

Carpe DIEM

Seizing Strategic Opportunity in the Arctic

By ANTHONY L. RUSSELL

The only thing heating up faster than the Arctic is the international competition by its surrounding nations to solidify their claims and to secure control of the area's valuable resources. At stake is more than 90 percent of the Earth's unclaimed seabed, which is believed to contain significant amounts of oil, gas, and precious minerals.¹ It has been nearly a century since the first explorers reached the North Pole in 1909, but due to drastic climate change and the renewed promise of wealth, the region is finally stepping to the forefront of

international affairs. The United States must develop a comprehensive strategy to protect its national security, environmental, and economic interests in the Arctic or face being frozen out by the other Arctic nations (see figure 1).

Primarily, this situation is being influenced by four dynamics: climate, economy, sovereignty issues, and environment. This essay examines the elements of each of these dynamics and their specific implications for the United States. It then offers recommendations to shape the outcome in the best interests of America.²

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Polar bears investigate USS *Honolulu* after it surfaces in Arctic Circle



U.S. Navy (Aphonso Braggis)

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The Shaping Dynamic

The most significant dynamic shaping affairs in the Arctic is climate change. According to the Arctic Council's Climate Impact Assessment, released in 2004, Arctic temperatures are rising at nearly twice the rate of the rest of the world and are forecast to increase by as much as 14 degrees Fahrenheit over the next century.³ The outcome will be drastically declining sea ice coverage throughout the region. The 2007 summer marked the lowest recorded extent of sea ice since measurement began in 1979. For September, annually the month with the least amount of ice, the average area of ice coverage was only 1.65 million square miles, 23 percent less than the previous record low measured in 2005 (see figure 2). This is the low point in a trend that has seen ice coverage decline by approximately 10 percent per decade since 1979. Beyond just the numbers, for the first time in human memory, the fabled Northwest Passage across the Canadian north was ice-free for a month during the summer of 2007.⁴

The Albedo Cycle is the natural process that amplifies global warming trends in the Arctic. The ice cover retreats when the tem-

perature rises, allowing more energy to be absorbed by the ocean and less to be reflected into the atmosphere. This absorbed energy, in the form of heat, warms the ocean and thaws more ice, amplifying the effect in a continuous loop.⁵ Additionally, scientists have recently observed a connection between the shrinking ice and ocean circulation patterns that bring warmer water into the Arctic region, further speeding the loss of ice cover.⁶ Scientists examining Arctic warming have come to a consensus that we could witness a nearly ice-free Arctic as early as 2030 and no later than 2060.⁷ If these predictions are true, they promise a much more accessible Arctic region, which will have significant environmental, economic, and security implications for the United States and other Arctic countries.

The Interest Dynamic

While climate change has opened the door to the Arctic, the economic dynamic has laid out the welcome mat. There is broad scientific consensus that the Arctic seabed holds a significant cache of oil, gas, and mineral reserves. Estimates of oil reserves range from a high of 25 percent of the world's remaining

oil to a low of 3 percent.⁸ This "low" estimate still equates to approximately 15 billion barrels of oil, or 2 years' worth of annual domestic consumption, just within the United States, and another 218 billion barrels undiscovered in the rest of the Arctic. These deposits do not have to be massive to significantly benefit U.S. economic and security interests. Currently, the United States uses 22 million barrels of oil per day, of which 64 percent is imported.⁹ Declining global reserves, increasing prices, and growing demand for more secure and dependable energy sources make even modest domestic reserves of major strategic value.¹⁰ Additionally, U.S. benefit does not exclusively result from domestic discoveries, but also derives from the greater security offered by new discoveries by Arctic allies such as Norway, Denmark, and Canada. As former U.S. Ambassador to Norway Tom Loftus stated, "It may be expensive to extract, but the political expense per barrel is less."¹¹

Speculation of large oil and gas resources in the Arctic Ocean has been taking place since the 1960s, but it is only in the last decade that this source has begun to look profitable. In 1998, a barrel of crude oil would fetch less than

Figure 1. Definitions of the Arctic Region



Sources: Arctic Monitoring and Assessment Programme, Assessment Report Arctic Pollution Issues, 1996; AMAP Arctic Pollution Issues, "A State of the Arctic Environment Report", 1997; United Nations Environment Programme/GRID-Arendal.



