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The Changing Arctic Landscape: Opportunities and Challenges

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Biography

Captain Massello is a United States Coast Guard search and rescue pilot and designated Aeronautical Engineer with over 3,200 hours in both fixed and rotary wing airframes. He is currently assigned to the Air War College at Air University, located on Maxwell Air Force Base in Montgomery, Alabama. He earned his Bachelor's degree in Mathematics and Computer Science from the U.S. Coast Guard Academy in 1995 and Master's degrees in Business and Industrial Engineering from the University of Pittsburgh in 2008. Captain Massello's most recent assignment was in Houston, Texas where he served as Commanding Officer from 2015-2017.

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Abstract

As the Arctic ice cap continues to recede, more and more of the regions waters are becoming navigable to commercial, open-water vessels. At its current rate, we could experience the first "ice-free" Arctic sometime in the 2030s with a shipping lane over the North Pole by 2040. With this newfound access comes a renewed interest in the opportunities the Arctic presents. The abundance of oil, gas and other resources contained within its seabed, the shorter transit routes between the Atlantic and the Pacific, changes fish migration patterns and increased tourism all serve to attract Arctic and non-Arctic nations to the region. As the nation with the largest territorial claim, Russia has traditionally maintained a heavy presence in the Arctic and has invested heavily in ice breakers, submarines and new infrastructure over the last decade to prepare for the new waterways that are opening. The United States on the other hand has not. The United States now finds itself in an uphill battle to construct the ice breakers and military infrastructure it will need to explore the region, safeguard mariners and the environment, and ensure our national security should it ever face a military challenge in the region.

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"The United States is an Arctic Nation with broad and fundamental interests in the Arctic Region, where we seek to meet our national security needs, protect the environment, responsibly manage resources, account for indigenous communities, support scientific research, and strengthen international cooperation on a wide range of issues."

President Barrack Obama
May 2010

As the average global temperature continues to rise, Arctic ice continues to melt. As a result, maritime regions which were once uninhabitable and beyond reach for most private, commercial and military entities are becoming more and more accessible. Predictions based on the current rate of ice reduction suggest that by as early as 2040 even traditional open-water vessels will be able to transit the arctic for a majority of the year.[1] This increase in Arctic accessibility brings with it a wealth of opportunities in terms of natural resources within the seabed, shorter trade routes connecting Asia and Europe, and increased fisheries and tourism. However there is growing concern that competition within the Arctic will lead to increased tension and hostility that could threaten to destabilize the area. According to the United States Geological Survey, "30 percent of the global undiscovered natural gas and 13 percent petroleum"[2] can be found in the Arctic with "80% of the natural gas in waters governed by Russia."[3] Additionally, navigation routes such as the Northern Sea Route (NSR) through Russia and the Northwest Passage (NWP) through Canada are deep within those respective countries Exclusive Economic Zones (EEZ) and could one day lead to contested Freedom of Navigation claims by other nations seeking shorter and less expensive transits. Overall, as the Arctic ice continues to recede and access to the region is achieved by more and more nations, this historically tranquil region could become the next source of global instability if not managed carefully now.

