding and resource allocation on their Arctic capability.³⁶ Norway established a Joint Operational Command Headquarters (JOCH) in Bodo on August 1, 2009 as part of its effort to focus on their Northern regions. The JOCH's mission is,

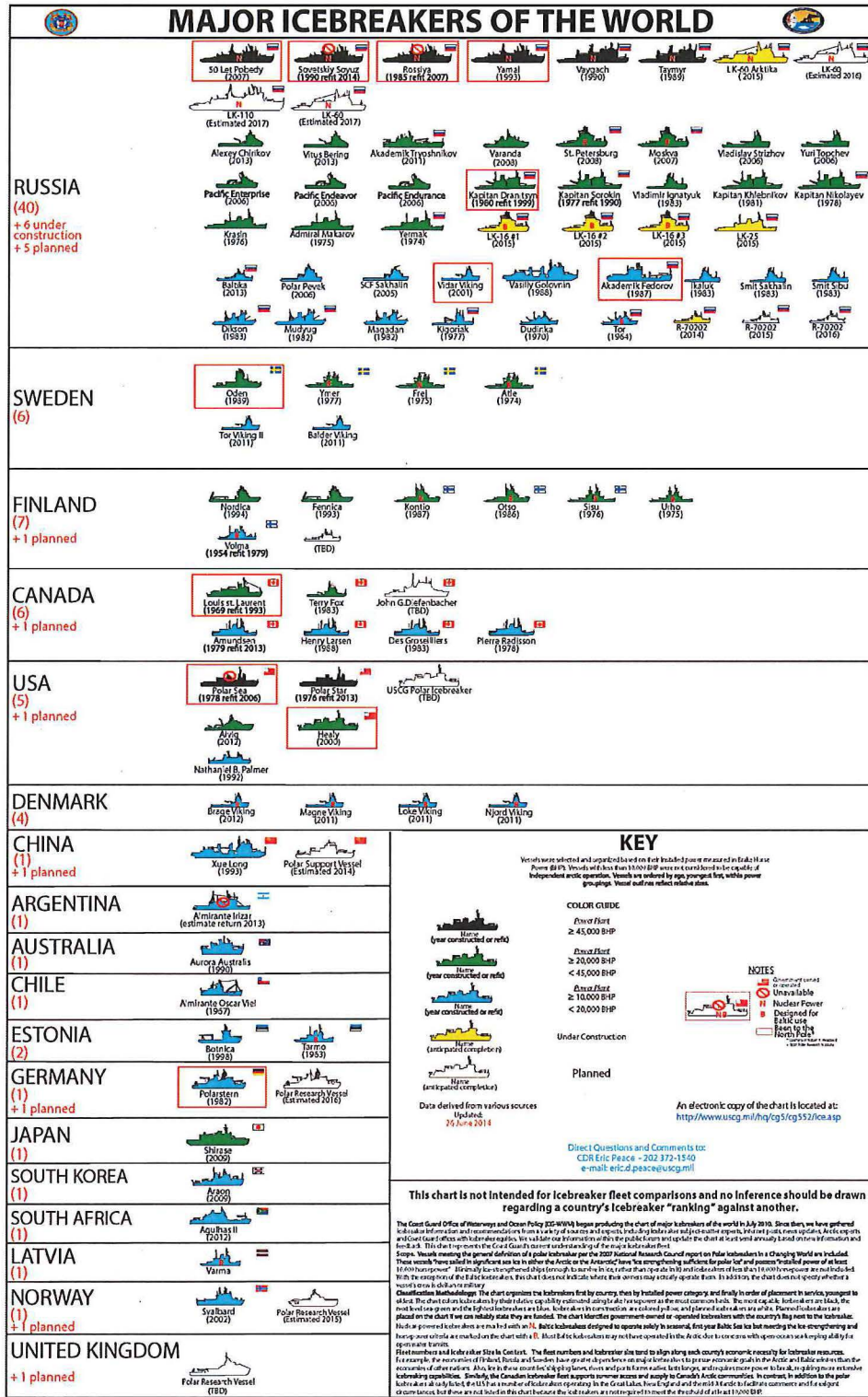
Overseeing the evolution of Norway's High North defenses into a centralized command and coordinated fighting structure that will be able to call upon an Air Force equipped with F-35s, forward Army battalions deploying CV90 tracked armored fighting vehicles and high mobility Archer artillery units, and a stronger Navy operating anti-aircraft and submarine-hunting Arctic-class Fridtjof Nansen frigates and Skjold corvettes.³⁷

The JOCH presents an opportunity for the United States and NATO to develop command and control capabilities in the Arctic through joint multinational exercises. The United States cannot afford to devote the same percentage of its military resources to the Arctic given the other challenges it faces as a hegemon, but the United States could leverage Norway's efforts to develop and validate its doctrine for cold weather operations. Through these exercises the United States can provide NATO the necessary leadership to prepare the alliance for future operations in the Arctic.

