

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 existing data sources, gathering and maintaining the data needed, and completing and reviewing this 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 Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE (DD-MM-YYYY) 15-05-2013		2. REPORT TYPE FINAL		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE THE SUBMARINE – THE KEY TO WINNING AN ARCTIC CONFLICT		5a. CONTRACT NUMBER			
		5b. GRANT NUMBER			
		5c. PROGRAM ELEMENT NUMBER			
6. AUTHOR(S) LCDR Sean A. Stein Paper Advisor (if Any): Professor Albion A. Bergstrom		5d. PROJECT NUMBER			
		5e. TASK NUMBER			
		5f. WORK UNIT NUMBER			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207		8. PERFORMING ORGANIZATION REPORT NUMBER			
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)			
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)			
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Statement: Approved for public release; Distribution is unlimited.					
13. SUPPLEMENTARY NOTES A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.					
14. ABSTRACT <i>The Submarine - The Key To Winning An Arctic Conflict</i> The effects of global climate change are becoming more apparent in the Arctic than anywhere else on the planet. Warming at a rate almost twice as fast as anywhere else on earth, the melting Arctic ice is providing access to waterways and resources that have not been accessed in recent history. As more and more territory becomes available, the potential for conflict in the region increases. Multiple countries are taking the initial steps for expanding their military defenses in the Arctic region. Like most other Arctic nations, the United States has numerous national and strategic interests in the Arctic and, if a conflict occurs, the Operational Commander will be required to protect these interests. This paper discusses the potential conflict in the Arctic and how the Operational Commander could use the capabilities of the submarine to balance the factors of space, time, and force. This paper concludes with recommendations for the Submarine Force to dedicate specific units for Arctic operations.					
15. SUBJECT TERMS Submarine, Arctic, Arctic Sea Control, Sea Control, Undersea Warfare,					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 25	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-3556

**NAVAL WAR COLLEGE
Newport, R.I.**

THE SUBMARINE – THE KEY TO WINNING AN ARCTIC CONFLICT

by

Sean A. Stein

Lieutenant Commander, United States Navy

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

15 May 2013

Contents Page

Introduction	1
The Melting Arctic	2
The Arctic Conflict	3
Why the Arctic?	7
The Submarine and the Operational Commander	9
Recommendations	16
Conclusion	17
Bibliography	18

Paper Abstract

The Submarine – The Key To Winning An Arctic Conflict

The effects of global climate change are becoming more apparent in the Arctic than anywhere else on the planet. Warming at a rate almost twice as fast as anywhere else on earth, the melting Arctic ice is providing access to waterways and resources that have not been accessed in recent history. As more and more territory becomes available, the potential for conflict in the region increases. Multiple countries are taking the initial steps for expanding their military defenses in the Arctic region. Like most other Arctic nations, the United States has numerous national and strategic interests in the Arctic and, if a conflict occurs, the Operational Commander will be required to protect these interests. This paper discusses the potential conflict in the Arctic and how the Operational Commander could use the capabilities of the submarine to balance the factors of space, time, and force. This paper concludes with recommendations for the Submarine Force to dedicate specific units for Arctic operations.

Introduction

Global climate change is slowly causing the Arctic to melt. With a rate of temperature change almost twice as fast as the remainder of the earth, global warming in the Arctic is causing the polar ice to melt, opening new waterways and providing access to numerous untapped resources. Research indicates that it is only a matter of time before the Arctic is ice-free.

When new territory becomes available everyone wants a piece of it. The Arctic States (Canada, Norway, Russia, Denmark, Finland, Sweden, Iceland, and the United States) are all making various claims to the Arctic territory through the United Nations Convention on the Law of the Sea (UNCLOS). While many believe and hope UNCLOS will provide a peaceful method for conflict resolution, history has shown that when the possibility of new land and resources become available the potential for conflict exists.

Like the other Arctic States, the United States has national and strategic interests in the Arctic and must protect these interests. Due to the environment of the Arctic, the most probable conflict will be fought on the sea vice on land. The United States Navy currently lacks surface ships capable of operating in the iced portions of the Arctic, meaning the Operational Commander is limited in his force capabilities for Arctic operations. Therefore, in the event of a maritime conflict in the Arctic, dominance of the undersea environment, through the use of the submarine, will be the primary tool for the Operational Commander to protect United States strategic and maritime interests within the region.