Arctic explorer Robert Peary is credited with leading first expedition to reach North Pole

\$12, while the per-barrel average in 2007 was more than five times that and surpassed the \$100 mark for the first time in February 2008. At these prices, the calculus shows significant profit potential for oil companies and has resulted in recent increases in investment. In July, ExxonMobil Canada and Imperial Oil bought the most expensive lease in the Beaufort Sea to date, committing to \$585 million in exploration over the next 9 years.¹² On the U.S. side of the Beaufort Sea, oil giant Shell invested more than \$80 million in exploratory activities in 2007.¹³ Legal opposition has failed to put a damper on the interest in Arctic oil as demonstrated by the February 6, 2008, Chukchi Sea lease auction. The U.S. Mineral Management Service (MMS), responsible for the offshore leasing program, initially expected the auction to bring in \$67 million, but it actually earned a record \$2.6 billion.¹⁴

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No matter how bountiful the resources of the Arctic may be, they are worthless if they cannot be extracted and transported. This requires shipping to support operations and infrastructure, as well as to transport the product. For instance, the relatively small Shell Oil operation in the American Beaufort Sea requires the support of nine vessels at a cost of \$40 million.¹⁵ With the promise of

long-term need, the shipping industry has begun to take notice and is making a focused effort to design and build bigger and better “Arctic-capable” ships to support the forecasted rise in demand. For example, Samsung Industries is building three 120,000-ton tankers, capable of breaking through over 5 feet of ice continuously, specifically designed for the Varandey oil export project off northeastern Russia.¹⁶ Industry-wide, the order backlog for ice-capable ships is at 152, which would increase the worldwide fleet of vessels of this kind by 50 percent.¹⁷

Maritime operations in an ice-free Arctic are not only about oil and gas, but also about regional and global shipping operations. Russia and Canada began bilateral talks in January 2007 to consider opening an “Arctic Bridge” between Murmansk and Churchill. The discussion was initiated by Russia and accompanied with the offer of using seven of their modern icebreakers to keep Churchill’s port open year-round. Currently, the port operates only 4 months out of the year, primarily for wheat export.¹⁸ The unexploited resources in Canada’s Arctic provinces—including gold, silver, zinc, iron, and diamonds—are potentially worth trillions of dollars. The accessibility and profitability of these resources will increase significantly with continued warming and access to year-round port facilities. As an indication of this potential, revenues from the Northwest Territory increased by almost 10 times, from \$24 million to \$224 million, between 1998 and 2006.¹⁹

Arctic shipping routes have global implications through the possible opening of two new shipping routes, the Northern Sea Route and the Northwest Passage (NWP).²⁰ Both offer significant decreases in time and distance from the current routes through the Suez and Panama Canals. In the business of long-distance sea cargo, “time saved is money made.”²¹ Some analysts estimate the savings could be as much as \$800,000 in fuel and labor per trip for a large freighter.²²

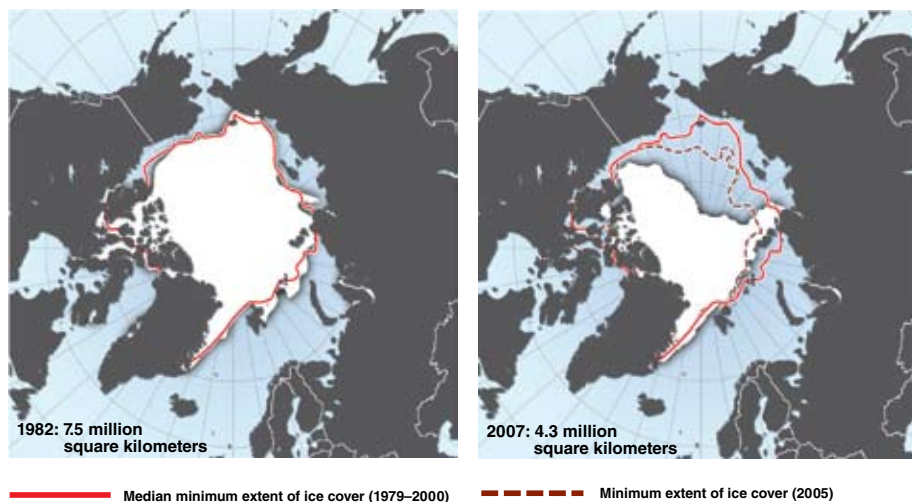
In both trade and strategic terms, China would benefit substantially from a reliable Arctic passage. Currently, 60 percent of vessels transiting the strategic straits of Southeast Asia are either Chinese or carrying cargo to or from China.²³ Recently, both China and India have had talks with Russia about using the Northern Sea Route. Russia is also considering plans to ship liquefied natural gas (LNG) directly to the United States, which has become the largest LNG importer in the world.²⁴ Other industrialized nations such as Japan and South Korea could alter their energy import patterns away from volatile regions such as the Middle East and Africa.²⁵

