

ENGAGEMENT IN THE ARCTIC

BY

COLONEL JAMES E. ANDERSON
United States Army

DISTRIBUTION STATEMENT A:

Approved for Public Release.
Distribution is Unlimited.

USAWC CLASS OF 2010

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.



U.S. Army War College, Carlisle Barracks, PA 17013-5050

The U.S. Army War College is accredited by the Commission on Higher Education of the Middle State Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

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) 17-02-2010		2. REPORT TYPE Strategy Research Project		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Engagement in the Arctic				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Colonel James E. Anderson				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Colonel Jerry Cashion Department of Military Strategy, Planning, and Operations				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army War College 122 Forbes Avenue Carlisle, PA 17013				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution A: Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT Global warming continues to accelerate the melting Arctic Ocean ice pack. The Northwest Passage was open during summer months for the first time in 2007. Estimates indicate that the summertime Arctic Ocean may be ice-free within the next few decades. Along with untapped mineral & marine life resources, a year-round ice-free Northwest Passage could decrease the journey from Europe to Asia by 2,500 miles. Recent estimates indicate over one fifth of the world's undiscovered oil and gas reside in the Arctic Ocean. Five of the eight countries in the Arctic Council have land that borders the Arctic Ocean. International law does not govern the region under the icepack, but the 1982 United Nations Convention on the Law of the Sea (UNCLOS) establishes that countries have exclusive economic rights to a 200 nautical mile (nmi) zone from their coastlines. In 2007 Russia planted a flag 14,000 feet below the North Pole claiming ownership of an area the size of Western Europe. The goal of this paper is to provide impetus for policy development that will allow the United States to be in a position to meet our national interests when the as the Arctic Ocean presents more challenges and opportunities.					
15. SUBJECT TERMS Environment, North Sea, Climate Change					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UNLIMITED	18. NUMBER OF PAGES 28	19a. NAME OF RESPONSIBLE PERSON
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code)

USAWC STRATEGY RESEARCH PROJECT

ENGAGEMENT IN THE ARCTIC

by

Colonel James E. Anderson
United States Army

Colonel Jerry Cashion
Project Adviser

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The United States Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the United States Secretary of Education and the Council for Higher Education Accreditation.

The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the United States Government.

United States Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

ABSTRACT

AUTHOR: Colonel James E. Anderson
TITLE: Engagement in the Arctic
FORMAT: Strategy Research Project
DATE: 17 February 2010 WORD COUNT: 6,204 PAGES: 28
KEY TERMS: Environment, North Sea, Climate Change
CLASSIFICATION: Unclassified

Global warming continues to accelerate the melting Arctic Ocean ice pack. The Northwest Passage was open during summer months for the first time in 2007. Estimates indicate that the summertime Arctic Ocean may be ice-free within the next few decades. Along with untapped mineral & marine life resources, a year-round ice-free Northwest Passage could decrease the journey from Europe to Asia by 2,500 miles. Recent estimates indicate over one fifth of the world's undiscovered oil and gas reside in the Arctic Ocean. Five of the eight countries in the Arctic Council have land that borders the Arctic Ocean. International law does not govern the region under the icepack, but the 1982 United Nations Convention on the Law of the Sea (UNCLOS) establishes that countries have exclusive economic rights to a 200 nautical mile (nmi) zone from their coastlines. In 2007 Russia planted a flag 14,000 feet below the North Pole claiming ownership of an area the size of Western Europe. The goal of this paper is to provide impetus for policy development that will allow the United States to be in a position to meet our national interests when the as the Arctic Ocean presents more challenges and opportunities.

ENGAGEMENT IN THE ARCTIC

Global warming continues to accelerate the melting Arctic Ocean ice pack. The importance of the decline associated with climate change can not be understated as we develop plans and policy that support our nation's goals for the future. The northern border of our nation, and of our NORAD partner Canada, is not protected by heavily fortified fortresses. Unlike our nation's east and west coasts, the northern most border has few inhabitants and no permanent military bases. The Northwest Passage, defined as "a passage by sea between the Atlantic & the Pacific along the northern coast of North America"¹ was open for vessel travel during summer months for the first time in 2007.

The open passage is significant in many ways. The first expedition across the Northwest Passage, conducted in 1903 by Roal Amundsen, a Norwegian explorer, took three years.² In 1940 a Canadian vessel, the St. Roch, took 27 months.³ It is not difficult to imagine the amount of change that occurred in order to allow a recent voyage to be conducted in about a month.⁴ Estimates from multiple sources predict that the Northwest Passage will eventually be permanently ice-free, at least for a majority of the year. The Northwest Passage opens up new commercial opportunities, but also opens our border to new potential threats.

As recent studies continue to show an increase in ice-melt, it is certain that United States strategic interests will be affected by an open water Arctic Ocean at some point in the future. President George W. Bush signed the National Presidential Directive/NSPD-66 just prior to leaving office. NSPD-66 provided a groundwork for our nation's agencies to develop a way-ahead, but it was published just eleven days prior to

President Obama's inauguration. A concerted effort within the current administration will be required in order to assure the nation is ready to secure our interests in the future.