The Melting Arctic

The Arctic is melting! Global climate change is real, and nowhere is it more apparent than in the Arctic region. As the snow and ice melt, due to global warming, the larger surface area of the ocean is able to absorb more solar energy during the summer months. During the winter, this heat is transferred back to the atmosphere resulting in warmer air temperatures. As such, the rate of warming in the Arctic is almost twice as fast as the rest of the planet resulting in the continued melting of Arctic ice.¹

In 2012, the Arctic region reached a new record low for ice coverage with an average coverage of 3.4 million square miles.² Although this region has experienced gradual change over the past 50 years, the last two decades have shown a significant decrease in the extent of ice coverage averaging about 3 percent per year³. Experts believe that as these trends continue, 2013 could be the first “ice-free”⁴ summer on record,⁵ with an additional 30 – 40 percent decrease in volume by 2050.⁶

The melting Arctic has led to new uncharted territory and opened waterways to shipping that had previously never been available. In 2008, the Northwest Passage (NWP) was ice-free for a two-week period⁷ and when combined with the ice-free periods in the Northern Sea Route (NSR), the two have opened the historic Arctic transit lanes for the first

¹ David W. Titley and Courtney C. St John, “Arctic Security Considerations and the US Navy’s Roadmap For The Arctic,” *Naval War College Review* Vol. 63 no 2, (Spring 2010): 36

² Jennifer Marino Walters, “Melting Away” *Scholastic Match Magazine*, (Jan 14, 2013), 4, ProQuest (1271597422).

³ David Gove, “Arctic Melt: Reopening a Naval Frontier,” *Proceedings Magazine*, Vol.135 no. 2 (February 2009), <http://www.usni.org/magazines/proceedings/2009-02/arctic-melt-reopening-naval-frontier>, (accessed 11 March 2013).

⁴ Ice Free is defined as less than 15 percent ice coverage by the National Snow and Ice Data Center.

⁵ Scott G. Borgerson, “Arctic Meltdown: The Economic and Security Implications of Global Warming,” *Foreign Affairs* 87 no. 2 (March/April 2008), ProQuest (214295772)

⁶ Gove, “Arctic Melt: Reopening a Naval Frontier.”

⁷ Charles K. Ebinger and Evie Zambetakis, “The Geopolitics of Arctic Melt,” *International Affairs*, Vol. 85 no 6 (2009): 1216.

time in recent history to commercial shipping. In addition to the newly opened transit lanes, the receding ice has provided access to numerous previously untapped resources which include, oil, gas, minerals, and additional opportunities for commercial fishing.⁸ As the Arctic ice melts and provides access to previously unreachable resources, this region will soon become one of the most contested areas on the planet.



Figure 1, Northwest Passage and Northern Sea Route⁹

The Arctic Conflict

*“Only when the ice breaks will you truly know who is your friend and who is your enemy”
- Inuit Proverb*

The Arctic is rich in natural resources. Researchers estimate that, in addition to gold, copper, and other minerals, the Arctic contains 30 percent of the world’s remaining natural

⁸ Gove, “Arctic Melt: Reopening a Naval Frontier.”

⁹ Northwest Passage and Northern Sea Route. Online at: http://images.businessweek.com/story/09/370/0127_arctic.jpg (accessed 27 April 2013).

gas resources and approximately 13 percent of the world's untapped oil supplies.¹⁰ As the demand for oil and natural gas rises, countries will look to the resources of the Arctic region as the next supply for this demand. Likewise, as the NWP and NSR become ice-free, opening trade routes between Asia, Europe, and North America, the territorial claims and the location of these passageways within a country's territorial claim could become the subject of contention. While the reality of World War III being fought over the Arctic is unlikely, the National Intelligence Council does suggest that the chance for smaller conflicts, centered on territorial claims, exists.¹¹

In 2007, using one of their submarines, Russia planted the Russian Flag on the ocean floor at the North Pole and made the statement "The Arctic is Ours."¹² Since this claim, and fueled by the significant amount of resources contained within the Arctic, many of the remaining Arctic States are in the process of making or disputing claims of Arctic sovereignty. Article 76 of UNCLOS allows countries to extend their continental shelves when they can scientifically prove the land is theirs.¹³ On an economic basis, this is important because it expands a country's Exclusive Economic Zone (EEZ), providing the ability to have sole jurisdiction and the use of the natural resources located in those areas. This makes proving territory, under UNCLOS, necessary for a country to claim the land and receive the economic benefits of the Arctic. "Without a doubt, there will be more

¹⁰ Heather Conley and Jamie Kraut, "U.S. Strategic Interests in the Arctic: An Assessment of Current Challenges and New Opportunities for Cooperation," *Center for Strategic & International Studies* (April 2010), 2.

¹¹ National Intelligence Council, "Global Trends 2025: A Transformed World", (November 2008), 53.

¹² Mark Galeotti, "Cold Calling – Competition Hats Up for Arctic Resources" *Jane's Intelligence Review*, 18 September 2008, online at: <https://janes.ihs.com/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1195612&Pubabbrev=JIR#>, (accessed 11 March 2013)

¹³ United Nations, "United Nations Convention on the Law of the Sea" online at http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf, 53 (accessed 11 March 2013)

sovereignty challenges in the years to come,¹⁴ writes Barry Zellen, and with multiple countries submitting these claims and disputing the other claims, it could be years before decisions are made and the true ownership of the land is determined. Even if decisions are reached, the question remains, will all parties involved be satisfied with the rulings under UNCLOS?