While conditions, demand, and technology are not yet right for these routes to be used regularly, it is clear that their use will be feasible in the near future. This will require establishment of consistent and appropriate international regulations for design, construction, and use of Arctic shipping. Additionally, capabilities and procedures must be put in place to respond to safety, security, and pollution incidents that are likely to accompany an increase in traffic. Naval architects have laid out design challenges that must be considered for ships intending to operate in the Arctic.²⁶ U.S. Coast Guard commandant Admiral Thad Allen expanded on this subject at the International Maritime Organization’s 25th Assembly in November 2007, suggesting that the organization’s Polar Code be broadened to include Arctic navigation and crew training standards, ice-capable vessel construction standards, traffic separation schemes, and pollution prevention and response.²⁷

The Frictional Dynamic

Sovereignty, and ultimately resource control, is the most frictional dynamic in the shaping of the Arctic’s future. *Foreign Policy* declared the Arctic to be “the world’s most valuable disputed turf.”²⁸ Sovereignty disputes existed in the region before Jean Bodin initiated the modern concept in 1576. Pursuit

Figure 2. Reducing Sea Ice Coverage



Source: National Snow and Ice Data Center; Cartographer Hugo Ahlenius, United Nations Environment Programme/GRID-Arendal.

of an east-to-west route from Europe to the Arctic was a driving force behind European expansion and exploration in North America, and now, centuries later, control of that fabled passage and several parts of the Arctic remain contested. At present there are six active territorial disagreements over land, water, and seabed, but in their essence, they are about control of and access to resources.

There are three maritime boundary disputes in the Arctic region, but they share one glaring commonality: oil. Russia and Norway have a standing dispute over their boundary in the Barents Sea that is preventing exploration of an area estimated to hold 40 billion barrels.²⁹ In addition, Russia has a maritime boundary disagreement with America over a portion of the Chukchi Sea, also believed to hold significant energy resources. The 18,000-square-mile area was ceded to the United States in 1990 under the U.S.-Soviet Maritime Boundary Agreement, but the treaty was never ratified by the Soviet or Russian parliament. In July 2007, Russian media outlets described the agreement as treasonous, and members of the Russian legislature have called for its review.³⁰ Finally, the United States and Canada have a standing dispute over their maritime boundary in the Beaufort Sea. This 100-square-mile area is said to be rich with oil and gas.³¹

The remaining points of contention are more complex and have broader regional impacts. First is the disagreement between the United States and Canada, with increasing interest by other nations, regarding the status of the NWP. The dispute concerns whether the passage is an international strait, as the United States asserts, or belongs to Canada's internal waters as part of an archipelagic state. At stake is the degree of Canadian control over activities within the NWP. By international law, as laid out in the United Nations Convention on the Law of the Seas (UNCLOS), vessels are entitled to exercise "transit passage" through international straits.³² Vessels transiting through these straits are only required to comply with international laws, and additional requirements cannot be made by adjacent states. Vessels transiting through an archipelagic state are entitled to exercise "innocent passage." This means they have the right to transit through a state's territorial waters, but the state can establish and enforce its own nondiscriminatory regulations for certain activities, including fiscal,

immigration, sanitary, and customs laws, and for the protection of resources.³³

Canada's specific motivation for controlling use of the NWP is protecting its environment, a reasonable position considering how long and narrow the passage is and the direct impact an environmental incident would have. More significant in terms of resolution is the emotional nature of this issue for Canadians. They are proud that they are an "Arctic nation" and have traditionally been adamant about demonstrating their independence from the United States in their foreign policy.

should come to a workable solution sooner rather than later.