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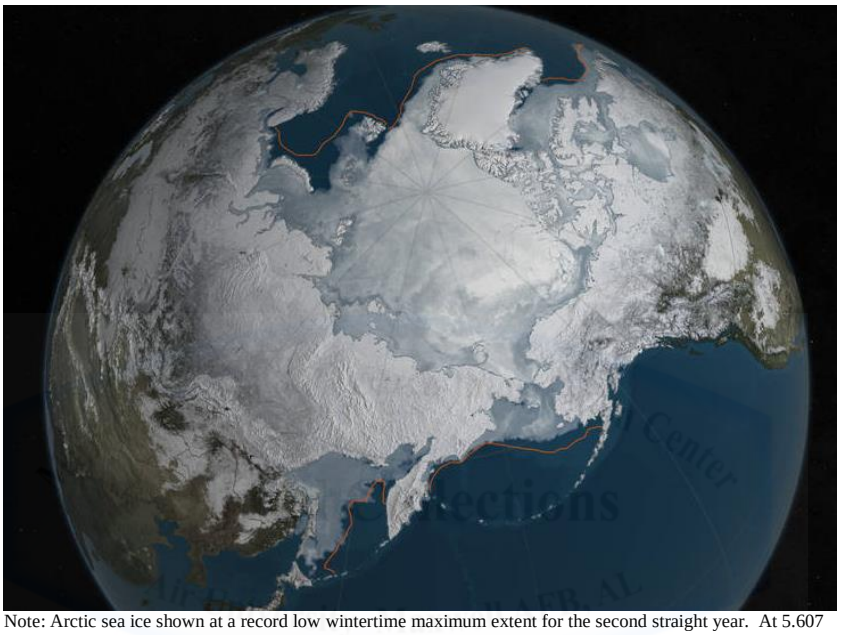
The Arctic is generally defined as "all territory north of the Arctic Circle."[4] Since 1980, temperatures in the Arctic have risen by approximately two degrees Celsius per year, twice as much as the rest of the Northern hemisphere.[5] On average, the maximum amount of sea ice has been reduced by 2.8 percent per decade since satellites first started recording it back in 1979.[6] Compounding this dilemma is the fact that sea ice aids in regulating the Arctic air temperatures by reflecting solar energy back into the atmosphere. As that ice is reduced, the exposed, unfrozen sea water is able to absorb more heat which it then reradiates back during the winter months. This leads to warmer winter air which in turn limits the amount of ice being formed. As this cycle repeats, it is possible that the Arctic could experience "ice free" conditions during a portion of the summer months sometime during the 2030s.[7]

As the Arctic becomes more accessible, it is attracting the interest of more and more nations and commercial entities from around the world. In addition to the eight core nations that comprise the Arctic Council (Canada, Russia, Denmark, Norway, United States, Iceland, Sweden and Finland) there are 13 additional observer nations and 25 Inter-Parliamentary/Inter-Governmental organizations officially involved in arctic governance. While all see and understand the Arctic as a peaceful region, the growing demand for resources and trade opportunities will test the limits of cooperation between these states and organizations. Likewise, from 2008 to 2012 there was a 118% increase in vessel traffic throughout the Arctic with over one million tons of cargo transited through in 2012.[8] Maritime shipping lanes through this region serve to shorten the overall distance between the North Atlantic and North Pacific by approximately 5,000 nautical miles,[9] yielding the potential to cut millions of dollars in transit costs, saving commercial entities upwards of 13 days and $500K per transit.[10] Lastly, as the

waters in the Arctic warm, commercially relevant fish such as salmon, mackerel and cod will continue to migrate north.[11] With more than 60% of all fish caught in the United States coming from waters off the Alaskan coast this too will have a major impact on the United States and global economy in the decades to come.[12]



Note: Arctic sea ice shown at a record low wintertime maximum extent for the second straight year. At 5.607 million square miles, it is the lowest maximum extent in the satellite record, and 431,000 square miles below the 1981 to 2010 average maximum extent.[13] ***Credits: NASA Goddard's Scientific Visualization Studio/C. Starr***

In 2007, Russia renewed their claim to Arctic waters by leading a deep dive to plant a titanium Russian flag in the seabed at the North Pole. Since that time, they have continued to expand their industrial capabilities and military presence in the region. As the only non-NATO country with territory in the arctic, Russia's actions and willingness to cooperate with the greater international community will be a key driver to how volatile the region might become. Russia's first proclamation of rights to land and sea in the Arctic dates back to 1821 when they laid claim to a 100 nautical mile EEZ within the Bering Strait and North Pacific.[14] Today, Russia's Arctic coast line extends more than 10,800 miles and resources extracted from within their territorial

waters accounts for 20% of Russian Gross Domestic Product and 22% of their exports.[15] With the Arctic already a historic focal point in the Russian economy, their increasing presence is certain to continue with navigation along the NSR and access to resources within the EEZ a key source of debate.

Currently a large portion of the NSR passes through an area that is claimed by Russia as part of their EEZ. Citing Article 234 of the 1982 U.N. Convention on the Law of the Sea (UNCLOS) treaty (detailed below), Russia exercises control over these shipping lanes due to the fact they are 'ice covered waters' during part of the year. Despite claims by other nations that the NSR passes through international waters and therefore should not fall under Russian jurisdiction, Russia maintains it as theirs, imposing strict requirements on vessels seeking passage. For instance, Russian authorities must first approve the vessel type, staffing levels and equipment being used on board and then mandates the use of a pilot and a separate ice breaking escort to accompany the transit, regardless of the vessel's class.[16] For those vessels able to meet their strict requirements, the cost of a single voyage can reach $100K.[17] Additionally, a non-discrimination clause within Article 234 seeks to prevent controlling nations from selectively choosing only desired traffic (i.e. paying commercial entities), however the terms of the clause are vague and difficult to enforce. For example, in 2013 Russia granted passage to a record number of ships, but denied passage to a Greenpeace icebreaker on a research mission due to a "technicality." Ultimately when the Greenpeace vessel proceeded without approval, their vessel was seized and the 25 person crew was arrested by armed Russian authorities.[18]