Canada's interests in the Arctic are focused on the opportunities presented by the opening of the NWP and opportunities for resource exploitation. Like Russia, Canada's Arctic coastline is vast in relative terms compared to the United States, Norway, and Denmark. Due to the abundance of islands in Canada's Arctic, the NWP traverses through Canada's territorial waters. Therefore, Canada requires a different set of resources in terms of ice breakers and fixed infrastructure to ensure that adequate forces are available and positioned to conduct SAR operations as the volume of international shipping on the NWP increases.

At present, Canada has 13 ice breakers. This ice breaker fleet includes two heavy, four medium, and seven light models.³⁸ The United States has five ice breakers with one large ice breaker under construction. As of June 2014, four of the five ice breakers are available. The available fleet includes one large ice breaker, two medium ice breakers, and one small ice breaker.³⁹ The United States and its allies are at a disadvantage both collectively and separately when compared to Russia in terms of ice breakers as depicted in Figure 7. Russia's fleet of 40 ice breakers is impressive and demonstrates the importance of the region to their economy since the end of World War II. The U.S. Coast Guard is responsible for the United States ice breaker fleet, but it works in conjunction with the Navy. As such, both the U.S. Coast Guard and U.S. Navy are saddled with priorities other than

those in the Arctic and the estimated cost to build a new ice breaker may top one billion dollars according to the Congressional Research Service.⁴⁰ Therefore, allies are going to be critical to the success of any strategy the United States will execute for the Arctic in 2025.



Developed and maintained by USCG Office of Waterways and Ocean Policy (CG-WWM)

Figure 7: Icebreakers of the World

Source: U.S. Coast Guard. "Major Icebreakers of the World."³⁴¹

United States Joint Force in 2025

In May 2013, the United States published the *National Strategy for the Arctic*.⁴² The Department of Defense (DOD) followed suit with the publication of its *Arctic Strategy* in November 2013. Both of these documents are useful policies that outline the ends the United States wishes to achieve in the Arctic and they provide some broad guidance on ways to go about that, but they leave a significant void when it comes to means and circumstances. Therefore, the development of the capabilities the joint force will require in 2025 is an effort worth pursuing over the next decade.

The DOD *Arctic Strategy* states that the desired end state for the Arctic is, “a secure and stable region where U.S. national interests are safeguarded, the U.S. homeland is protected, and nations work cooperatively to address challenges.”⁴³ The supporting objectives outlined by DOD to achieve the above end state are first, “ensure security, support safety, and promote defense cooperation” and second, “prepare for a wide range of challenges and contingencies.”⁴⁴ Subsequently, the DOD *Arctic Strategy* provides the following ways or tasks to achieve its objectives and reach its end state:

- 1) Exercise sovereignty and protect the homeland;
- 2) Engage public and private sector partners to improve domain awareness in the Arctic;
- 3) Preserve freedom of the seas in the Arctic;
- 4) Evolve Arctic infrastructure and capabilities consistent with changing conditions;
- 5) Support existing agreements with allies and partners while pursuing new ones to build confidence with key regional partners;
- 6) Provide support to civil authorities, as directed;
- 7) Partner with other departments and agencies and nations to support human and environmental safety; and
- 8) Support the development of the Arctic Council and other international institutions that promote regional cooperation and the rule of law.⁴⁵

With the exception of ice breakers, the joint force possesses the resources (infantry, aircraft, ships, etc.) to achieve the end state outlined in the DOD *Arctic Strategy*. Assuming that the end state listed in the strategy will remain be similar in 2025, the individual services and the joint force have a clear understanding of the capabilities they need to develop over the next

decade. The validation of service, joint, and multinational doctrine through a series of exercises will be critical to success in 2025.

The combatant commander responsible for advocating for the capabilities required to achieve the objectives listed in the DOD *Arctic Strategy* is the Commander of U.S. Northern Command (NORTHCOM). However, the Commander of U.S. European Command (EUCOM) is responsible for more Arctic territory in his area of responsibility. The respective areas of responsibility for the combatant commands are depicted in Figure 8. Therefore, coordination between the NORTHCOM and EUCOM combatant commands will be required as the United States develops its Arctic capabilities. Additionally, there are a host of other actors including other governmental agencies such as the Department of Homeland Security (DHS), as well as non-governmental organizations, transnational corporations, and indigenous populations that will effect joint force operations in the Arctic. Executing the tasks listed in the *Arctic Strategy* with the diverse set of actors mentioned above is a tall order in any operational environment. Only multiple combined joint exercises in the harsh Arctic environment will enable the United States to develop its Arctic capacity by 2025.