The purpose of this paper is to provide an analysis on the scope of the issues that will affect United States interests in the future, and to provide suggestions for future policy decisions. The paper will provide an overview and analysis of the following areas in order to lay the foundation for the way-ahead: Climate Change in the Arctic; Economic Issues and Potential; Environmental Issues; international Conflicts and Disputes; United States Military Presence in the Arctic Region; and Security Challenges and U.S. Security Capability.

Climate Change in the Arctic

Scientists, and the general population around the world, may disagree on the causes of climate change, the pace, and the near-term level of the crisis. Data does, however, clearly demonstrate that the earth has slowly increased in temperature during the last century, and the polar ice cap melt is accelerating. Ice reflects sunlight and helps cool the water underneath.⁵ Decades ago the large volume of ice acted as its own insulation in keeping the water underneath at a freezing, or near freezing, temperature. As the ice cap melt continues, the water continues to warm up as it absorbs the light instead of reflecting it, further increasing additional melting. There are no known recent predictions, by scientists, alluding that the current trend in ice melt will reverse.

The National Snow and Ice Data Center has maintained records of the Arctic Sea Ice, gathered by satellites and survey teams, for decades and can demonstrably prove that ice melt has increased during the past 30 years.⁶ Although seasonal variations still

occur, and ice melt occurs most often in the summer, the trend for increased melting continues on an annual basis. In 1978 over 14 million square kilometers of ice covered the Arctic Sea.⁷ By 1990 nearly 1 million square kilometers of annual ice pack had melted.⁸ Recent measurements in 2008 confirmed the downward trend as approximately 12.5 million square kilometers of ice remained.⁹ In 30 years a total of nearly 1.7 million square kilometers, or more than 650,000 square miles, of ice had melted. The total land mass, of the following states combined, is less than the amount of sea ice that has melted in thirty years: Texas, California, New York, Colorado, and Missouri.¹⁰

Average temperatures can be measured as either surface or water. Data for surface temperatures, as opposed to the large expanses of water around the globe, have been captured for over 130 years. During the last two decades multiple records were set for average surface temperatures, with 2009 being the second highest since data started being recorded in 1880.¹¹ Historical records depict a consistent increase in surface temperatures between the 1880s through the 1940s, three decades of relative stability from 1940 through 1970, followed by continuous annual increases during the last 30 years.¹²

Raw data has no campaign slogan, or emotional tug at one's heart string, but it does provide the impetus and urgency for developing future strategy. The trend toward increasing open water in the Arctic Ocean has been validated, along with a nearly continuous increase in global surface temperatures. The pace at which temperatures will continue to rise, associated with an increase of open water in the Arctic, can not be certain despite the historic validated trends. There is sufficient evidence to project that

the ice melt will likely continue. NSPD-66 notes the “effects of climate change and increasing human activity in the Arctic region”¹³ as one of many developments that shaped the President’s directive, and that national level policy needs to target the Arctic Region in order to take advantage of future opportunities and risks.

Economic Issues and Potential

Along with untapped mineral and marine life resources, a year-round ice-free Northwest Passage could decrease the ocean travel distance from Europe to Asia by 2,500 miles, which would save commercial vessels money and time making the shorter transit. Recent estimates indicate that over one fifth of the world’s undiscovered oil and gas reside north of the Arctic Circle.¹⁴ NSPD-66 outlines economic issues in multiple portions of the document. As it pertains to areas of International Governance President George W. Bush directed that the national agencies:

Consider, as appropriate, new or enhanced international arrangements for the Arctic to address issues likely to arise from expected increases in human activity in that region, including shipping, local development and subsistence, exploitation of living marine resources, development of energy and other resources, and tourism.¹⁵

In addition to diplomatic and scientific efforts with international agencies, and in concert with other nation’s claims for national sovereignty of the continental shelf that extends to the North Pole, President Bush also directed that our nation conduct scientific exploration to:

Define with certainty the area of the Arctic seabed and subsoil in which the United States may exercise its sovereign rights over natural resources such as oil, natural gas, methane hydrates, minerals, and living marine species is critical to our national interests in energy security, resource management, and environmental protection.¹⁶

NSPD-66 has an entire section that covers economic and energy issues, covering the gamut from mineral and marine life resources through the very real potential for environmental impact.

Shipping from Asian countries to Europe will benefit from the use of the Northwest Passage. Vessels could make the transit quicker, saving fuel costs, and maximizing turn-around time for follow-on missions. Currently vessels travelling east from Asia must either transit the Panama Canal, paying additional costs, or sail around the southern tip of South America.

Competition from vessels and Oil and Natural Gas platforms will increase as the Northwest Passage continues to expand in size and in the number of months it is free of ice. Many nations, corporations, and businesses will seek to exploit mineral wealth, sharing the same waterway with vessels trying to harvest marine life, while simultaneously competing with vessels that are merely transiting the waterways as part of cargo shipping or tourism.