The most contentious of the Arctic disputes concerns the Lomonosov Ridge, an undersea formation that extends across the Arctic Ocean from North America, under the North Pole, to Siberia. The region has been subjected to conflicting claims by Russia, Denmark, and Canada. At the heart of determining the outcome of this issue is likely to be UNCLOS, which provides the procedures for establishing national sovereignty over the continental shelf beyond 200 nautical miles

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Sailors remove ice from hatch on USS *Alexandria* in Arctic Ocean



U.S. Navy (Shawn P. Edmund)

This places significant pressure on Canadian leaders to be hardliners.³⁴ The U.S. position is not specific to the NWP but emphasizes the principle of freedom of navigation, particularly as it applies to maritime chokepoints worldwide. U.S. acceptance of the Canadian claim as it stands now could set a precedent and embolden other nations to make similar claims, a dangerous domino effect in relation to U.S. foreign policy and national security interests.³⁵ While they seem far apart on the issue, both nations have substantial mutual interests that can be addressed through compromise, including the environment, safety, security, and economic development, and they

based on submissions to the Commission on the Limits of the Continental Shelf (CLCS). Russia submitted a claim over the ridge up to the North Pole in 2001. If accepted, the claim would have added another 460,000 square miles of Arctic seabed to Russia. The CLCS returned the claim citing a lack of scientific evidence. In the aftermath, all three nations have engaged in research efforts to strengthen their claims. This is no easy task because, as the *Wall Street Journal* put it, "We currently have better maps of Mars than of the Arctic seafloor."³⁶ Canada and Denmark are working cooperatively to counter the Russian claim, while the Russians recently emphasized their

claim by literally planting their flag on the seabed directly under the North Pole.³⁷

Conspicuously absent from this dialogue is the United States, which has yet to ratify UNCLOS. The United Nations adopted UNCLOS in 1982, but Washington opposed the treaty as “global socialism.” Since then, the concerns expressed against UNCLOS by President Ronald Reagan have been resolved,

Federal law enforcement presence and military maritime component commander for the region. While the Coast Guard is familiar with and has significant resources in Alaska, these operate almost exclusively on the southern side of the state and are not positioned or prepared for regular Arctic operations. Additionally, the Coast Guard has only three polar class icebreakers; two of these are over

on the international scene. Relatively little is known about the region’s environmental system and its global influence, but natural recovery in the Arctic zone is slow, and thus the idea of “short-term” impacts is irrelevant when considering the consequences of our actions. It is the significance of what we know, and the potential of what we do not know, that motivates environmental and scientific interest in the Arctic.

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and the treaty was signed in 1994, though it still awaits Senate ratification.³⁸ Congressional conservatives remain concerned about the perception of ceding so much control to the United Nations. At stake is a seat with veto power on the decisionmaking body.³⁹ UNCLOS supporters, including the odd allegiance of oil and environmental lobbyists, hope the Russian flag planting will serve as a tipping point for U.S. ratification.⁴⁰

The challenge for the United States is protecting its sovereign interests and meeting its responsibilities in an accessible Arctic. The opening of the Arctic exposes a fifth border that must be monitored and secured as well as introducing increased maritime activity that requires a regulatory and response capability. Responsible for addressing this challenge is the U.S. Coast Guard, which is both the

30 years old, with one currently inoperable, and the third is not designed for climate-extreme operations. This shortage of assets restricts the already challenging management of precious Arctic resources. With sovereign interests at both poles of the Earth, the United States must examine the value of the interests at stake and make appropriate investments to protect them.⁴¹

The Ironic Dynamic

“To environmentalists, then, the prospect that the Arctic—thus far the place where climate change has been most dramatic—might yield significant oil deposits . . . forestalling further movement toward alternative fuels, is particularly galling.”^{39,42} This quotation sums up the irony of the environment dynamic in the Arctic’s new prominence

This comes into direct conflict with economic activities and has led to several lawsuits. Shell Oil, for instance, was not able to conduct the exploratory drilling it paid to do in 2007 due to a U.S. Federal Court injunction resulting from a lawsuit filed by the interesting pairing of indigenous whalers and environmentalists against the MMS. Similarly, conservationists and some Alaskan Native groups filed a lawsuit, also against the MMS, to block the sale of leases for drilling in the Chukchi Sea due to concerns about the protection of polar bears, whales, and walrus. At issue in both cases is the opinion that not enough research was done concerning the potential impact of these activities and the threats of a major oil spill. The MMS contends that its environmental impact program is ongoing and that enough of an assessment has been completed to allow preliminary exploration activities, and more detailed assessments are required for more invasive activity. Additionally, leaseholders are required to implement mitigating measures for whaling.⁴³