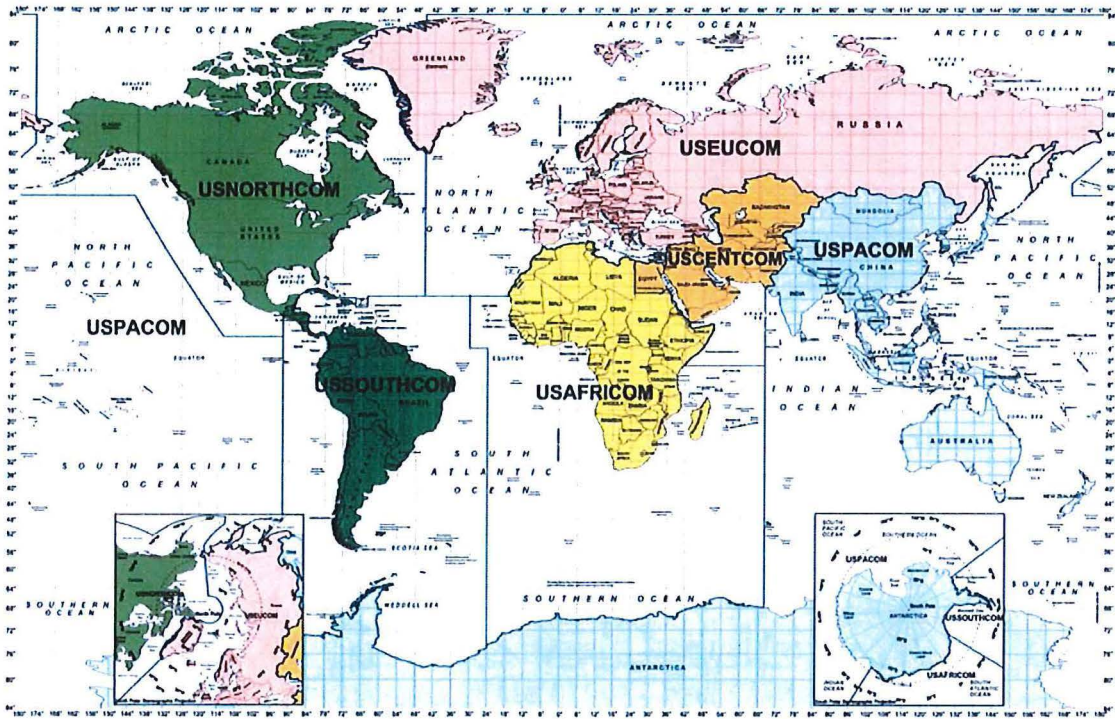


Figure 8: Unified Command Plan

Source: Andrew Feickert, “The United Command Plan and Combatant Commands: Background and Issues for Congress,” *Congressional Research Service*.⁴⁶

In 2025 the United States should be capable of conducting joint operations in the Arctic to deter Russian aggression and if necessary defeat Russian forces, secure SLOCs, and seize and hold key terrain. If the United States does not develop the capability of its joint forces to fight and win in the Arctic then Russia will exploit this weakness to secure its interests in the Arctic and advance its interests globally. The challenge for the United States is finding the resources to develop an Arctic capability while satisfying the demands of higher priority operations elsewhere in the world.

At present the military services are not prepared to conduct major operations in the Arctic as a joint force. Each service has forces that are trained in operating in the Arctic and the services are in varying stages of development plans that account for the changes in the operational environment discussed above. For example, in January 2011, the U.S. Army and

U.S. Marine Corps updated their doctrine manual on cold weather operations.⁴⁷ In February 2014, the U.S. Navy published an *Arctic Roadmap* which outlines their service plan to improve the training and readiness of their forces in the near-term (present to 2020), mid-term (2020-2030), and far term (beyond 2030).⁴⁸ On February 25, 2014, with the assistance of Alaska National Guard C-130 aircraft, elements of the 4th Brigade Combat Team (Airborne), 25th Infantry Division conducted the division's first airborne operation north of the Arctic circle approximately 495 miles North of Fairbanks in the North Slope Borough.⁴⁹ Relative to Russia, the United States Arctic capable forces are limited. The risk associated with downsizing forces based in close proximity to Arctic regions can be reduced through the execution of joint exercises that draws on forces based in the Continental United States.