Environmental Issues

The Arctic Ocean, though resource rich, is still an unforgiving climate with potential for naturally shifting ice and extreme weather conditions which could cause oil platforms or vessels to be damaged or destroyed. Recovery of oil spills is challenging in the best conditions, but in the arctic the ability to surge resources to a local area quickly will not be possible year-round for the near future. It can take decades to clean up oil spills in open water; the complications are much greater for terrain in which water that may be open for only a few months per year. On March 24, 1989, the Exxon Valdez was traversing the shipping lane and maneuvered to avoid icebergs. The vessel grounded on Bligh Reef.¹⁷ The Exxon Valdez was an oil tanker; it was carrying over 53

million gallons of crude oil; it ended up spilling an estimated 11 million gallons into the water.¹⁸

Oil generally floats at or near the top of the water, so the nature of an oil spill is that it will travel with the natural currents of the contaminated water. The Exxon Valdez oil spill was not contained, and its spread over a two month period demonstrates the environmental damage that could occur along the land that borders the Arctic Ocean. Within hours after the initial grounding, the oil started hitting the shores south and south east of Bligh Reef. On the fourth day the oil was landing on beaches 37 miles away, and within a week the oil was observed over 90 miles away.¹⁹ At the end of two weeks the oil had already contaminated water, marine life, and beaches approximately 150 miles from the accident.²⁰ Nearly two months later, on day 56, the contamination was impacting the environment over 470 miles away.²¹

Over twenty years have passed since the Exxon Valdez ran aground and contaminated hundreds of miles of coastline. The oil killed fish, birds, sea otters, and many other types of marine life. This accident occurred in an area that is not covered most of the year by ice, and at least some mitigation of the damage was possible. To put the size of the Exxon Valdez disaster in perspective, it is not one of the world's top fifty oil spills.²² In the Northwest Passage an incident of this size or larger would be much more difficult to contain, and would have disastrous long-term impacts on the region's marine life. In closing the discussion on the environmental challenges of the Arctic, President Bush's statement on the overall importance encapsulates the scope and magnitude of the long-term implications.

Energy development in the Arctic region will play an important role in meeting growing global energy demand as the area is thought to contain a

substantial portion of the world's undiscovered energy resources. The United States seeks to ensure that energy development throughout the Arctic occurs in an environmentally sound manner, taking into account the interests of indigenous and local communities, as well as open and transparent market principles. The United States seeks to balance access to, and development of, energy and other natural resources with the protection of the Arctic environment by ensuring that continental shelf resources are managed in a responsible manner and by continuing to work closely with other Arctic nations.²³

International Conflicts and Disputes

Five of the eight countries in the Arctic Council have land that borders the Arctic Ocean: United States, Canada, Denmark, Norway, and Russia. International law doesn't govern the region under the icepack, but the 1982 United Nations Convention on the Law of the Sea (UNCLOS) establishes that countries have exclusive economic rights to a 200 nautical mile (nmi) zone around their coastlines.²⁴ In 2007 Russia planted a flag 14,000 feet below the North Pole and claimed resource ownership of an area, along the Lomonosov Ridge, the size of Western Europe.²⁵ Canada and Denmark claim overlapping ownership of the same island.²⁶ The United States and Canada, both members of the North American Aerospace Defense Command (NORAD), will likely have claims over the shared continental shelf.²⁷ The Northwest Passage, as a body of navigable water, is contentious between the United States and Canada. "The United States contends that much of the Northwest Passage, though owned by Canada, is an international strait with free passage for all, like other straits around the world."²⁸ The challenge, to the United States, over this issue is that international recognition as a free passage waterway also opens it up to all competing countries as well as our own vessels. The following paragraphs will address major international issues, affecting the region today, and will subsequently be used as focal points for the development of policy recommendations.

The United Nations Convention on the Law Of The Sea provides a comprehensive set of rules by which nations abide by, and recognize, national and international rights. Currently, of the 5 nations that border the Arctic Ocean, only the United States has failed to ratify the agreement. A total of 156 nations have signed and ratified the treaty, and although the United States operates under the recognition that it is the legal authority that governs the world's waters, there has been no ratification of the convention.²⁹ Initially the United States did not agree with the originally ratified convention, and after several years of negotiations, it was amended in 1994.³⁰ President Reagan directed that the nation abide by the international law, and after years of modifications, both Presidents George W. Bush and William J. Clinton pushed for Senate ratification. President Bush, in NSPD-66, urged the United States Senate to accede to the 1982 UNCLOS as it would provide legitimacy for our nation's international arbitration in the Arctic Region.³¹ Without ratification the United States continues to abide by the rules but is not able to display legitimate international leadership in regards to issues that are covered under the convention. It is true that the UNCLOS restricts United States freedom of action, but we have been abiding by the rules for decades and would not likely violate it unless forced under a state of war. In that situation the legitimacy and legality of the conflict would override any issues pertaining to territorial sovereignty.

The Russians planted a flag on the floor of the seabed in 2007, underneath the North Pole, as notification of its intent to claim sovereignty of the Lomonosov Ridge. Why would Russia plant a titanium flag on the bottom of the sea? At first glance it may

appear to be a public relations stunt, but in reality it was Russia's attempt to provide legitimacy for future actions in accordance with international law.