Russia clearly leads the race in the Arctic in terms of assets and infrastructure with 40 icebreakers in service and another 11 in production.[19] Russia's largest ice breaker, the *Arktika*, is a 567 foot long, 33K ton nuclear powered vessel capable of breaking through ice nine and a half feet thick.[20] In 2019, Russia plans to launch an even larger ice breaker, three times the size of *Arktika*. In contrast, the United States currently has two icebreakers in service, however only one of which is categorized as 'heavy' as designed specifically to operate in the Arctic and Antarctic environment.

To complement their fleet of ice breakers, Russia unveiled a new military base in April 2017 named *Arktichesky Trilistnik*, and has plans to reactivate 50 other former military bases in the region.[21] In addition, Russia's *Project Iceberg* is the name given to their comprehensive pursuit of "under-water, under-ice, autonomous development of hydrocarbon fields" done solely by un-manned vehicles.[22] Autonomous Underwater Vehicles (AUVs), which are already being tested, would be used to explore the Russian seabed and tap into the existing oil fields year round, even while the surface is covered with ice. To accomplish this, Russia is developing a network of 24-megawatt nuclear reactors, to place along the arctic seabed which will serve as docking stations for their AUV fleet.[23] The main asset in Project Iceberg however is the construction of a 597 foot-long nuclear submarine which would make it the largest ever built. The submarine's primary missions would be cable laying and research, as well as serving as a mobile docking facility for other subs, both manned and unmanned.[24]

While to many Project Iceberg may sound obscure and far-fetched, some experts say that it is entirely possible with the technology available today, as most nuclear reactors are already self-

sufficient, remotely monitored and require very little maintenance. Others however speculate that Project Iceberg is actually a front for more military centric plans. One such initiative is termed *Harmony* which is the name given to the "sonar fence" Russia uses to detect the movement of NATO submarines.[25] In addition to acting as a docking station, some believe the network of nuclear reactors may also function as a power source for *Harmony* in order to help track other nation's underwater activity in the region.

Note: Russian military base Arktichesky Trilistnik located in Franz Josef Land. ***Photo Credits:*** Russian Defense Ministry Press Office/TASS (Photo by TASS\TASS via Getty Images)

International Policy and Partnership

The third U.N. Convention on the Law of the Sea (UNCLOS III) Treaty was finalized on 10 Dec 1982, put into effect in 1994 and to date has been ratified by 167 parties.[26] It currently serves as the primary international institution capable of hearing claims to ocean boundaries and rendering decisions on state disputes. UNCLOS is predicated on international law and "sets forth the rights and obligations of states regarding the use of the oceans, their resources and the protection of the marine and coastal environment."[27] One provision of UNCLOS is the

establishment of a nation's continental shelf which extends anywhere from 200 to 350 nautical miles (nm) from a nation's coastal baseline and never beyond more than 100nm from the 2500 meter isobaths.[28] In cases where two or more continental shelves overlap, UNCLOS serves as a mediator to determine what a fair and equitable split would be. A nation then maintains exclusive rights to all "mineral, non-living materials and living materials attached to the seabed"[29] within their continental shelf, therefore it's easy to see why vague or undefined borders can lead to increased tensions among competing states, such as in the Arctic. Additional provisions provided by UNCLOS include "general obligations for safeguarding the marine environment and protecting freedom of scientific research on the high seas," as well as language that permits "landlocked" nations access to international waters for safe and tax free transit.[30]

The United States has yet to formally ratify UNCLOS despite honoring all of its measures. The source of the concern pertains to the International Seabed Authority (ISA) which was established by UNCLOS to govern resource mining and information sharing among all states operating in international waters. The United States maintains two primary concerns with the ISA which has stalled ratification since 1994. First, members of congress claim that the ISA jeopardizes United States sovereignty by granting an international institution the ability to "regulate commercial activity and distribute revenue from that activity."[31] Without a clear veto authority in place, it is thought the United States would be subjecting itself to an international governing body that could change and enforce rules, as well as redistribute national resources, without consent. The second concern over ISA is that it would constrain the U.S. Navy in information gathering and other military activities on the high seas. Arguments in favor of non-ratification center on the fact that navigation on the high seas is already covered under