The U.S. Air Force currently bases aviation assets capable of operations in the Arctic at JBER, Eielson Air Force Base, approximately 30 miles Southeast of Fairbanks, and Stratton Air National Guard Base in Scotia, New York. The air forces at JBER include the 11th Rescue Coordination Center, two airlift squadrons, three rescue squadrons, and an air control squadron. The composition of those squadrons includes the C-17 Globemaster, HC-130N, and C-123s as well as HH-60G Pave Hawk helicopters.⁵⁰ The 354th Fighter Wing at Eielson is equipped with F-16s. Figure 9 depicts the U.S. Air Force organizations currently training and supporting operations in Alaska. The 109th Airlift wing at Stratton Air National Guard Base has ski-equipped LC-130 Hercules aircraft that are capable of landing on glaciers and un-prepared snow fields.⁵¹ The 109th is tasked with support the National Science Foundation in Antarctica and a combination of scientists from the United States and Europe in Greenland each year.⁵²

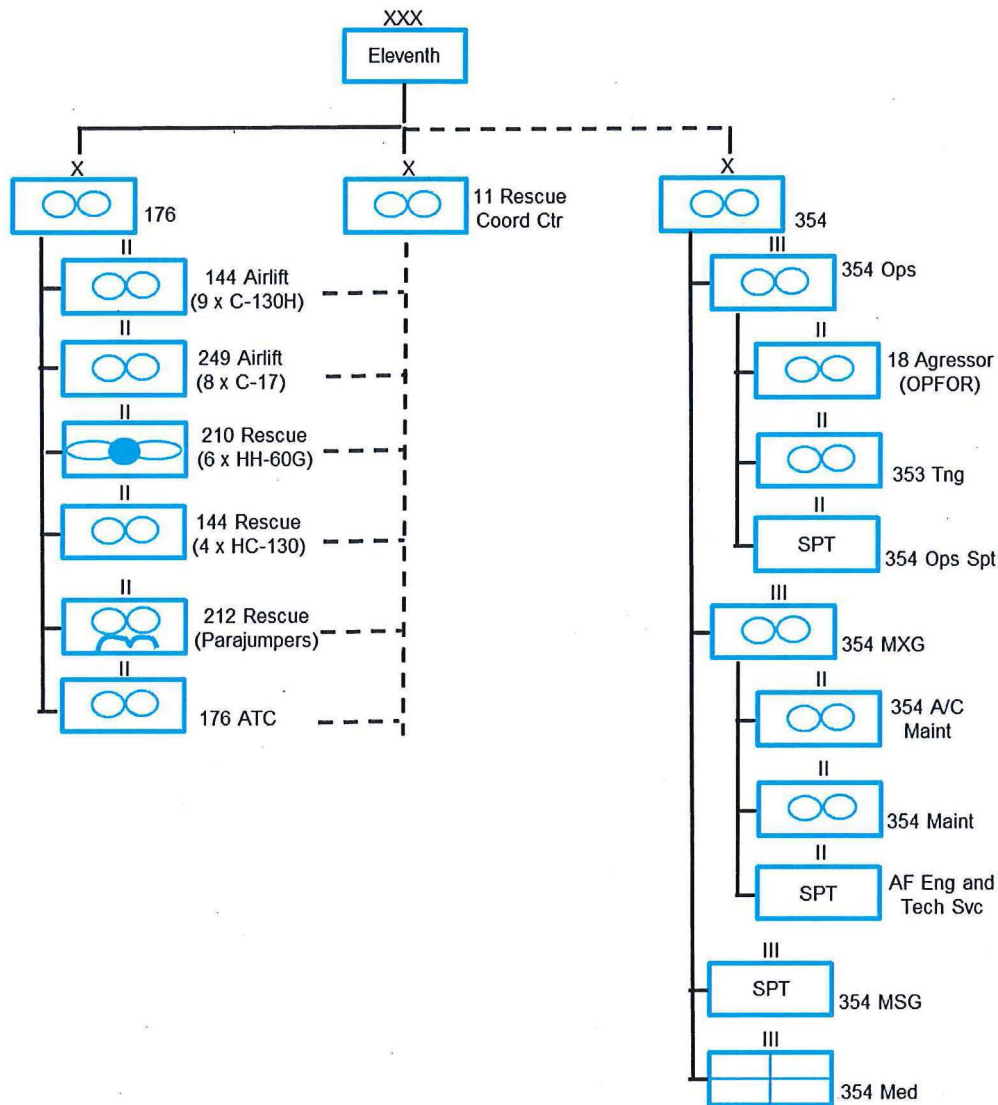


Figure 9: U.S. Air Force formations supporting training and operations in Alaska

Source: Brian C. Harber, "Climate Change and International Competition: The US Army in the Arctic Environment."⁵³

The U.S. Navy has modest forces assigned to Arctic operations on Kodiak Island in Alaska, but their *Arctic Roadmap* provides a plan to prepare them to accomplish their mission as part of the joint force. Specifically, the roadmap states, "By 2020, the Navy will increase the number of personnel trained in Arctic operations. The Navy will grow expertise in all domains by continuing to participate in exercise, scientific missions, and personnel exchanges in Arctic-like conditions."⁵⁴ The U.S. Navy does not plan to be fully capable of

responding to emergencies affecting national security in the Arctic until 2030.⁵⁵ Combined joint exercises in 2020 will be essential to validate the U.S. Navy's progress towards Arctic capability development.