International law dictates that a nation may change its 200 mile water boundary if it can prove that there is an underwater continental shelf, similar to the geographical structures on land within the country. The nation may then reestablish its water boundary and its territory based on the location of that shelf. In June 2007, Russian scientists claimed that an underwater formation known as the Lomonosov Ridge actually links Russia's Siberian territory with the North Pole and gives Russia the right to claim the pole as its territory.³²

Denmark subsequently claimed the Lomonosov Ridge as well, and Canada likewise claims a portion of the undersea land that runs to the North Pole. The Arctic Council, and the United Nations, will likely debate multiple future claims for ownership. In accordance with the 1982 UNCLOS it is the claiming nation's requirement to submit scientific irrefutable proof of the sole ownership of undersea terrain. Many of the Arctic nations will likely be conducting scientific expeditions in the years to come as they seek to retain, or expand, territory. When the Northwest Passage is open year-round, and surrounding water becomes ice-free for much of the year, these claims would likely become more emotional, as nations try to unilaterally tap into the vast deposits of mineral resources.

The United States and Canada are at odds over the status of the Northwest Passage. The significance of the Northwest Passage as a thoroughfare for commercial shipping was mentioned earlier in this paper. For the United States, the Northwest Passage represents an analogy to all of the other navigable straights around the world that offer freedom of navigation in support of our nation's interests. President George W. Bush stated in NSPD-66 that:

Freedom of the seas is a top national priority. The Northwest Passage is a strait used for international navigation, and the Northern Sea Route

includes straits used for international navigation; the regime of transit passage applies to passage through those straits. Preserving the rights and duties relating to navigation and overflight in the Arctic region supports our ability to exercise these rights throughout the world, including through strategic straits.³³

Canada asserts a claim to the land and waters encompassing some 16,000 islands off their north coast.³⁴ In recent years Canada has raised the diplomatic stakes of their claim. In 2006, shortly after assuming the prime minister position, Stephen Harper stated "The United States defends its sovereignty. The Canadian government will defend our sovereignty, It's the Canadian people we get our mandate from, not the ambassador of the United States."³⁵ Despite the close relationship between the two countries, Canada is continuing to pursue its claim despite the backlash between the two countries. Their concern over security of the northern border, shared with United States interest in the same secure border, means that issue will likely not strain relationships between the two countries. It does, however, signify the importance of the waterways for both Canada and United States security along our combined northern borders.

The United States and Russia have long been adversaries, and in the Bearing Sea and Arctic Ocean those strained relationships continue without final resolution. The mineral and marine life resources in the Bering Sea and Arctic Ocean are up for grabs in the negotiations for the maritime boundaries between the United States and Russia. The coastlines in this area are within 400 nautical miles from each other, and the nations' sovereign boundaries are not agreed upon. A quick history of when this issue became relevant, and its significance, is below:

Prior to 1976, countries did not divide up seabeds among themselves farther than their territorial seas of three to 12 miles from their coastlines. With the development of sea mining techniques and open sea fishing

disputes, the international concepts of exclusive economic zones, fishery conservation zones, continental shelves (100-meter depth), and so on, came into being with 200 nautical miles from coastal baselines adopted. Generally, countries adopt some form of equidistant lines. These zones do not necessarily include all the seabeds between two landmasses, and an open nonzone sea area can be completely surrounded by EEZs. In the Bering Sea, U.S. and Russian zones surround a well-known open area, called the “doughnut hole,” which is subject to fishing by other countries.³⁶

Negotiations between our two countries have been ongoing for several years without reaching an agreement.³⁷ No discussions of war over the economic zone have been published in open documents, nor has the issue received a lot of press, but as resources become scarce this region will continue to be a source of diplomatic friction. Policy makers should observe the actions of all our arctic neighbors and look for areas in which policy should change.

United States Military Presence in the Arctic Region

The Commander of US Northern Command (USNORTHCOM) is dual-hatted as the Commander of NORAD. The USNORTHCOM area of responsibility includes our most northern border along Alaska and Canada, with Homeland Defense as their preeminent mission.³⁸ The Commander, US Alaskan Command, is also the Commander for the Alaskan NORAD Region, Joint Task Force Alaska, and the 11th Air Force.³⁹ The US Alaskan Command (ALCOM) is a subunified command under US Pacific Command (USPACOM).⁴⁰ During a Homeland Defense Scenario the Commander’s primary roles as CG, JTF Alaska, and the CG, Alaskan NORAD Region would become paramount under USNORTHCOM’s command and control. In addition to air and ground forces, the United States Navy and Coast Guard also have Homeland Defense missions in Alaska. The United States does not have a large ground or sea capability in Alaska; specifically along the northern coast. United States Army Alaska

(USARAK) has units located in both Fort Wainwright, near Fairbanks, and Fort Richardson, near Anchorage. Neither Army post is linked to the northern shore via a major road network. The U.S. Navy and Coast Guard have capability to operate in the Arctic Ocean but have recently been degraded due to decisions made within Department of the Navy and Congress.