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international law and therefore it is not necessary to agree to a second treaty that unnecessarily imposes on a nation's sovereign rights.[32]

As Russia's operations in the Arctic expand unopposed, so does their claim to govern the region under international law. Being the only Arctic nation who has not ratified UNCLOS, the United States' continues to remain on the outside of the continental shelf discussions and will have limited influence over future decisions pertaining to the region. More importantly, this lack of engagement will forgo the opportunity to legally define the United State's continental shelf. Under UNCLOS, Arctic nations have ten years after ratifying the treaty to research and define how far out their continental shelf extends. Upon completion of their research, states may submit their claim to the Commission on the Limits of the Continental Shelf (CLCS) who will then validate that the claim and supporting research are correct. If the CLCS determines that a state's research is conclusive, they will recognize the claim. The next step would be for bordering nations with claims to the same territory to enter into negotiations and agree on where the final ocean boarder will lie.[33] At a May 2008 meeting in Greenland, all Arctic nations agreed to work together towards a peaceful resolution of claims to the Arctic seabed. Considering this meeting took place before any nation had registered a claim with specific limits to their continental shelf, it may be premature to think the process will not be a contested one.[34]

In addition to calling for the United States Senate to ratify UNCLOS, the 2009 National Security Policy Directive 66 (NSPD-66) issued by President Bush, spells out the United States' strategic interests and objectives in the Arctic, specifying security in the region, the protection of the environment and resources, as well as partnering with other Arctic nations as key focus

areas.[35] NSPD-66 also tasks the Department of Homeland Security and Department of Defense to work together to provide search and rescue, vessel traffic monitoring, the establishment and maintenance of navigational aids and iceberg warnings throughout United States territorial seas.[36] While the Air Force and Navy will have key roles in the Arctic's ongoing development, the United States Coast Guard continues to be the lead agency as all of the strategic priorities from NSPD-66 fall squarely within the Service's 11 statutory missions.

On June 9th 2016, U.S. Coast Guard Commandant ADM Paul Zukunft joined the Coast Guard heads of the seven other Arctic nations to sign a joint agreement of the Arctic Coast Guard Forum that provides the framework for future collaboration. In short, the Arctic Forum establishes a joint partnership among all Arctic nations "to share information, highlight best practices, and identify training exercises and combined on-the-water operations to achieve safe, secure and environmentally responsible maritime activity in the Arctic."[37] While the Arctic Council's mandate "explicitly excludes military security," the Arctic Forum does not, making it a key institution for the United States Coast Guard to be part of. [38] As both a federal law enforcement agency and military service, the Coast Guard is the only United States service or agency with the legal authority to address the full spectrum of Arctic concerns. Recognized world-wide as a life saving organization, the Coast Guard is uniquely poised to advance United States interests in the region in a non-threatening, non-combative manner, while simultaneously presenting a military presence with the capability to defend United States sovereignty.

Although the militarization of the Arctic is a key strategic concern for the United States, it is not our top priority. When compared to other more immediate issues such as the increase in

commercial vessel transits, tourism, and scientific exploration, Arctic safety and maritime security are the more time-critical threats. Thus far, all Arctic nations, including Russia, have embraced the spirit of collaboration and partnership in the region as they work together to accomplish their goals. The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue assigns responsibilities and delineates clear lines of demarcation for Search and Rescue coverage among the eight Arctic nations.[39] Through ongoing exercises, all eight nations share their SAR capabilities and procedures, while working to ensure coverage of the 5.4 million square miles of ocean. Examples of this in action include a simulated tanker collision near Norway in May 2016 where all nations participated in the response effort and subsequent table top discussions. Also, there is the Coast Guard's annual Arctic Shield mission where service men and women from across the country gather during the late summer months to extend the Coast Guard's reach up to the North Slope of Alaska. Here they train with their Canadian counterparts, as well as state and local officials, to gain experience operating in the region's harsh and remote environment.