The U.S. Army has forces at three major bases in Alaska. The 1st Brigade, 25 Infantry Division (SBCT) is located at Fort Wainwright and the 4-25 ID discussed above is at JBER. The 49th Missile Defense Battalion provides ground based ballistic missile defense Fort Greely and is co-located with additional combat support and combat service support units.⁵⁶ In addition to these forces mentioned above, the U.S. Army Alaska also operates the Northern Warfare Training Center (NWTC) at Fort Wainwright.

Conclusion and Recommendation

The Arctic is opening and Russia has invested significantly in its military capabilities to operate in the region. The United States and some of our NATO allies including Norway and Canada have significant interests in the region. As the United States looks ahead to 2025 and beyond, the DOD should consider allocating resources developing Arctic capabilities through service and joint doctrine development and then validate that doctrine through joint and multi-national training exercises. The establishment or improvement of limited base and road infrastructure in Northern Alaska may be necessary due to the wear and tear on existing infrastructure during the exercises.

A series of exercises in the two areas depicted in Figure 8 should begin no later than 2020 to ensure that the joint force is prepared to fight and win in the Arctic in 2025. In Area One (North of Norway), NATO should execute mission command exercises from the JOCH in Norway based on a scenario where conflict occurs over the Svalbard archipelago. In Area Two, (Alaska), a combined joint exercise in 2020 including Norway, Canada, and Denmark should be conducted. The exercise should include the deployment of ground, air, and naval forces from the United States to establish sea control in the Bering Strait and Beaufort Sea,

seize and defend ports and airfields at Prudoe Bay, Barrow, Kotzebue, and Nome will significantly challenge and test the joint forces ability to operate in an Arctic environment.

The participation of forces from Canada, Norway, and other NATO states in these exercises will allow for the validation of service, joint, and multinational doctrine. Norway's participation is critical because the most probable scenario where a conflict will occur in the Arctic in 2025 is in the Svalbard archipelago. Canada's participation is critical because the United States will need to rely on Canada's ice breakers in the event of a conflict with Russia. The United States is accepting risk if it does not build more ice breakers, but given current budget constraints and competing priorities for ship building it is unlikely that the resources will be available to grow the United States ice breaker fleet. Therefore, the United States can mitigate that risk by improving interoperability with allies that have ice breakers.

The NWTC exists to train leaders to fight and win in harsh cold weather conditions and mountain environments. The NWTC asserts that they are relevant because "a soldier trained in winter is also a good summer fighter; trained only in summer is helpless in the winter."⁵⁷ The same statement applies to the joint force. It is only through combined joint exercises in harsh Arctic environment that the United States will be able to develop the capability to counter Russian aggression in the region in the future.



Figure 10: Combined Joint Exercise Areas

Source: National Snow and Ice Data Center, "All About Arctic Climatology and Meteorology."⁵⁸

¹ Department of Defense Directive Number 7045.20, “Capability Portfolio Management,” September 25, 2008. A capability is “the ability to achieve a desired effect under specified standards and conditions through a combination of means and ways across doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) to perform a set of tasks to execute a specified course of action.”

² “Teaching the Truth About Climate Change,” *The New York Times*, (October 10, 2015), Accessed February 22, 2016, http://www.nytimes.com/2015/10/11/opinion/sunday/teaching-the-truth-about-climate-change.html?_r=0

³ Dusty Finley, “The Army in the Arctic White Paper: A framework for optimizing land domain forces in the Arctic,” G37 Force Management Division, Headquarters, United States Army Alaska, July 28, 2015.

⁴ “The Emerging Arctic.” Council on Foreign Relations, Accessed November 5, 2015 http://www.cfr.org/polar-regions/emerging-arctic/p32620#!/?cid=otr_marketing_use-arctic_Infoguide#economic-prospects

⁵ “The Emerging Arctic.” Council on Foreign Relations.

⁶ “The Emerging Arctic.” Council on Foreign Relations.

⁷ Scott Borgerson, “Sea Change: The Transformation of the Arctic.” *The Atlantic* (November 2008). Accessed November 4, 2015, <http://www.theatlantic.com/magazine/archive/2008/11/sea-change/307072/>

⁸ RADM Jonathan White, “United States Navy Arctic Roadmap Update,” *6th Symposium on the Impacts of an Ice-Diminishing Arctic on Naval and Maritime Operations*, July 15, 2015, Accessed December 31, 2015, http://www.star.nesdis.noaa.gov/star/documents/meetings/Ice2015/dayTwo/9_White_J_dayTwo.pdf

⁹ National Oceanic and Atmospheric Administration, Arctic Change Indicator Website, Accessed November 5, 2015, <http://www.arctic.noaa.gov/detect/land-permafrost.shtml>

¹⁰ *Northwest Explorer Blog*, Accessed January 2, 2016,

<http://northwestexplorerblog.blogspot.com/2010/12/northern-alaska-road-trip-830-to-919.html>