Security Challenges and U.S. security capability.

Possible United States security challenges in the Arctic consist of threats from adversary nations, global extremist organizations, international companies focused on the illegal removal of mineral or marine resources, and ideological individuals bent on trying to seek vengeance. The three available avenues for attack are by land, air and sea. Canada is a close ally, with a shared interest in our northern border, so this paper will focus on threats coming to our northern border via air or sea. President George W. Bush stated:

The United States has broad and fundamental national security interests in the Arctic region and is prepared to operate either independently or in conjunction with other states to safeguard these interests. These interests include such matters as missile defense and early warning; deployment of sea and air systems for strategic sealift, strategic deterrence, maritime presence, and maritime security operations; and ensuring freedom of navigation and overflight.⁴¹

The following discussion on security challenges explores: historic naval operations in the arctic; Russian naval capability and designs for improvement; United States Naval Capability; and United States Coast Guard capability.

Historic Naval Operations in the Arctic. For the near future the Arctic Ocean will retain some level of ice throughout the year, and will likely contain ice during the winter months for many decades. The U.S. Navy has historically operated in deep water as well as the littoral areas in and around coastlines. During World War II the German

Navy was able to operate effectively in and under ice flows throughout the Gulf of St. Lawrence.⁴² The U-boats were able to sink other ships which closed off navigable waterways. In one mission, U-537 established an unmanned automatic weather station in Labrador; the station wasn't discovered until July 1981.⁴³ Environmental conditions, weather, ice floes, and shallow water all favor highly mobile submarines. The ice cover can help prevent detection, and small submarines can operate in shallow water underneath the sea ice.

Russian Naval Capability. The Russian Navy has continued to develop and produce submarines capable of operating in the Arctic Ocean and other ice-covered littoral areas. The reduction of their military might, immediately following the dissolution of the Union of Soviet Socialist Republic (U.S.S.R.), has started to turn around as prominent politicians seek to rebuild their former presence on the world stage.

During the summer of 1995, Russian Rear Admiral Valeriy Aleskin, Head Navigator of the Russian Navy, announced to the world: "He who controls the Arctic controls the world." A few weeks later, a Typhoon-class SSBN launched a single SS-N-20 ballistic missile with multiple independently targeted reentry vehicles (MIRVs) (ten dummy warheads) from the geographic North Pole. There were reportedly ten hits at a test range west of Murmansk.⁴⁴

Clearly the Russian leadership believes that improving capabilities for operations in the Arctic Environment meets one of their key national interests. The Russian navy also has designs for other multi-use submarines that are capable of operating in and around littoral ice.

United States Naval Capability. The U.S. Navy's most maneuverable submarine, during the past fifty years, was the STURGEON Class. It was phased out as the Navy transitioned to the more modern LOS ANGELES and SEAWOLF attack submarines.⁴⁵ The LOS ANGELES and SEAWOLF submarines are much larger and do not have the

mobility or ability to operate under ice in shallow water.⁴⁶ The U.S. Navy probably does not need a littoral-only submarine, but it does need one that is capable of operating under littoral conditions if required. As technology develops, and new systems are programmed for construction, the possibilities for future use in the Arctic Ocean will be a certainty. The U.S. Navy will most likely continue to modernize its capability, and the growing economic and security threat in the Arctic may well justify a new look at building smaller or more mobile submarines.

United States Coast Guard Mission and Capabilities. The United States Coast Guard operates under the Department of Homeland Security. It can be assigned to naval forces in time of war. Currently the Coast Guard has stations across Alaska serving under the 17th District. The District recognizes that their mission is expanding further north as ice melt continues to increase.⁴⁷ During the past few years, as ice flow has receded, the Coast Guard has seen more commercial and tourist vessels operating in the Arctic Ocean.⁴⁸ Aside from the potential for increased illegal activities, the Coast Guard has continued to be responsible for rescuing vessels and their crews. In November 2007 a cruise liner for eco-tourists, the M/V Explorer, struck an iceberg and sank. One hundred and fifty-four personnel on board the vessel were forced to evacuate and be rescued by the Coast Guard. As fish stocks continue to move north into ice-free areas the commercial fishermen will also be required to follow. The increasing number of vessels operating in the Arctic Ocean will require the Coast Guard to position assets in order to perform their mission. In February 2010 the Senate passed a stimulus bill. In order to fund national recovery efforts, the bill cut \$122.5 million that was originally planned for Coast Guard Ships.⁴⁹ The Coast Guard has three

icebreakers in its inventory, and will likely pursue funds for additional icebreakers as the requirements exceed capacity in the rapidly booming Arctic Ocean.

History may not always repeat itself, but the examples given above demonstrate that submarine use in the arctic can be incredibly effective and difficult to detect. Current naval capabilities may not be sufficient for future operations, and in any case naval platforms need to be designed in order to ensure effective operation in ice-covered littoral areas. In addition, the United States Coast Guard's mission, which will expand with longer openings of the Northwest Passage, will require crews and vessels capable of operating in those treacherous waters.