Russia, Canada, and Norway are in the process of strengthening their military forces within the Arctic region. Compared to other Arctic States, Russia has the most Arctic capable military assets. In 2007, coincidentally around the time of the North Pole flag planting, Russia increased the frequency of their Arctic long range bomber flights,¹⁵ and in 2008 Russia's National Security Council drafted an Arctic policy formalizing their claimed Arctic borders.¹⁶ Combined with the development of new surface ships and submarines, to include the newly developed Borey class ballistic missile submarine, Russia's military advancements have forced the other Arctic States to improve their military capabilities for operating in the Arctic.

In response to Russian activities, Canada, who claims a majority of the NWP is located within internal waters,¹⁷ has become the most vocal about defense by force. As such, the Canadian Arctic policy has called for increased defense funding, the development of patrol ships, and the development of new Arctic bases. Additionally, Canadian troops have

¹⁴ Barry Scott Zellen, *Arctic Doom, Arctic Boom: The Geopolitics of Climate Change in the Arctic*, (Santa Barbara, California: ABC-CLIO, LLC, 2009), 92.

¹⁵ John Patch, "Cold Horizons: Arctic Maritime Security Challenges," *Proceedings Magazine*, Vol.135 no. 5. (May 2009), <http://www.usni.org/print/4227> (accessed 4 April 2013).

¹⁶ Patch, "Cold Horizons: Arctic Maritime Security Challenges."

¹⁷ Franklyn Griffiths, Rob Huebert, and P. Whitney Lackenbauer, *Canada and the Changing Arctic: Sovereignty, Security, and Stewardship* (Waterloo, Ontario, Canada: Wilfrid Laurier University Press, 2011), 46.

expanded their northern operations focusing on operating in Arctic conditions.¹⁸ Canada isn't alone in improving their military capabilities. Norway, concerned about Russia's plans to improve their submarine fleet and the advancements to the Northern fleet, has begun the initial phases of exploring the replacements for Norway's outdated submarines.¹⁹ In addition to submarine improvements, Norway has purchased Arctic capable frigates and expanded their coastal surveillance of the Arctic region.²⁰

Despite the military buildup of the Arctic States, not everyone believes a military conflict will take place in the region. In 1996, the Arctic States (Canada, Norway, Russia, Denmark, Finland, Sweden, Iceland, and the United States) formed the Arctic Council with the mission "to promote cooperation, coordination, and interaction among the Arctic States."²¹ Experts feel that UNCLOS, combined with the Arctic council, will serve as the way to prevent armed conflict in the region. James Kraska writes, "UNCLOS serves as a key mechanism for conflict avoidance in the polar north, as it provides a widely accepted framework for resolving disagreements over marine boundary delimitation."²² Although many leaders see UNCLOS as a peaceful method to prevent boundary disputes on territorial claims, the value of the Arctic and the military buildup of nations geared towards Arctic capabilities cannot be denied. With the recent requests by China and Japan, who recognize the importance of the Arctic, to enter the Arctic Council one can hope that UNCLOS can prevent an armed conflict, but we must also be realistic to the fact that territory disputes

¹⁸ Ibid, 104.

¹⁹ Gerard O'Dwyer, "Norway Eyes Next-Gen Submarine Acquisition," *Defensenews.com*, 22 February 2013, <http://www.defensenews.com/article/20130222/DEFREG01/302220014/Norway-Eyes-Next-Gen-Submarine-Acquisition>, (accessed 11 March 2013).

²⁰ Charles Emerson, *The Future History of the Arctic* (New York: PublicAffairs, 2010), 122.

²¹ History of the Arctic Council, The Arctic Council, last modified 27 April 2011, <http://www.arctic-council.org/index.php/en/about-us/arctic-council/history>, (accessed 16 April 2013).

²² James Kraska "The New Arctic Geography and U.S. Strategy" in *Arctic Security in an Age of Climate Change*, ed. James Kraska (New York: Cambridge University Press, 2011), 247.

could become real. As noted by Rob Huebert in his article *The Newly Emerging Arctic Security Environment* for the Canadian Defense and Foreign Affairs Institute, “the strategic value of the region is growing. As this value grows, each state will attach a greater value to their own national interests in the region. The Arctic States may be talking co-operations, but they are preparing for conflict.”²³

Why the Arctic?