¹¹ Steven Lee Myers and Clifford Krauss, “Melting Ice Isn’t Opening Arctic to Oil Bonanza,” *The New York Times*, Accessed December 28, 2015, http://www.nytimes.com/2015/09/08/world/europe/melting-ice-isnt-opening-arctic-to-oil-bonanza.html?_r=0

¹² The overarching legal framework that governs the Arctic is the UN Convention on the Law of the Sea (UNCLOS). The United States is the only Arctic state that has not ratified UNCLOS. States have a right to the resources within 200 nautical miles of their land known as their Economic Exclusion Zone. However, states can claim resources beyond the EEZ if those resources are extracted from that states continental shelf. Russia claims that its continental shelf extends to the North Pole. The Lomonosov Ridge is important it is part of Russia’s claim and it extends from the Russian coast to the North Pole. The Arctic Council is the primary forum for international cooperation on the Arctic. For more information on UNCLOS and the Arctic see *United Nations Convention on the Law of the Sea*, Accessed January 2, 2015,

http://www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm and The Arctic Council website, Accessed January 2, 2015, <http://www.arctic-council.org/index.php/en/>

¹³ Rajesh Mirchandani, “The struggle for Arctic riches,” *BBC News* September 22, 2015, Accessed, January 2, 2016, <http://www.bbc.com/news/world-11388654>

¹⁴ Heather A. Conley and Caroline Rohloff, “The New Ice Curtain: Russia’s Strategic Reach to the Arctic,” *Center for Strategic and International Studies*, page 70.

¹⁵ Zachary Keck, “Russia to Establish Arctic Military Command,” *The Diplomat*, (February 21, 2014), Accessed December 28, 2015, <http://thediplomat.com/2014/02/russia-to-establish-arctic-military-command/> and Matthew Bodner, “Russia’s Polar Pivot,” *Defense News*, (March 11, 2015), Accessed December 28, 2015,

<http://www.defensenews.com/story/defense/policy-budget/warfare/2015/03/11/russia-arctic-bases-soviet-northern-command-navy-fleet-siberian-island/24335619/>

¹⁶ Heather A. Conley and Caroline Rohloff, “The New Ice Curtain: Russia’s Strategic Reach to the Arctic,” *Center for Strategic and International Studies*, page 73.

¹⁷ *Ibid*, 77.

¹⁸ *Ibid*, 78.

¹⁹ *Ibid*, 73.

²⁰ *Ibid*, 74.

²¹ *Ibid*, 74.

²² *Ibid*, 72.

²³ *Ibid*, 74.

²⁴ “Sneak peak at Russia’s ‘under renovation’ Arctic base,” *RT*, (September 18, 2014), Accessed February 24, 2016, <https://www.rt.com/news/188712-arctic-russia-military-base/>

²⁵ *Ibid*, 76.

²⁶ *Ibid*, 76.

²⁷ US Coast Guard, “Major Icebreakers of the World,” (June 26, 2015), Accessed December 29, 2015, <http://www.uscg.mil/hq/cg5/cg552/images/20140626%20Major%20Icebreaker%20chart.pdf>