Policy Recommendations

The following Policy recommendations are not sequential, in that each of them can be developed or executed in any sequence. Some of them will, however, naturally assist with meeting multiple national interests. For the purposes of categorizing the recommendations this paper will use three core national interests which resonate throughout our nation's 2006 National Security Strategy: (1) Security; (2) Economic Well-Being; and (3) Secure World Order.⁵⁰ NSPD-66, published nearly three years later, is a solid foundation for national policy in the Arctic and should continue to be followed pending a new Presidential Directive. The following policy recommendations contain the ends, ways and means necessary in order to develop future policies, and are categorized into the core national interests.

Recommendation for Scientific Research. Initiating an exhaustive scientific research program will help our nation meet three of the four core national interests: security, economic well-being, and a secure world order. The United States should increase scientific research on our undersea continental shelf in order to ascertain the

locations of oil and natural gas deposits, economic rights of neighboring nations, and to submit legitimate claims to enhance our nation's Economic Exclusion Zone. In addition, it will allow the U.S. to dispute unproven claims over our sovereign territory in an international forum. Further recommend joint United States and Canada scientific expeditions to ascertain the ownership over territories that occupy our shared continental shelf. A joint expedition will allow for a more timely bilateral diplomatic agreement, without a requirement to engage the Arctic Council or the United Nations for dispute resolution.

The recommendation targets the national security core interest by providing scientific evidence to support national claims to territorial boundaries, preventing other nations from encroaching in our internationally recognized waters. Our nation's economic well-being will be enhanced as the research develops new resources for development, and will preclude other nations from extracting resources that legitimately belong to the United States. A more secure world order will be achieved as the research also provides data for other nations to solidify their national boundaries in an international forum versus a series of kinetic engagements. The "ends" are to achieve progress in the three core interests. The "way" is a dedicated program of scientific research that will establish solid evidence of continental plate relationships and validate resource locations. The "means" are United States and Canadian research teams, along with other nations as the coalition for research grows.

Recommendation for environment and habitat research. Conducting specific research on the region's habitat will help our nation meet two of the four core national interests: economic well-being, and a secure world order. The research and analysis

will assist the United States in developing agreements that will ensure environmentally sound practices in commercial fishing, shipping and petroleum development operations. Any environmental disaster in the Arctic Ocean could rapidly encompass hundreds of miles of coastline among many nations. The research should justify and define practices that are acceptable, by the Arctic Council, for all future development in the region.

The recommendation targets our nation's economic well-being by establishing procedures that will prevent over-harvesting of marine life, standards for operating drilling platforms, and the development of rigid standards for control of traffic among the Northwest Passage. These efforts will help prevent or limit future disasters that will allow our nation to sustainably harvest resources. A more secure world order will be the result of standards and practices that will allow the nations bordering the Arctic Ocean joint control over regulations and development of multi-nation plans for reacting to environmental disasters. The Arctic Council, supported by jointly agreed standards, will be able to provide a forum, outside of war, to resolve disputes. The "ends" are to achieve progress in our nation's economic well-being and a more secure world order. The "way" is a dedicated program of environmental and habitat research that will help the Arctic Council develop standards and regulations for commercial operations in the Arctic Ocean. The "means" are research teams that will look at the variables associated with commercial operations in the Arctic Ocean, with a focus on developing standards that will minimize environmental disasters.

Recommendation for developing an Arctic Council Agency. Developing Arctic Council-approved shipping lanes, with stringent criteria for use, will help our nation meet

our economic national interests. The United States should lead an accord, backed by the research discussed in the recommendations above, to establish a coalition agency that would monitor sea ice and icebergs. The agency would need to have the authority to approve or deny transit through the Northwest Passage for commercial vessels. This agency, if empowered, could prevent thin-skinned vessels from traversing the passage during periods when ice flows are too thick or are unpredictable. They could also control the location and structural requirements for any off-shore oil and natural gas platforms. Arctic Council agreements to establish guidelines and requirements will help protect the environment, and will also ensure that platforms and shipping lanes aren't emplaced until after all of the Arctic Nations have settled territorial disputes.

The recommendation targets our nation's economic well-being by establishing an agency that will provide control over vessels that transit or operate in the Arctic Ocean. This will help preventing environmental disasters and expensive cleanup operations. In addition, stringent control over transit will minimize illegal harvesting of marine life. The "ends" are to establish international control over vessels in the Arctic Ocean, versus, a unilateral attempt, in order to ensure long-term economic vitality in the region. The "way" is an Arctic Council agency with legitimate authority to control vessel transit in the Arctic Ocean. The "means" are political negotiations with the Arctic Council members, backed by scientific research that ensures safe vessel operations in the Arctic Ocean.

United States and Canada resolution over disputed territory. The recommendation is to develop an agreement with Canada in order to recognize their Economic Exclusion Zone over the Northwest Passage, while simultaneously assuring United States access through their waters. This agreement will meet our core national

interest of security. This agreement will further bond our nations toward the primary goal of Homeland Defense, and will subsequently encourage other nations to recognize Canada's Exclusive Economic Zone through the passage. In essence, this will allow nations to use the Northwest Passage for transit, but will not allow them to conduct commercial fishing or petroleum exploitation without Canada's approval.