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Lastly, in August 2016, Canada held the exercise Arctic Chinook which simulated a cruise ship in distress in Arctic waters. The exercise, involving the United States and Canada, also included Russia and Norway as observers. Not only was this a good training experience and partnering opportunity, it was a clear sign of things to come as that same month the cruise ship Crystal Serenity departed Alaska for New York via Canada's Northwest Passage.[40] At 820 feet long, the Crystal Serenity became the largest cruise ship ever to successfully complete an Arctic transit through the northern Canadian waters.[41]

Although the Coast Guard continues to partner with other Arctic nations in the spirit of developing a safer and more secure region, their capability is constrained by a limited number of assets and infrastructure, as well as challenges in long-range communications and sub-standard navigation charts. The Coast Guard Cutter Polar Star, built in the 1970s, is 399 feet long, weighs 13.1K tons and is capable of breaking ice up to six feet thick.[42] With the Polar Star well past her 30 year service life, the Coast Guard is in the process of researching new ice breaker designs with a desired contract award in the third quarter of FY19 and an anticipated delivery sometime between 2023 and 2026.[43] According to Representative Duncan Hunter, Chairman of the House Subcommittee on the Coast Guard and Maritime Transportation, Russia's growing footprint in the Arctic should be an "urgent concern" and has called for the Coast Guard to receive funding for as many as six new ice breakers.[44] At an estimated $1 billion per vessel, this increase would represent over one half of the Coast Guard's current budget.

Note: United States Coast Guard Cutter Polar Star ***Photo source***: http://infoaboutalaska.com/marine-safety/coast-guard-icebreaker-polar-star-ready-for-sea/

In addition to ice breakers, the Coast Guard operates other cutters and aircraft in the region including the state of the art National Security Cutters, however these do not posses reinforced hulls and are limited to ice free waters predominantly during the summer months. In addition to marine assets, the Coast Guard maintains two air stations in Alaska, both of which are located on the southern part of the state in Kodiak and Sitka. Kodiak is by far the larger of the two, operating MH-60T and MH-65D helicopters as well as C-130H aircraft while Sitka houses only MH-60T helicopters. Additionally, in 2016 the Coast Guard leased a small hangar in Utqiagvik (formerly named Barrow) on Alaska's North Slope where they forward deploy two Kodiak MH-60T helicopters throughout the summer months.

Shore infrastructure is another constraint to Coast Guard operations in the Arctic. Dutch Harbor, Alaska, which is approximately 1,100 nautical miles south of the Bering Strait, is currently the United States' deep draft port closest to the Arctic.[45] At this distance, significant response and patrol time for Coast Guard cutters is lost due to transit. In 2011, the Army Corps of Engineers was involved in a study to evaluate the port of Nome, AK, which is less than 100 nautical miles south of the Bering Strait, for a possible expansion however that study was cut short once Shell Oil ceased drilling operations.[46] Shell departed due to harsh environmental conditions and a limited window of time in which to work; however as the ice cap continues to recede it is only a matter of time before industry again seeks to drill off Alaska's North Slope. According to RADM Ostebo, the Coast Guard's District 17 Commander back in 2012, "[Barrow, now Utqiagvik] is centrally located in the Arctic and is the center of power for corporate, tribal and economics for the North Shore Borough making it the best investment of SAR infrastructure."[47] While this is a significant step forward in terms of Arctic Search and Rescue

capabilities and reduced transit times, the hangar and surrounding town infrastructure is very limited, making long-term operations and logistics difficult to sustain. For instance, cruise ships and other deep-draft vessels must anchor offshore and ferry their passengers and cargo ashore due to the shallow port.[48] Despite the challenges to operations, Barrow remains a key strategic point for future Arctic operations and with an infusion of investments in infrastructure can be made into a suitable forward operating base.

Two other challenges that present near-term challenges to operations in the Arctic are communications, which pertains to the limited bandwidth and general difficulty communicating over-the-horizon with other land-based assets, and navigation as "less than 5% of the Arctic has been charted to 21st Century standards."[49] Both of these issues serve to complicate Coast Guard and other military operations as well as increase search and rescue response times. Limited efforts are underway now to address the communications challenge, including the use of land based signal repeaters, advanced satellite technologies and high altitude balloons to relay radio signals further over the horizon. While tests for these differing technologies are still ongoing, the presence of additional surface assets can serve as mobile communications platforms as they transit the region. This furthers supports the need for the United States to invest in new ice breaking capability now.