-
- ²⁸ Ibid, 76.
- ²⁹ Ibid, 79-80.
- ³⁰ Ibid, 79-80.
- ³¹ Heather A. Conley and Caroline Rohloff, "The New Ice Curtain: Russia's Strategic Reach to the Arctic," *Center for Strategic and International Studies*, 72.
- ³² Ibid, 81.
- ³³ Ibid, 82.
- ³⁴ National Snow and Ice Data Center, "All About Arctic Climatology and Meteorology," Accessed January 2, 2016, <https://nsidc.org/cryosphere/arctic-meteorology/arctic.html>
- ³⁵ The Svalbard archipelago belongs to Norway, but there is a large community of Russian miners that reside there. The Svalbard archipelago is governed by the 1920 Svalbard Treaty, also known as the Spitsbergen Treaty, which grants Norway sovereignty of the islands, but limits governance of the islands. There are no visa requirements for Russians to travel there. For more information on the Svalbard Treaty see *The Svalbard Treaty*, February 9, 1920, Accessed December 29, 2015 <http://www.jus.uio.no/english/services/library/treaties/01/1-11/svalbard-treaty.xml>
- ³⁶ Gerard O'Dwyer, "Norway Prioritizes High North Equipment," *Defense News*, (March 11, 2015), Accessed December 29, 2015, <http://www.defensenews.com/story/defense/policy-budget/warfare/2015/03/03/norway-russia-arctic-northern-high-north-archer-cv90/24272749/>
- ³⁷ Ibid.
- ³⁸ Government of Canada, Canadian Coast Guard, Accessed December 29, 2015, <http://www.ccg-gcc.gc.ca/icebreaking/home>
- ³⁹ US Coast Guard, "Major Icebreakers of the World," (June 26, 2015), Accessed December 29, 2015, <http://www.uscg.mil/hq/cg5/cg552/images/20140626%20Major%20Icebreaker%20chart.pdf>
- ⁴⁰ Stew Magnuson, "Sticker Shock: \$1 Billion for New Icebreaker," *National Defense*, (June 2013), Accessed December 29, 2015, [http://www.nationaldefensemagazine.org/archive/2013/June/Pages/StickerShock\\$1BillionforNewIcebreaker.asp](http://www.nationaldefensemagazine.org/archive/2013/June/Pages/StickerShock$1BillionforNewIcebreaker.asp)
- ⁴¹ US Coast Guard, "Major Icebreakers of the World," (June 26, 2015), Accessed December 29, 2015, <http://www.uscg.mil/hq/cg5/cg552/images/20140626%20Major%20Icebreaker%20chart.pdf>
- ⁴² The White House, *National Strategy for the Arctic Region*, May 2013, Accessed December 29, 2015, https://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf
- ⁴³ Department of Defense, *Arctic Strategy*, November 2013, 4. Accessed December 29, 2015, http://archive.defense.gov/pubs/2013_Arctic_Strategy.pdf
- ⁴⁴ Ibid, 5-6.
- ⁴⁵ Ibid, 7.
- ⁴⁶ Andrew Feickert, "The Unified Command Plan and Combatant Commands: Background and Issues for Congress," *Congressional Research Service*, (January 3, 2013), Accessed February 24, 2016, <https://www.fas.org/sgp/crs/natsec/R42077.pdf>
- ⁴⁷ Department of the Army, *ATTP 3-97.11/MCRP 3-35.1D Cold Weather Operations*, (January 2011).
- ⁴⁸ Department of the Navy, *Arctic Roadmap: 2014-2030*, (February 2014).
- ⁴⁹ US Army Alaska Public Affairs, "Paratroopers jump north of Arctic Circle," (February 27, 2015), Accessed December 29, 2015, <http://www.northcom.mil/Newsroom/tabid/3104/Article/563930/paratroopers-jump-north-of-arctic-circle.aspx>
- ⁵⁰ Brian C. Harber (MAJ, US Army), "Climate Change and International Competition: The US Army in the Arctic Environment," *School of Advanced Military Studies*, (May 21, 2015), 20.
- ⁵¹ Ibid, 20.
- ⁵² Ibid, 20.
- ⁵³ National Snow and Ice Data Center, "All About Arctic Climatology and Meteorology," Accessed January 2, 2016, <https://nsidc.org/cryosphere/arctic-meteorology/arctic.html>
- ⁵⁴ Department of the Navy, *Arctic Roadmap: 2014-2030*, (February 2014), 18.
- ⁵⁵ Ibid, 18.
- ⁵⁶ US Army Alaska website, Accessed January 2, 2016, <http://www.usarak.army.mil/main/default.asp>
- ⁵⁷ US Army Alaska website, Accessed January 2, 2016, <http://www.wainwright.army.mil/nwtc/>
- ⁵⁸ National Snow and Ice Data Center, "All About Arctic Climatology and Meteorology," Accessed January 2, 2016, <https://nsidc.org/cryosphere/arctic-meteorology/arctic.html>

Bibliography

Bodner, Matthew. "Russia's Polar Pivot," *Defense News*, March 11, 2015. Accessed December 28, 2015, <http://www.defensenews.com/story/defense/policy-budget/warfare/2015/03/11/russia-arctic-bases-soviet-northern-command-navy-fleet-siberian-island/24335619/>

Borgerson, Scott. "Sea Change: The Transformation of the Arctic." *The Atlantic*, November 2008. Accessed November 4, 2015, <http://www.theatlantic.com/magazine/archive/2008/11/sea-change/307072/>

Conley, Heather A. and Caroline Rohloff. "The New Ice Curtain: Russia's Strategic Reach to the Arctic." *Center for Strategic and International Studies*.

Department of the Army. *ATTP 3-97.11/MCRP 3-35.1D Cold Weather Operations*. (January 2011).

Department of Defense. *Arctic Strategy*. November 2013. Accessed December 29, 2015, http://archive.defense.gov/pubs/2013_Arctic_Strategy.pdf

Department of Defense Directive Number 7045.20. "Capability Portfolio Management." September 25, 2008.

Department of the Navy. *Arctic Roadmap: 2014-2030*. (February 2014).

Feickert, Andrew. "The Unified Command Plan and Combatant Commands: Background and Issues for Congress." *Congressional Research Service*, (January 3, 2013), Accessed February 24, 2016, <https://www.fas.org/sgp/crs/natsec/R42077.pdf>

Finley, Dusty. "The Army in the Arctic White Paper: A framework for optimizing land domain forces in the Arctic." G37 Force Management Division, Headquarters, United States Army Alaska, July 28, 2015.