“Changes in the Arctic environment – no matter the cause – are a great national security concern”

-Rear Admiral David Gove, U.S. Navy²⁴

While the other Arctic States have worked to build their armed forces and prepare them for an Arctic conflict, the United States has lagged significantly behind, focusing on other efforts and not providing nearly as many resources to the Arctic region as the other member states. Realizing the impact of climate change and the strategic importance of the Arctic region, in 2009 President Bush signed National Security Presidential Directive (NSPD)-66/ Homeland Security Presidential Directive (HSPD)-25 *Arctic Region Policy*. This policy outlines the United States’ strategic and security interests within the region and stresses the importance of freedom of navigation, maritime domain awareness to protect commerce and vital resources developing global mobility through the region, enhancing scientific research, and providing a maritime presence in the Arctic.²⁵

²³ Rob Huebert, “The Newly Emerging Arctic Security Environment,” *Canadian Defense & Foreign Affairs Institute* (March 2010), Online at:

<http://www.cdfai.org/PDF/The%20Newly%20Emerging%20Arctic%20Security%20Environment.pdf>, iv

²⁴ Gove, “Arctic Melt: Reopening a Naval Frontier.”

²⁵ White House, *Arctic Region Policy*, National Security Presidential Directive-66/Homeland Security Presidential Directive-25, (Washington, DC: Office of the Press Secretary, 9 January 2009).

The United States is an Arctic nation. Our Alaskan borders are within the defined Arctic territory and, like other countries, the possibility exists that the United States could expand their EEZ by expanding the continental shelf through UNCLOS. This expansion would give the United States access to many of the untapped resources discussed earlier in this paper. However, the expansion of the EEZ, even if done through UNCLOS, could result in territorial disputes as this land is close to the borders of Canada and Russia. Regardless of the political implications of the expansion of the EEZ, the potential natural resources located within the Arctic region could be a source of additional economic security for the United States.

The Arctic region provides more than just natural resources and economic security. With the opening of the NWP and NSR for parts of the year, the Arctic has now become a center for maritime trade. Merchant shipping is able to quickly transit between Europe, North America, and Asia without having to transit through a canal. These sea routes would save almost 5,000 nautical miles between Asia and the east coast of the United States and almost shorten the Europe to Asia transit by 40 percent.²⁶ On a more strategic level, in the event of a conflict in Asia, these routes would provide a shortened and faster transit for military vessels if the United States needed to move forces from the east coast to the western Pacific theaters of operation. While other countries, in particular Canada and Russia, are looking to control these vital sea routes,²⁷ the United States views these as international straits and therefore vessels are entitled to freedom of navigation through these waters.²⁸ The need for freedom of navigation is identified as one of the top priorities in NSPD-66.

²⁶ Ebinger and Zambetakis, "Geopolitics of Arctic Melt." 1221.

²⁷ Conley and Kraut, "U.S. Strategic Interests in the Arctic," 7.

²⁸ National Security Presidential Directive-66

The Submarine and the Operational Commander

*“The Navy’s undersea warfighters bring a set of tools and capabilities to U.S. national security that are unique and indispensable. Enabled by stealth, surprise and boldness, undersea forces provide military impact and deterrent influence that is far out of proportion to their size and quantity.”*²⁹

-Commander, Submarine Forces, July 2011

With the strategic importance of the Arctic and sources of potential conflict identified, the question becomes how does the United States military fight a conflict in the Arctic? NSPD-66 notes that the Arctic is a maritime domain and requires, “the United States to assert a more active and influential national presence to protect its Arctic interests and to project sea power throughout the region,”³⁰ a statement well in line with the Navy’s “*A Cooperative Strategy for 21st Century Sea Power*” which identifies sea control as a core capability of the Navy. With this in mind, the question now becomes how does the Operational Commander, in conjunction with the Navy, meet the strategic requirement of sea control in arguably one of the harshest operating environments on the planet? The answer to this question is through the use of the submarine.

Balancing of the operational factors of *space, time, and force* are critical for the successful victory in any armed conflict. The Operational Commander must carefully assess all of his assets and capabilities with regard to each of these factors and ensure he has the appropriate balance between each and, as necessary, leverage one against the other when a weakness is observed. In the Arctic environment, the submarine brings the Operational Commander the balance of *space, time, and force* necessary to accomplish his objectives. The remainder of this paper will focus on how the Operational Commander could use the

²⁹ Commander Submarine Forces, *Undersea Warfighting*, July 2011, <http://www.public.navy.mil/subfor/hq/PDF/Undersea%20Warfighting.pdf>, 2.

³⁰ National Security Presidential Directive-66

capabilities of the submarine to provide the balance of the operational factors and leverage these factors in his favor.