For navigation, the National Oceanic and Atmospheric Administration (NOAA) is actively mapping the busiest portions of the Arctic, beginning with the Bering Strait and proceeding to other high transit areas.[50] Likewise, the Cutter Healy, the Coast Guard's medium class ice breaker, employs their own onboard mapping equipment to collect and relay data back to NOAA

as they progress throughout their summer patrols.[51] When it comes to a rescue at sea, especially in the harsh Arctic environment, time is always of the essence. To ensure the safety of civilians as well as first responders, it is critical that the United States continue to invest in the proper charting of this region. As with the communications challenges faced, s suitable deep-draft port and corresponding infrastructure would have an increased return on investment as the United States expands its Arctic presence.

In addition to the Coast Guard, the Air Force and Army maintain an array of Arctic ready forces, primarily in Anchorage at Joint Base Elmendorf-Richardson, but also throughout other parts of the state including Juneau, Bethel, Fairbanks and Nome.[52] The largest contingent of forces is comprised by the 176th Wing of the Air National Guard (ARNG), located in Anchorage. The missions of the 176th are carried out by the 1500 service men and women and include "combat search and rescue, agile combat support for air expeditionary force tasking, strategic airlift, homeland defense, and defense support to civil authorities."[53] While predominately an inland SAR unit, the 176th ANG employs HH-60 helicopters with in-flight refueling capability, along with HC-130 and C-17 airplanes to serve the far reaches of the Arctic region.[54]

Complimenting the 176th Wing is the Army and Army National Guard (ANG), also located on Joint Base Elmendorf-Richardson. Along with UH-60 helicopters, the Army and ANG forces operate CH-47 "heavy-lift" Chinook helicopters as well as Grey Eagle Unmanned Aerial Vehicles (UAV).[55] While the CH-47s are somewhat limited in their range (115nm) they can provide a forward refueling capability for other aircraft and can transport large numbers of personnel. Grey Eagle UAVs on the other hand provide a major advancement in long-range

surveillance within the Arctic region. Given that weather in the Arctic is both extreme and unpredictable, operation of UAVs as a search and surveillance asset is extremely valuable for both its high endurance and the ability to keep aviation personnel out of harm's way for as long as possible.

The Navy's activity in the Arctic can be traced as far back as 1879, however it wasn't until the end of World War II that the service began the more regular presence it maintains today.[56] While Navy surface assets have operated in the Arctic waters in the past, they are limited in their capability as they cannot transit the ice regions without reinforced hulls. As a result, the Navy has relied on the Coast Guard to maintain the nation's ice breaking assets and has also continued to employ their nuclear powered submarine fleet in the region to meet national defense security needs. While poised to assist the Coast Guard in offshore search and rescue matters, they are determined to continue to meet and advance their national defense readiness posture. In support of this, the Navy conducts biannual training, operations and research exercises throughout the Arctic. Conducted by the Navy's Arctic Ice Laboratory, these Ice Exercises (ICEX) last for several months and are a means for testing the Navy Maritime defense readiness. Likewise, the lack of any deep-water port on the north slope of Alaska requires the team of naval scientists and personnel to establish "temporary Arctic ice camps" in remote locations as they are required.[57] While these ice camps are suitable for seasonal research and exploration they are not well suited to house any long-term military operation and are instead turned over to the local communities once they are no longer in use by the Navy.[58] As a result the nearest deep-water port continues to be on the Aleutian Island chain at Dutch Harbor with no other year-round base infrastructure in the northern half of the state.

Recommendations

While much has been accomplished by the military and commercial industry over the last decade to prepare for increased activity that is coming in the Arctic, there is still a great deal of work that remains. First and foremost as an Arctic nation, the United States must ratify UNCLOS and emerge as a recognized leader and influencer in the decision making process. Despite the reluctance of the United States Congress to officially agree to the terms of UNCLOS, we abide by its framework and with every other Arctic nation having ratified its governance, the United States only stands to lose additional ground in future international debates. While the exact timeframe for when the Arctic will be "ice free" is still subject to some speculation, there is no denying that it is a matter of "when" and not "if" that day will come. Important decisions pertaining to state boundaries, freedom of the seas navigation, maritime safety and security, as well as environmental protections will need to be made within the next decade. Without UNCLOS ratification the United States cannot be recognized as a legitimate contributor in the decision making process, and stands to cede an important leadership role.