Related to these lawsuits is the battle between the polar bear and the oil companies. A conglomeration of environmental groups petitioned the U.S. Fish and Wildlife Service (FWS) in 2005 to add the polar bear to the Endangered Species Act (ESA). The most interesting thing about this petition is that it bases the polar bear’s threatened condition on global warming. Opponents fear that granting the polar bear ESA status on these grounds would give environmental litigators a legal basis to go after countless industries, even those well outside the animals’ natural habitat, that contribute to the greenhouse gases in the atmosphere believed to cause global warming. Additionally, these opponents contend that the science being used to justify the listing is faulty and that polar bears are actually more abundant now than at any time in the 20th century.⁴⁴ Most recently, three conservation groups filed a lawsuit against the Department of the Interior, which oversees the FWS, asking the court to order the department to



Sailor loads supplies on aircraft bound for ice station at Prudhoe Bay, Alaska

U.S. Navy (Erik Reynolds)

make a decision regarding the polar bear's status. This determination was originally supposed to be made by January 9, 2008, but the FWS delayed the decision, citing the need to evaluate new data.⁴⁵ Proponents for protecting the bears believe the delay was intentional, so as not to interfere with the MMS Chukchi Sea lease auction, which took place February 6, 2008, and was originally announced on January 2.⁴⁶

The clamor over the Arctic has been loud enough to get the attention of lawmakers. Bills have been introduced in both houses of Congress intended to delay any drilling activity in the Chukchi Sea until the polar bear listing decision has been made and there has been more thorough research into the full impacts of exploration.⁴⁷ More proactively, the Senate has approved a resolution requiring the United States to pursue an international agreement for managing Arctic fisheries. This resolution follows a decision by the North Pacific Fishery Management Council to put a moratorium on fishing in Federal Arctic waters until a formal management plan is in place.⁴⁸

While the lawsuits get the headlines, it is generally agreed that the largest environmental threat in the Arctic is the possibility of a major oil spill. Such an event there could be much more devastating to the environment than in other parts of the world. The freezing temperatures and clustering habits of many of the region's species would make the effects simultaneously more enduring and damaging. Additionally, the response capabilities to meet the unique challenges of a major Arctic oil spill are currently nonexistent. Contrary to conventional wisdom, the reduction in sea ice has actually increased the risk of having a spill. While the amount of shipping activity increases, the unpredictability and mobility of the ice increases the hazards to navigation.⁴⁹ One positive outcome from this situation is the increased emphasis on researching and developing response strategies to an Arctic oil spill. Along these lines, the National Oceanographic and Atmospheric Administration is spearheading efforts to study the behavior of oil in ice, how to locate oil under ice or during dark periods, and the best response strategies, including mechanical methods, chemical dispersants, burning, and weathering.⁵⁰

Implications to 2020

Implications for the United States and the Arctic are about what *is* and what *could*

be. The Arctic *is* a new and unique region influencing U.S. national security interests. It *is* a major source of future energy resources vital to the Nation's long-term security and viability. The U.S. approach to the Arctic *is* an opportunity to begin reshaping world opinion, particularly as it concerns foreign affairs, energy policy, and the environment. U.S. strategy in the Arctic *could be* the catalyst to improve Washington's international reputation and influence the security environment worldwide without compromising specific national interests. This opportunity is enhanced by coming simultaneously with a changing U.S. Presidential administration, making it easier to overcome current American credibility challenges.

acronym (DIME) for the instruments of national power: diplomacy, information, economy, and military. The order of these elements is intentionally based on the priority they *should be* given relative to each other.

Diplomacy. Emphasis in this area should be put toward resolving issues of sovereignty and strengthening a cooperative environment among the Arctic states that emphasizes regional stability and sustainability. Specifically, the United States should actively embrace the Arctic Council and seek to expand its role as a forum of cooperation, collaboration, and arbitration for the region, fostering an environment where regionalism is at least on par with nationalism. Ratification of UNCLOS is of paramount importance

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The first dynamic to be addressed by a U.S. Arctic strategy must be sovereignty. The increasing accessibility of the Arctic not only increases our sovereign opportunities but also influences our sovereign responsibilities, particularly in the areas of safety, security, and environmental stewardship. The focus on the Arctic must look beyond sovereign interests and work to support a regional consensus that improves relationships and enhances cooperation throughout the Arctic. Next, the United States must find the right balance between the economic and the environmental dynamics, ultimately emphasizing sustainability and stewardship over development. This is not to say that the economic potential of the region cannot be tapped but rather that the Arctic environment and its potential global influence must be better understood before actions are taken that may irrevocably harm the region. Thus development must be pursued cautiously. The economic potential of the Arctic should be considered as a long-term economic opportunity across a range of enterprises rather than as a short-term energy boom that could have lasting repercussions. This strategy should borrow from the medical profession's philosophy: *To help, or at least to do no harm.*