The Arctic climate is one the harshest environments for our military to operate in. With an average North Pole winter temperature of -30°C (-22°F) and only a slightly warmer temperature of -0°C (32°F) during the summer months,³¹ the extreme weather conditions pose a safety hazard to any personnel or ship attempting to operate there. Personnel require additional protective equipment dedicated to keeping warm and protection from the elements, while ships and aircraft require additional heating elements to keep their temperature at a suitable level for operations and prevent sea spray from freezing on the ship and causing substantial ice buildup. This provides an additional challenge for the Operational Commander who must protect his forces from the environment with the added logistical problem of getting the necessary equipment to the region. While this provides a challenge for the Operational Commander, the fact that the Arctic is considered a maritime domain means he must focus on protecting his maritime units from the environment vice concentrating his protection efforts on land forces. As noted, surface ships are ill suited for operating in the Arctic cold, yet the submarine, designed to operate in the deepest and coldest parts of the ocean, would only require minimal additional protective equipment, or none at all, for operating in the Arctic. Thus, through the use of the submarine, the Operational Commander has a force that he could employ without undue concern for the elements.

Perhaps the greatest environmental concern for operating in the Arctic are the floating sheets of ice, more commonly known as icebergs. Masked in size by the sea, icebergs have the potential to rip holes into the side of any vessel causing significant damage

³¹ Frequently Asked Questions About the Arctic, National Oceanic and Atmospheric Administration, <http://www.arctic.noaa.gov/faq.html>. (accessed 26 April 2013).

or even sinking the ship. In a 2011 report to Congress, the Department of Defense identified that currently the Navy does not have any ice-strengthened surface ships capable of operating in all regions of the Arctic.³² The Department of Defense's statement hints that the Navy would be unable to exercise sea control in the marginal ice zone³³ or first year ice zone due to the lack of surface combatant capabilities, posing a significant limit on the Operational Commander's ability to accomplish his objectives in the Arctic. However, the report goes on to state that the United States Submarine Force has been operating in the ice regions since the 1950's and that many of today's submarines are designed for under ice operations. The under ice design of submarines ensures the Operational Commander has an asset available to transit under the ice through the NWP and NSR at all times and especially during the winter months when the passages are generally closed due to ice buildup. The design of the submarine for under ice operations and its capability to withstand the environment provides the Operational Commander the necessary balance of space and allows him to plan to continuously have a unit available to help exercise sea control and meet his operational objectives.

Dr. Milan Vego writes, "time is one of the most precious commodities in the conduct of warfare...time lost can never be recovered."³⁴ However, he further writes, "considerable time can be gained by reducing the time required for planning and preparing a campaign or major operation."³⁵ The United States has lagged behind other countries in their Arctic efforts leaving the Operational Commander with a planning disadvantage and a loss of time.

³² Office of the Undersecretary of Defense for Policy, *Report to Congress on Arctic Operations and the Northwest Passage* (Washington, DC: Department of Defense, May 2011), 17.

³³ Marginal Ice Zone - The region of solid ice cover near the edge of the sea ice pack where the ice breaks up and drifts away from or back to the ice cap under the action of waves or wind.

³⁴ Milan N. Vego, *Joint Operational Warfare, Theory and Practice* (Newport, RI: U.S. Naval War College, 2009), III-19.

³⁵ Ibid.

In order to make up for the loss of time, the Operational Commander must look to balance the lost time by increasing his preparation efforts and by incorporating the Arctic preparation already completed by the Submarine Force.

Since the USS NAUTILUS (SSN 571) conducted Arctic operations in 1958, the Submarine Force has maintained an Arctic presence. Since the end of the Cold War, the submarine presence in the Arctic has dropped but through multiple Operation Ice Exercises, led by the Arctic Submarine Laboratory, the Submarine Force has been able to maintain an Arctic presence. In addition to sending the strategic message that the United States will continue to operate in the Arctic, these exercises have allowed submarines to explore the undersea environment to gain a better understanding of the waterspace, explore new technologies for operating under the ice, improve submerged operations and tactics, and more importantly maintain crew proficiency at operating in the Arctic.³⁶

Training and preparation are not the only ways time is saved by the Operational Commander. In order to successfully balance the factor of time, he must look at the physical value of time and how quickly he can maneuver and mobilize his forces as this area is a key component of warfare. When a conflict in the Arctic arises, the Operational Commander will need a maritime unit to respond quickly to the situation. The lack of Arctic capable surface ships means the operational plan will have to rely heavily upon the submarine to quickly enter the theater of operations. Since United States submarines are constantly deployed throughout the world and assigned to all theaters and combatant commanders, a nuclear powered fast attack submarine provides the Operational Commander an on-scene combat ready asset without delay allowing him to plan for immediate use of the submarine's capabilities.

³⁶ *Report to Congress on Arctic Operations and the Northwest Passage*, 17

With the United States already behind the other Arctic nations, it will be imperative that the operational plans save time by exploiting the preparations already completed for Arctic operations. The continued preparation and training for this type of operation by the Submarine Force, combined with the ability of a submarine to rapidly respond, provides the Operational Commander the balance of time he needs to makeup for the time already lost.