The urgent need for icebreakers and other Arctic capable military assets must be prioritized by the Department of Defense (DOD) and Department of Homeland Security (DHS), and funded by Congress. In the coming years much research and exploration of the Arctic will be required to ensure we are ready to safely operate in the soon to be ice free region. The Coast Guard's recent proposal request for a new ice breaker design is a significant first step, but with as many as six icebreakers needed, the United States is behind. Not only will the use of these ice breakers provide an immediate security vessel and command and control platform, they will facilitate the additional research, ocean mapping, and scientific exploration that is needed to adequately serve

and protect the region. Given the long lead times for acquisition and construction, the current process needs to proceed unimpeded by fiscal uncertainties and even expedited where possible, in order to close our capability gap with Russia and establish a sustained presence that at a minimum parallels other aspiring states and commercial entities.

Coupled with military assets is the support infrastructure that goes with them. According to NOAA, "By 2030 the Arctic may be ice free for up to four months and by 2050 there will likely be a shipping lane over the North Pole."[59] With the ensuing rush to stake out territory and claim the resources an ice-free Arctic will bring, the United States may end up scrambling to protect its interests if we do not begin to grow our infrastructure now. With the harsh and rapidly changing weather systems that pass through the Arctic, there is a clear need for at least one deep-water port and aviation facility near the North Slope of Alaska. This to provide a safe-haven for all personnel involved in operations in the northern waters along with reduced transit times that serve to limit exposure to the harsh weather and unforgiving environment. Given the close proximity of Nome to the Bering Strait, the Coast Guard should seek to expand its operations here and construct a permanent base, enlisting the help of the Army Corps of Engineers to continue their 2011 assessment of the suitability of Nome to serve as a deep-water port. As the Bering Strait is also bordered closely on the west by Russia, the idea of a Coast Guard base vice a DOD base here could help ease the potential tensions of building in this geostrategic site. Instead, the DOD should look to evaluate Utqiagvik, AK as a potential site for a large scale military base capable of housing surface, sub-surface and aviation assets. While the Coast Guard will continue to be the lead agency serving the Arctic, the need for a strategic DOD site with

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close proximity to the Northern Alaska waters will only continue to grow as more countries begin to transit the Arctic region.

Finally, the Coast Guard must continue to promote the Arctic Forum as an essential means to promote peaceful international exchange and partnerships among all Arctic nations, including Russia. While there has been much speculation over the "potential" for hostilities to develop as Arctic ice recedes, there has been no tangible action by any nation to support this fear. Instead, members of the Arctic Forum have eagerly collaborated on search and rescue exercises and continue to promote a collective safety and security in the region, while furthering their own exploration and research. For the United States, the Coast Guard continues to be the ideal agency to lead these efforts along with support from DOD. As a joint life-saving and military service, the Coast Guard can continue to effectively promote and enforce maritime safety and stewardship in the Arctic in a manner that is non-threatening to other nations, yet seamlessly operate in tandem with DOD in defense of our national interests, should the need arise.

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Conclusion

The Arctic as a strategic concern for the United States dates back to the end of WWII when ballistic missiles were seen as a threat from Russia that would come from over the North Pole.[60] Since then Russia has steadily grown their presence there, viewing the region as a major economic and military hub in support of their national interests. Aside from the 2013 interdiction of a Greenpeace vessel and their own self-proclaimed control over waters believed to be theirs, Russia continues to be an otherwise cooperative member of the Arctic Council. Furthermore, Russia is among the 147 nations that have ratified UNCLOS and recognize the

treaty as the legal framework governing territory and navigation within the region. Moving forward, we must continue to capitalize on this goodwill while simultaneously developing our own capabilities. While the United States has been active in exploring Arctic waters for the last seven decades, we are now on diverging paths with Russia in terms of assets and infrastructure and will fall even further behind if we fail to take aggressive actions now. With the abundance of undiscovered oil and other natural resources present, as well as the shorter transit routes that will emerge connecting the Atlantic to the Pacific, future developments in the region will have the potential to become a source of friction between Arctic and even non-Arctic states. Only by investing in future capabilities and continuing to partner with Arctic nations, can we ensure our mutual safety and security, while preserving the Arctic's pristine environment. As the Arctic ice recedes and more and more opportunities become accessible, the United States must act now to meet our National Strategy for the Arctic Region, which is to "ensure our sovereignty, respond to crises and contingencies, preserve freedom of navigation on the high seas, and continue to promote partnerships among our international allies."[61]

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