The U.S. Arctic strategy should look to capitalize on both the real and perceptual opportunities presented and *Carpe DIEM*—seize the day. This expression is chosen both to be representative of the new opportunity in the Arctic and to frame the strategic approach. *DIEM* is a play on the traditional

to any effective U.S. Arctic strategy. Without it, the United States is unable to influence the outcome of the sovereignty disputes favorably and will further its global reputation as a unilateral actor. Washington should adopt the policy position that the Arctic region is unique in terms of both geography and environment. Foreign policy can thus be applied to the region uniquely. Once established, this policy could allow a special compromise with Canada on the NWP that could be justified in a manner that counters any potential ripple effect from other nations straddling strategic straits. Negotiations toward this compromise could be facilitated through the Arctic Council and the United Nations, which would enhance the council's efficacy while demonstrating U.S. commitment toward cooperation in the region.

Information. A successful U.S. Arctic strategy requires broad-based domestic support, so emphasis has to be given to an information campaign that increases awareness of the Nation's Arctic status and touts its long-term benefits but plays down the energy potential of the region while making environmental considerations paramount. Internationally, the United States should use its significant scientific and research capabilities as goodwill currency to foster a collaborative spirit within the Arctic Council. This measure could be used to support diplomatic efforts by helping to provide the scientific support for a single seabed-claim submission on behalf of the entire Arctic region to the CLCS. Finally,

the United States must work to completely separate the development of the Arctic and the theory of energy independence. Instead, the potential of future energy resources should be framed in terms of improving the global energy situation and reducing the tensions these resource demands cause.

Economics. Consistent with the points emphasized in the information element of this strategy, U.S. economic activities in the Arctic should not be overly focused on energy resources. The economic opportunities in the region are substantial, but to be beneficial for the long term, they need to be effectively pursued and regulated. Again, the emphasis should be on regional cooperation, using the Arctic Council as a coordinating body to develop regulatory regimes that are supported and enforced uniformly. Specific actions should include Arctic-specific shipping regulations passed through the International Maritime Organization and development of an international Arctic fisheries management plan. Additionally, there are economic opportunities related to the environmental emphasis on the region. One opportunity that this strategy should look to exploit is the potential for mutually beneficial cooperation between industry and science to simultaneously study the Arctic for both environmental understanding and economic potential. These efforts could be international in scope and regionally coordinated through the Arctic Council. Finally, the economic benefit of the region should be used in part to establish a regional fund to support cooperative efforts in research, emergency response programs, and sustainable development.

Military. As stated in the new *A Cooperative Strategy for 21st-Century Seapower*:

Climate change is gradually opening up the waters of the Arctic, not only to new resource development, but also to new shipping routes that may reshape the global transport system. While these developments offer opportunities for growth, they are potential sources of competition and conflict for access and natural resources.⁵¹

Though this strategy recommendation emphasizes regionalism over nationalism, in the area of national security, the United States must be prepared and postured to protect itself first. Our current capability to operate effectively in the Arctic environment is severely limited, and there is no quick fix.

The capital investment must be started now to enhance our ability to establish a permanent sovereign presence in the Arctic environment. In the interest of stewardship, the primary means for this presence should be multi-mission platforms, such as the icebreakers we currently have, that are able to conduct near-simultaneous military, law enforcement, rescue, research, and environmental response operations. Additionally, the United States should gradually establish the shore-based support infrastructure required for a near-continuous Arctic presence by 2020.

Even in this area of national power, there are numerous opportunities to enhance regional cooperation. America should work closely with its Canadian allies toward complementary development, basing, and employment of Arctic assets. This could be done through the joint organization already in place at the North American Aerospace Defense Command. Additionally, the network of regional Coast Guard forums already in place in the North Pacific and North Atlantic could be used as a model for the development of an Arctic Coast Guard Forum to improve regional security, safety, and response coordination.

The increasingly accessible Arctic presents a new and unique opportunity for the United States, and it should *Carpe DIEM* as proposed above. By doing so, the Nation can simultaneously reduce the level of competition and conflict in the Arctic, secure its own national interests, and improve its global reputation. The recommended U.S. Arctic Strategy can foster a new atmosphere of cooperation in the region that provides for the sustainable development of the vast economic opportunities while protecting the critical environment. In doing so, the United States and its regional partners can improve their long-term economic viability and reduce the influence of energy resources on global security, easing tensions worldwide. **JFQ**

NOTES

¹ Colin Woodard, "Who Resolves Arctic Oil Disputes?" *The Christian Science Monitor*, August 20, 2007.