The recommendation targets our nation's security by strengthening our nation's partnership with Canada, and ensuring a joint effort on providing security along our northern frontier. The "ends" are an agreement to recognize Canada's Economic Exclusion Zone. The "way" is initially a joint agreement between our two countries, followed by a United States effort in the United Nations to ensure Canada's rights are recognized internationally. The "means" are resolution at political level, in conjunction with partnership exercises in the region that ensure our ability to secure our northern border.

Naval Capability Improvement. The recommendation is for a concerted Congressionally funded policy that will enable the development of some type of marine vessel capable of operating in and around littoral ice flows. This will directly affect our nation's most important core interest: national security. This littoral capability is being developed by other nations, and is not currently resident in the U.S. inventory. The discussion early in the paper focused on submarines, but it is possible that new technology, such as unmanned undersea vehicles, could accomplish the mission with less resources. The new capability will not only augment and assure defense of our borders, but will be able to assure safe passage for all international vessels transiting the Northwest Passage. Freedom of navigation on the seas is a vital United States

interest, but without the foresight to prepare for operations in the newly expanding Arctic Ocean, the nation will be unable to meet future needs.

The recommendation targets our nation's security by ensuring future capability to operate in the Arctic Ocean and the littoral areas. The "ends" are to improve our naval capability to effectively operate in the Arctic Region. The "way" is a dedicated program that will develop new platforms and technology that enhance operations above ice, under ice, and in shallow water. The "means" are the detailed development of projected requirements, and funding.

Coast Guard Capability Improvement. Providing the United States Coast Guard with the resources to develop more ice-breaking capability in the Arctic Ocean directly targets our nation's security and our economic well-being. The capability to reach stranded vessels, or clear passageways for transiting ships, is and will become a larger requirement in the future. The best solution might be to procure new vessels, or contract commercial vessels with the capability, or even to develop agreements with other nations who have this capability already. The issue should be studied further in order to ascertain the most cost effective option or a range of options that will allow the Coast Guard to navigate freely in and around the Arctic Ocean. Currently the Coast Guard's capability is limited, and the requirements are growing as the new navigable waterways continue to expand.

The recommendation targets our nation's security by ensuring the Coast Guard's capability to perform law enforcement in the water along our northern border. This new capability, and improved capacity, will also help secure our nation's economic interests. The Coast Guard will be able to respond to stranded vessel requests. This will limit

environmental disasters or closures of the Northwest Passage for follow-on transiting vessels. The “ends” are to improve our Coast Guard capability and capacity to perform their missions in the Arctic Region. The “way” is a dedicated program that will develop new platforms and technology that enhance year-round arctic operations. The “means” are the detailed development of projected requirements, and funding.

Continued implementation of NSPD-66. The final recommendation is to implement the most recent national policy, NSPD-66, while refining and developing the recommendations listed above. The nation’s interests are at stake around the world, but the Arctic Ocean is our back yard. The current administration will most likely refine or update NSPD-66 in the future, but for now the nation’s agencies have a document that provides a solid baseline for continued diplomatic efforts and also provides specific targeted directives our national agencies can follow to continue progress toward achieving security, environmentally sound practices, and economic growth.

The previous discussions, and subsequent policy recommendations, provide the reader with a brief overview of the challenges and opportunities in the Arctic Ocean. In order to meet our national interests, the United States must be willing to lead the effort for change among international organizations including the Arctic Council and the United Nations. Our nation’s military capabilities must also develop, in conjunction with diplomatic efforts, to assure future security in the region. The Arctic Ocean continues to become more navigable, increasing vessel traffic and opportunities to exploit resources. The NSPD-66 provided a solid framework for improving our nation’s interests in the region, but continued efforts to actualize the directive must continue. In addition, the recommended policy changes should be reviewed, modified, and implemented as part

of a concerted effort to reinforce our nation's security, economic well-being, and to foster a secure world order in the Arctic.

Endnotes

¹ The Merriam-Webster Online Home Page, <http://www.merriam-webster.com/netdict/Northwest%20Passage> (accessed January 12, 2010).

² Joel Baglole, "Northern Thaw Raises Defense Concerns --- A Canadian Waterway Free of Ice May Bring Commerce – and Foes", *Wall Street Journal*, December 20, 2000.

³ Ibid.

⁴ Ibid.

⁵ The National Snow and Ice Data Center, Arctic Sea and Ice News Web Page, <http://nsidc.org/arcticseaicenews/index.html> (accessed January 6, 2010).

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ The US 50 Home Page, <http://www.theus50.com/area.php> (accessed February 12, 2010). The square miles for each state is an approximation.

¹¹ The Goddard Institute for Space Studies Research News Webpage, "2009: Second Warmest Year on Record; End of Warmest Decade", <http://www.giss.nasa.gov/research/news/20100121/> (accessed January 22, 2010).

¹² Ibid.