The submarine's impact on the factors of space and time are enough to demonstrate why the value of the submarine far outweighs the conventional land and sea forces during an Arctic conflict, however, none of them compare to how the submarine dominates the factor of force provided to the Operational Commander for protecting our assets in the Arctic. As previously noted, the Navy's surface fleet lacks the capabilities to operate in the iced regions of the Arctic. Although aircraft, such as the HC-130 and other Maritime Patrol Craft have the capabilities to operate in the cold temperatures of the region, they lack the necessary capabilities to provide combat firepower in the event of an armed Arctic conflict.

In 2011, Commander Submarine Forces, published a document entitled "Undersea Warfighting", which discusses the military importance of the submarine and its ability to meet the goals of the cooperative maritime strategy. One of the key components of this document is the military advantage provided by undersea concealment.³⁷ Stealth is one of the greatest advantages of submarines and, in addition to providing operational intelligence for planning, the submarine provides the Operational Commander the method of surprise. Unlike aircraft and ships, a submarine positioned in the Arctic provides the ability to conduct pre-fires of military targets prior to any conflict. Although operational fires through massive precision Tomahawk strikes are highly unlikely in a small Arctic conflict, the capability is available to the planners. Perhaps the greatest advantage the stealth of the submarine brings

³⁷ *Undersea Warfighting*, 2.

is deterrence, as the mere presence of a submarine is sometimes enough to dissuade the enemy from using his naval forces. In a maritime conflict, where sea control is the goal, deterring the enemy by executing sea denial could be enough to win without even firing a shot. On a strategic level, the ability to conduct deterrence by the Operational Commander becomes important when nuclear powered submarines are involved because this type of conflict would have strategic implications due to the environmental and economic impacts on the region.

In his article, “Arctic Sovereignty, Submarine Operations and Water Space Management,” Captain Phil Webster of the Canadian Navy discusses the importance of the Canadian Submarine Force and its role in the Arctic. He writes how Canadian submarines could be used to enforce sovereignty over Canadian Arctic territory and monitor foreign submarines through Canadian waters. His article stresses what the importance of having submarines in the area could mean, and how Canada must remain a “viable and capable submarine force.”³⁸ This does not suggest that the United States will engage in a submarine war with Norway or Canada, two of our NATO³⁹ partners, but it does provide an example of how other nations see their submarine forces with respect to the Arctic and suggests that if a conflict were to develop other countries would rely upon their submarines as their primary method of force. With this in mind, the Operational Commander will have to plan that the submarine will be the opposition’s center of gravity.

NSPD-66 stresses that the Arctic will be a maritime domain and if other countries are looking towards their submarine forces to be the primary military platform in the Arctic, this region will not only be a maritime conflict but centered on submarine warfare. As the

³⁸ Phil Webster, “Arctic Sovereignty, Submarine Operations and Water Space Management,” *Canadian Naval Review* Vol. 3 no. 3 (Fall 2007): 16.

³⁹ North Atlantic Treaty Organization

Operational Commander focuses his military efforts on the opposition's center of gravity, Anti-Submarine Warfare (ASW) will become the major portion of the operational plan. Currently the Navy lacks capable Maritime Patrol Aircraft and sufficient ASW capable surface ships to conduct Arctic operations and even if these platforms are Arctic capable prior to any conflict, the ability to conduct effective ASW and attack the opposition's center of gravity is limited.

“Advanced attack submarines are the most effective ASW platforms today,”⁴⁰ writes Dr. Vego making the submarine the ideal platform for the Operational Commander to use for attacking the opposition's operational center of gravity and accomplishing his objective. Although other countries may attempt to counter this and engage our submarines, likely our center of gravity as well, Robert Work writes for the Center for Strategic and Budgetary Assessments that, “US [United States] submarines generally have superior quieting and combat systems, better-trained crewmen, and much more rigorous maintenance standards. As a result, the US submarine force has generally been confident that it could defeat any potential undersea opponent.”⁴¹ As such, the Operational Commander could use the capabilities of the submarine for conducting operations in the maritime and undersea environments with a strong confidence of mission accomplishment.

Although other units, to include Marine Corps and Army Reserve units, have prepared to operate in the Arctic environment, the chances of a land war are extremely slim. Thus, the operational plans for any Arctic conflict will need to focus on exercising sea control. With the lack of sufficient naval surface forces to accomplish this objective, the

⁴⁰ Milan Vego, “Fundamentals of Antisubmarine Warfare,” *The United States Naval War College, Joint Military Operations Department* NWC 1081 (February 2013):8.

⁴¹ Robert O. Work, “The US Navy, Charting a Course for Tomorrow's Fleet,” *Center for Strategic and Budgetary Assessments* (2008), 10.