² The Arctic states are Canada, Denmark (via Greenland), Finland, Iceland, Norway, Russia, Sweden, and the United States. Finland and Sweden, however, do not actually border the Arctic

Ocean, which is a primary influence in Arctic international affairs.

³ Arctic Climate Impact Assessment, *Impacts of a Warming Arctic: Arctic Climate Impact Assessment* (Cambridge: Cambridge University Press, 2004), 8.

⁴ National Snow and Ice Data Center, "Arctic Sea Ice Shatters All Previous Record Lows," press release, October 1, 2007, available at <http://nsidc.org/news/press/2007_seaiceminimum/20071001_pressrelease.html>.

⁵ Rune G. Graversen et al., "Vertical Structure of Recent Arctic Warming," *Nature*, January 3, 2008, 53–56.

⁶ Oxford Analytica, "Ice Melt Drives Sea Rise," November 22, 2007.

⁷ Ibid.; National Snow and Ice Data Center.

⁸ Tim Bennett, "The Scramble for the Arctic," *Moneyweek*, August 17, 2007.

⁹ Jonas Gahr, "Meeting Energy Demands and Security Needs: A Transatlantic Perspective," lecture at Georgetown University, Washington, DC, February 27, 2007.

¹⁰ Telis Demos, "Arctic Circle Oil Rush," *Fortune*, August 20, 2007, 11.

¹¹ William Underhill, "Hot on the Pole," *Newsweek* (international ed.), April 16, 2007; Olav Orheim, "Challenges and Prospects in the Arctic," *Scandinavian Review*, Summer 2006, 26.

¹² CBC News, "Imperial, ExxonMobil to Explore Beaufort Sea for Oil, Gas," July 19, 2007, available at <www.cbc.ca/canada/north/story/2007/07/19/nwt-imperial.html>.

¹³ Nina M. Rach, "Shell Alaska Readies Ice-class Drilling Units for Beaufort Sea," *Oil & Gas Journal* 105, no. 37 (October 1, 2007).

¹⁴ Steve Macdonald, "Chukchi Sea Lease Sale Brings \$2.6 Billion in Bids," accessed at <www.ktuu.com/Global/story.asp?s=7833506>; and Minerals Management Service, "MMS Chukchi Sea Lease Sale 193 Breaks Energy Records With \$2.6 Billion in High Bids," news release, February 6, 2008.

¹⁵ Rach.

¹⁶ Peter G. Noble, "Oil and Gas Exploration, Development, Production and Transportation in Arctic Regions," presentation to the Impact of an Ice-Diminishing Arctic on Naval and Maritime Operations Symposium, Washington, DC, July 10–12, 2007.

¹⁷ Hugo Miller, "Global Warming Melts New Sea Lanes for Norilsk, ConocoPhillips," February 26, 2008, available at <www.bloomberg.com/apps/news?pid=20601082&refer=Canada&sid=aQ4ROJIItxvU>; "LNG Tanker Designs Hold Key to Russia's Arctic Gas Reserves," *Oil & Gas Journal* 104, no. 32 (August 28, 2006), 55–56.

¹⁸ Underhill; Shawn McCarthy, "Russia Offers to Break the Ice on the Route to Port Churchill," *The Globe and Mail*, January 11, 2007, B1.

¹⁹ Ed Struzik, "Nightmare at Sea," *The Toronto Star*, November 24, 2007, A18.

²⁰ The Northern Sea Route follows the northern coastline of Russia, providing a direct route from the North Sea of the Atlantic to the Northeast Passage of the Pacific. The Northwest Passage transits between the top of continental Canada and its northern islands.

²¹ Michael Richardson, "Northern Exposure," *South China Morning Post*, August 23, 2007, 13

²² Miller; Underhill.

²³ Richardson.

²⁴ McCarthy.

²⁵ Michael Richardson, "The Last Big Cold Rush Heats Up," *The Straits Times* (Singapore), August 31, 2007.

²⁶ Such as Peter G. Noble, chief naval architect for ConocoPhillips.

²⁷ Thad W. Allen, "Opening Remarks to the 25th International Maritime Organization Assembly," London, UK, November 2007.

²⁸ "The List: The World's Most Valuable Disputed Turf," August 2007, available at <www.foreignpolicy.com/story/cms.php?story_id=3918>.