¹³ George W. Bush, *National Security Presidential Directive/NSPD – 66 / Homeland Security Presidential Directive/HSPD – 25* (Washington, D.C.: The White House, January 9, 2009), 2.

¹⁴ The Wall Street Journal Online, <http://online.wsj.com/article/SB123146453521166747.html> (accessed December 11, 2009).

¹⁵ George W. Bush, *National Security Presidential Directive/NSPD – 66 / Homeland Security Presidential Directive/HSPD – 25* (Washington, D.C.: The White House, January 9, 2009), 3.

¹⁶ Ibid, 4.

¹⁷ Exxon Valdez Oil Spill Trustee Council Home Page, <http://www.evostc.state.ak.us/facts/qanda.cfm> (accessed January 13, 2010).

¹⁸ Exxon Valdez Oil Spill Trustee Council Facts Home Page, <http://www.evostc.state.ak.us/facts/qanda.cfm> (accessed January 13, 2010).

¹⁹ Exxon Valdez Oil Spill Trustee Council Spillmap Home Page, <http://www.evostc.state.ak.us/facts/spillmap.cfm> (accessed January 13, 2010).

²⁰ Ibid.

²¹ Ibid.

²² Exxon Valdez Oil Spill Trustee Council Facts Home Page, <http://www.evostc.state.ak.us/facts/qanda.cfm> (accessed January 13, 2010).

²³ George W. Bush, *National Security Presidential Directive/NSPD – 66 / Homeland Security Presidential Directive/HSPD – 25* (Washington, D.C.: The White House, January 9, 2009), 6.

²⁴ Vsevolod Gunitskiy, "On Thin Ice: Water Rights and Resource Disputes in the Arctic Ocean," *Journal of International Affairs* 61, no. 2 (spring 2008): 261.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Thomas Omestad, "The Race for the Arctic; As the ice melts, nations eye oil and gas deposits and shipping routes", *U.S. News & World Report* 145, no. 8 (October 13, 2008), 53.

²⁸ Doug Struck, "Dispute Over NW Passage Revived; U.S. Asserts Free Use by All Ships; Canada Claims Jurisdiction", *The Washington Post* (November 6, 2006), A18.

²⁹ Marina Litvinsky, Jim Lobe, "Politics: Signing Maritime Treaty Could Boost U.S. Interests", *Global Information Network*, (May 7, 2009).

³⁰ Ibid.

³¹ George W. Bush, *National Security Presidential Directive/NSPD – 66 / Homeland Security Presidential Directive/HSPD – 25* (Washington, D.C.: The White House, January 9, 2009), 3.

³² Marcia Amidon Lusted, "Whose Pole Is It?", *Cobblestone* 30, no. 4 (April 2009), 40.

³³ George W. Bush, *National Security Presidential Directive/NSPD – 66 / Homeland Security Presidential Directive/HSPD – 25* (Washington, D.C.: The White House, January 9, 2009), 2.

³⁴ Doug Struck, "Harper Tells U.S. to Drop Arctic Claim", *The Washington Post* (January 27, 2006), A19.

³⁵ Ibid.

³⁶ Carl L. Olson, Mark J Seidenberg, Robert W Selle, "U.S.-Russian maritime boundary giveaway", *The Officer* 74, no. 9 (October 1998), 32.

³⁷ Ibid.

³⁸ U.S. Congress, Senate, Senate Armed Services Committee, *Statement of General Victor E. Renuart, Jr., USAF Commander United States Northern Command and North American Aerospace Defense Command Before The Senate Armed Services Committee*, March 17, 2009, 2.

³⁹ United States Air Force General Officer Biography Web Page, <http://www.af.mil/information/bios/bio.asp?bioID=4560> (accessed January 13, 2010).

⁴⁰ Elmendorf Air Force Base Web Page, <http://www.elmendorf.af.mil/alcom/index.asp> (accessed January 13, 2010).

⁴¹ George W. Bush, *National Security Presidential Directive/NSPD – 66 / Homeland Security Presidential Directive/HSPD – 25* (Washington, D.C.: The White House, January 9, 2009), 2.

⁴² Richard Boyle, Waldo Loyon, "Arctic ASW: Have we lost?", *United States Naval Institute, Proceedings* 124, no. 6 (June 1998), 31.

⁴³ Ibid. 32.

⁴⁴ Ibid. 35.

⁴⁵ Global Security Home Page, <http://www.globalsecurity.org/military/systems/ship/ssn-637.htm> (accessed January 15, 2010).

⁴⁶ Richard Boyle, Waldo Loyon, "Arctic ASW: Have we lost?", *United States Naval Institute, Proceedings* 124, no. 6 (June 1998), 35.

⁴⁷ U.S. Coast Guard District 17 Arctic Overview Web Page, <http://www.uscg.mil/D17/ArcticOverview.pdf> (Accessed January 13, 2010).

⁴⁸ Ibid.

⁴⁹ Anonymous, *Defense Daily* 241, no. 24.

⁵⁰ George W. Bush, *National Security Strategy* (Washington, D.C.: The White House, March, 2006).