Government of Canada. Canadian Coast Guard. Accessed December 29, 2015, <http://www.ccg-gcc.gc.ca/icebreaking/home>

Harber, Brian C. (MAJ, US Army). "Climate Change and International Competition: The US Army in the Arctic Environment." *School of Advanced Military Studies*, May 21, 2015.

Heather A. Conley and Caroline Rohloff, "The New Ice Curtain: Russia's Strategic Reach to the Arctic," *Center for Strategic and International Studies*, page 70.

Keck, Zachary. "Russia to Establish Arctic Military Command." *The Diplomat*, February 21, 2014. Accessed December 28, 2015, <http://thediplomat.com/2014/02/russia-to-establish-arctic-military-command/>

Magnuson, Stew. "Sticker Shock: \$1 Billion for New Icebreaker." *National Defense*, June 2013. Accessed December 29, 2015,

[http://www.nationaldefensemagazine.org/archive/2013/June/Pages/StickerShock\\$1BillionforNewIcebreaker.aspx](http://www.nationaldefensemagazine.org/archive/2013/June/Pages/StickerShock$1BillionforNewIcebreaker.aspx)

Mirchandani, Rajesh. "The struggle for Arctic riches." *BBC News*, September 22, 2015. Accessed January 2, 2016, <http://www.bbc.com/news/world-11388654>

Myers, Steven Lee and Clifford Krauss. "Melting Ice Isn't Opening Arctic to Oil Bonanza." *The New York Times*, September 7, 2015. Accessed December 28, 2015, http://www.nytimes.com/2015/09/08/world/europe/melting-ice-isnt-opening-arctic-to-oil-bonanza.html?_r=0

National Oceanic and Atmospheric Administration, Arctic Change Indicator Website. Accessed November 5, 2015, <http://www.arctic.noaa.gov/detect/land-permafrost.shtml>

National Snow and Ice Data Center. "All About Arctic Climatology and Meteorology." Accessed January 2, 2016, <https://nsidc.org/cryosphere/arctic-meteorology/arctic.html>

Northwest Explorer Blog. Accessed January 2, 2016, <http://northwestexplorerblog.blogspot.com/2010/12/northern-alaska-road-trip-830-to-919.html>

O'Dwyer, Gerard. "Norway Prioritizes High North Equipment." *Defense News*, March 11, 2015. Accessed December 29, 2015, <http://www.defensenews.com/story/defense/policy-budget/warfare/2015/03/03/norway-russia-arctic-northern-high-north-archer-cv90/24272749/>

"Sneak peak at Russia's 'under renovation' Arctic base." *RT*. (September 18, 2014), Accessed February 24, 2016, <https://www.rt.com/news/188712-arctic-russia-military-base/>

Tan, Michelle. "Army lays out plan to cut 40,000 soldiers." *Army Times*, July 10, 2015.

Teaching the Truth About Climate Change." *The New York Times*, October 10, 2015. Accessed February 22, 2016, http://www.nytimes.com/2015/10/11/opinion/sunday/teaching-the-truth-about-climate-change.html?_r=0

The Arctic Council website. Accessed January 2, 2015, <http://www.arctic-council.org/index.php/en/>

"The Emerging Arctic." Council on Foreign Relations. Accessed November 5, 2015 http://www.cfr.org/polar-regions/emerging-arctic/p32620#!/?cid=otr_marketing_use-arctic_Infoguide#economic-prospects

The Svalbard Treaty. February 9, 1920. Accessed December 29, 2015 <http://www.jus.uio.no/english/services/library/treaties/01/1-11/svalbard-treaty.xml>

The White House. *National Strategy for the Arctic Region*. May 2013. Accessed December 29, 2015, https://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf

US Army Alaska Public Affairs. "Paratroopers jump north of Arctic Circle." February 27, 2015. Accessed December 29, 2015,

<http://www.northcom.mil/Newsroom/tabid/3104/Article/563930/paratroopers-jump-north-of-arctic-circle.aspx>

US Army Alaska website. Accessed January 2, 2016,
<http://www.usarak.army.mil/main/default.asp>

US Coast Guard. "Major Icebreakers of the World." June 26, 2015. Accessed December 29, 2015,
<http://www.uscg.mil/hq/cg5/cg552/images/20140626%20Major%20Icebreaker%20chart.pdf>

United Nations Convention on the Law of the Sea. Accessed January 2, 2015,
http://www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm

White, Jonathan (RADM). "United States Navy Arctic Roadmap Update." *6th Symposium on the Impacts of an Ice-Diminishing Arctic on Naval and Maritime Operations*, July 15, 2015. Accessed December 31, 2015,
http://www.star.nesdis.noaa.gov/star/documents/meetings/Ice2015/dayTwo/9_White_J_dayTwo.pdf