²⁹ Ian Talley, "Norway, Russia to Restart Barents Dispute Talks," October 13, 2005, available at <www.rigzone.com/news/article.asp?a_id=25997>.

³⁰ Yuri Zarakhovich, "Russia Claims the North Pole," *Time*, July 12, 2007.

³¹ Demos.

³² Article 38 of Part III United Nations Convention on the Law of the Seas (UNCLOS): Right of transit passage.

³³ Article 21 of Part II to UNCLOS: Laws and regulations of the coastal state relating to innocent passage.

³⁴ Clifford Krauss, "Canada's Next Leader Clashes with U.S. Over Arctic Waterways," *The New York Times*, January 27, 2006, A7.

³⁵ Barry Brown, "Navigable Arctic Passage Draws Claim on Seabed," *The Washington Times*, September 4, 2007, A1.

³⁶ Robert L. Hotz, "U.S. Draws Map of Rich Arctic Floor Ahead of Big Melt," *The Wall Street Journal*, August 31, 2007.

³⁷ Randy Boswell, "Ice May Thwart Mission to Claim Arctic Territory; Oil and Gas Deposits," *National Post*, August 9, 2007, A9.

³⁸ The treaty is now supported by the current administration, several past Secretaries of State, including Reagan's, the Joint Chiefs of Staff, and the Commandant of the Coast Guard.

³⁹ Ken Adelman, "Sea Law Turbulence," *The Washington Times*, December 12, 2007.

⁴⁰ James Graff, "Fight for the Top of the World," *Time*, October 1, 2007, 28.

⁴¹ Sandi Doughton, "Aging Fleet Slows U.S. in Arctic 'Chess Game,'" *Seattle Times*, September 20, 2007. By comparison, Russia has 18 icebreakers, 7 of them nuclear; Finland has 7; Canada has 6, though they are in declining condition; and Sweden has 1.

⁴² Drake Bennett, "Northern Exposure: As the Arctic melts, vast deposits of oil and gas may be

opened up for exploration. Will an Arctic without ice only prolong our dependence on fossil fuels?"

Boston Globe, February 18, 2007.

⁴³ Felicity Barringer, "Suit Seeks to Block Oil Search Off Alaska," *The New York Times*, February 1, 2008; Minerals Management Service (MMS), "Remarks Prepared for MMS Director Luthi, Chukchi Sea Sale 193," February 6, 2008, available at <[www.mms.gov/PDFs/Speech--LuthiRemarks-Sale193-02-05-08%20_2_%20\(2\).pdf](http://www.mms.gov/PDFs/Speech--LuthiRemarks-Sale193-02-05-08%20_2_%20(2).pdf)>.

⁴⁴ M. David Stirling, "Polar Bears and Melting Ice," *The Washington Times*, March 7, 2008, A17.

⁴⁵ U.S. Fish and Wildlife Service, "Bulletin: Statement for Polar Bear Decision," news release, January 7, 2008; and The Wilderness Society, "Opposition Builds Against Drilling Arctic's Chukchi Sea: Alaska Natives and Conservation Groups Challenge Lease Sale," news release, January 31, 2008.

⁴⁶ The Wilderness Society, "Minerals Management Service Announces Controversial Chukchi Lease Sale Days before U.S. Fish and Wildlife Service Is Due to Decide Fate of U.S. Polar Bears," news release, January 2, 2008.

⁴⁷ The Wilderness Society, "Opposition Builds."

⁴⁸ "Senate Approves a Resolution for Managing Arctic Ocean Fisheries," *The Alaska Journal of Commerce*, October 21, 2007, available at <http://www.alaskajournal.com/stories/102107/hom_20071021040.shtml>.

⁴⁹ "Conference Debates Cleaning Up Oil Spills in Ice-choked Arctic Waters," October 9, 2007, available at <www.cbc.ca/canada/north/story/2007/10/09/cp-north-ice.html>; and Thad W. Allen, "Remarks to the 37th IFPA-Fletcher Conference on National Security Strategy and Policy," Washington, DC, September 27, 2007.

⁵⁰ Amy A. Merten, "Increased Need for Arctic Oil Spill Prevention and Response," presentation to the Impact of an Ice-Diminishing Arctic on Naval and Maritime Operations Symposium, Washington, DC, July 10-12, 2007.

⁵¹ *A Cooperative Strategy for 21st-Century Seapower*, October 2007, available at <www.navy.mil/maritime/MaritimeStrategy.pdf>.

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