Operational Commander must use the capabilities of the submarine to provide sea denial, exercise combat power, and most importantly provide ASW to balance the factor of force and leverage this factor in his favor to obtain his operational objective and protect our national and strategic Arctic interests.

Recommendations

As more and more countries make territorial claims in the Arctic, the United States must be prepared to conduct Arctic operations in support of defending our national and strategic interests. As other countries focus on the submarine as the tool to protect their claims and sovereignty, the United States must do the same. With the training and research already in place, through the Arctic Submarine laboratory, the Submarine Force has the basic tools available for successful Arctic operations. To maximize the effectiveness of the preparation and to ensure our forces are ready for conflict the Submarine Force should dedicate specific submarines on each coast for Arctic operations.

Although submarines have been conducting Arctic operations and exercises through the Arctic Submarine Lab for years, they have been limited to only a few submarines. This means our expertise of Arctic operations is limited to only a few commands and since these commands are not necessarily the same units each year, their experience erodes over time. All classes of submarines (LOS ANGELES, SEAWOLF, and VIRGINIA) have demonstrated their ability to operate in this region. This class flexibility allows the Submarine Force to dedicate specific submarines on each coast for Arctic operations ensuring the crews maintain proficiency and allowing for specific tailoring of the submarine's equipment to operate in the Arctic. Most importantly, dedicating specific units

for Arctic operations will ensure the Operational Commander always has the appropriate number of operational units available in the Arctic theater and properly configured submarines and trained crews who could deploy in short notice as required.

Conclusion

The potential for conflict in the Arctic is becoming a reality. While many hope that UNCLOS will be the method for maintaining peace in the region, the possibility for small-scale conflicts exists. In order for the Operational Commander to successfully win in any conflict he must balance the operational factors of space, time, and force. In the Arctic, the submarine brings the necessary balance of all three factors to the Commander. Additionally, the capabilities provided to the Operational Commander by our attack submarines for attacking the opposition's center of gravity provides the leverage of force in our favor that no other Arctic nation has. Thus, when preparing for an Arctic conflict, the Operational Commander is able to use the capabilities of the submarine to protect our national and strategic interests.

Bibliography

1. Bacon, Lance M. "Ice Breaker." *Armed Forces Journal*. (01 March 2010): 16, ProQuest (200690864).
2. Baev, Pavel. "Russia's Arctic Policy and the Northern Fleet Modernization." *Russia/NIS Center*. August 2012.
www.ifri.org/downloads/ifribaevartiqueengaugust2012.pdf. (accessed 11 March 2013).
3. Berkman, Paul Arthur. "Preventing an Arctic Cold War." *The New York Times*, 12 March 2013, http://www.nytimes.com/2013/03/13/opinion/preventing-an-arctic-cold-war.html?_r=0. (accessed 14 March 2013).
4. Borgerson, Scott G. "Arctic Meltdown: The Economic and Security Implications of Global Warming." *Foreign Affairs* Vol. 87 no. 2. (March/April 2008). ProQuest (214295772).
5. Burgess, Richard R. "The New Cold War?" *Seapower*, (October 2007): 14-18.
6. Commander Submarine Forces. *Undersea Warfighting*, July 2011, online at: <http://www.public.navy.mil/subfor/hq/PDF/Undersea%20Warfighting.pdf>
7. Conley, Heather and Jamie Kraut. "U.S. Strategic Interests in the Arctic: An Assessment of Current Challenges and New Opportunities for Cooperation." *Center for Strategic & International Studies*. April 2010.
8. Department of the Navy. *A Cooperative Strategy for 21st Century Sea Power*, Washington, DC, October 2007.
9. Department of the Navy. *Navy Arctic Roadmap*. Washington, DC, 10 November 2009.
10. Ebinger, Charles K. and Evie Zambetakis. "The Geopolitics of Arctic Melt." *International Affairs*, Vol. 85 no 6 (2009): 1215-1232.
11. Emerson, Charles. *The Future History of the Arctic*. New York: PublicAffairs, 2010.
12. Frequently Asked Questions About the Arctic, National Oceanic and Atmospheric Administration, <http://www.arctic.noaa.gov/faq.html>. (accessed 26 April 2013).

13. Galeotti, Mark. "Cold Calling – Competition Hats Up for Arctic Resources." *Jane's Intelligence Review*, 18 September 2008.
<https://janes.ihs.com/CustomPages/Janes/DisplayPage.aspx?DocType=News&ItemId=+++1195612&Pubabbrev=JIR#>. (accessed 11 March 2013).
14. Gove, David. "Arctic Melt: Reopening a Naval Frontier." *Proceedings Magazine* Vol.135 no. 2 (February 2009).
<http://www.usni.org/magazines/proceedings/2009-02/arctic-melt-reopening-naval-frontier>, (accessed 11 March 2013).
15. Griffiths, Franklyn , Rob Huebert, and P. Whitney Lackenbauer. *Canada and the Changing Arctic: Sovereignty, Security, and Stewardship*. Waterloo, Ontario, Canada: Wilfrid Laurier University Press, 2011.
16. History of the Arctic Council, The Arctic Council, last modified 27 April 2011,
<http://www.arctic-council.org/index.php/en/about-us/arctic-council/history> ,
 (accessed 16 April 2013).
17. Huebert, Rob. "The Newly Emerging Arctic Security Environment." *Canadian Defense & Foreign Affairs Institute*. March 2010. Online at:
<http://www.cdfai.org/PDF/The%20Newly%20Emerging%20Arctic%20Security%20Environment.pdf>.
18. Jakobson, Linda. "China Prepares For an Ice-Free Arctic." *SIPRI Insights on Peace and Security*, No 2010/2 (March 2010).
<http://books.sipri.org/files/insight/SIPRIInsight1002.pdf>. (accessed 29 March 2013).
19. Kraska, James, ed. *Arctic Security in an Age of Climate Change*. New York: Cambridge University Press, 2011.
20. National Intelligence Council. "Global Trends 2025: A Transformed World." November 2008.
21. O'Dwyer, Gerard. "Norway Eyes Next-Gen Submarine Acquisition." *Defensenews.com*, 22 February 2013.
<http://www.defensenews.com/article/20130222/DEFREG01/302220014/Norway-Eyes-Next-Gen-Submarine-Acquisition>, (accessed 11 March 2013).
22. Office of the Undersecretary of Defense for Policy. *Report to Congress on Arctic Operations and the Northwest Passage*. Washington, DC: Department of Defense, May 2011.
23. Osherenko, Gail and Oran R. Young. *The Age of the Arctic, Hot Conflicts and Cold Realities*. New York: Cambridge University Press, 1989.

24. Patch, John. "Cold Horizons: Arctic Maritime Security Challenges." *Proceedings Magazine* Vol.135 no. 5. (May 2009). <http://www.usni.org/print/4227> (accessed 4 April 2013).
25. Pettersen, Trude. "Japan appoints Arctic Ambassador." *Barents Observer*, 20 March 2013, <http://barentsobserver.com/en/arctic/2013/03/japan-appoints-arctic-ambassador-20-03>. (accessed 29 March 2013).
26. Pettersen Trude. "Russia launches program on Arctic development to 2020." *Barents Observer*, 20 February 2013. <http://barentsobserver.com/en/arctic/2013/02/russia-1-launches-program-arctic-development-2020-20-02> (accessed 29 March 2013).
27. Rozoff, Rick. "Loose Cannon And Nuclear Submarines; West Prepares For Arctic Warfare." *Global Research*, 1 December 2009. <http://www.globalresearch.ca/loose-cannon-and-nuclear-submarines-west-prepares-for-arctic-warfare/16341>. (accessed 4 April 2013).
28. Sale, Richard and Eugene Potapov. *The Scramble for The Arctic: Ownership, Exploitation and Conflict in the Far North*. London: Frances Lincoln LTD, 2010.
29. Tangredi, Sam J. ed. *Globalization and Maritime Power*. Honolulu: University Press of the Pacific, 2004.
30. Titley, David W. and Courtney C. St John. "Arctic Security Considerations and the US Navy's Roadmap For The Arctic." *Naval War College Review* Vol. 63 no 2, (Spring 2010): 35-48.
31. United Nations. "United Nations Convention on the Law of the Sea." online at http://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf, 53 (accessed 11 March 2013).
32. Vego, Milan N. *Joint Operational Warfare, Theory and Practice*. Newport, RI: U.S. Naval War College, 2009.
33. Vego Milan N. "Fundamentals of Antisubmarine Warfare." *The United States Naval War College, Joint Military Operations Department* NWC 1081 (February 2013).
34. Walters, Jennifer Marino. "Melting Away." *Scholastic Match Magazine*, (Jan 14, 2013):4-5. ProQuest (1271597422).
35. Webster, Phil. "Arctic Sovereignty, Submarine Operations and Water Space Management." *Canadian Naval Review* Vol. 3 no. 3 (Fall 2007): 14-16.
36. White House. *Arctic Region Policy*. National Security Presidential Directive-66/Homeland Security Presidential Directive-25. Washington, DC: Office of the

Press Secretary, 9 January 2009.

37. Work, Robert O. "The US Navy, Charting a Course for Tomorrow's Fleet." *Center for Strategic and Budgetary Assessments*. 2008.

38. Zellen, Barry Scott. *Arctic Doom, Arctic Boom: The Geopolitics of Climate Change in the Arctic*. Santa Barbara, California: ABC-CLIO, LLC, 2009.