

US National Security and Environmental Change in the Arctic

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Historically, dramatic changes in strategic geography have had a big impact on international relations, as illustrated by the discovery of America and the building of the Panama and Suez Canals. Today the warming climate is changing the strategic geography in the Arctic. The ice coverage is decreasing, which makes shipping possible and increases the possibility of extracting natural resources. Hence, the strategic importance of the Arctic is increasing.¹ This essay discusses the strategic impact of environmental change in the Arctic. The purpose is to explore how this change affects US national security and to suggest a future US policy in the region.

The existing academic analyses concerning US climate policy and Arctic policy generally propose increased international cooperation. However, the existing international framework for the Arctic is disputed and is not ratified by the United States. Moreover, the actions of countries in the Arctic suggest, contrary to their stated policies, a desire to unilaterally maximize their own economic gain. The United States does not have a well-developed Arctic policy. This essay suggests that the United States first ratify the United Nations (UN) Convention of the Law of the Sea. Then it needs to negotiate, bilaterally, agreements regarding the extent of the Arctic countries' exclusive economic zones (EEZ). To be successful, the United States should broaden these negotiations to include other areas of policy. The suggested policy does not seek to maximize the US EEZ; rather the objective is to reach a peaceful agreement with a positive effect on the world economy, while at the same time strengthening US strategic leadership.

The essay starts with a brief summary of environmental change in the Arctic and how that affects the strategic situation. Thereafter, it presents a synopsis of academic recommendations concerning US policy. This section is followed by an analysis of the current situation in the Arctic, pertaining to the status of international cooperation and the actions of involved countries. The fourth part covers US policy—what it is now and what it should be in the future.

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The Arctic Is Changing

Climate change in the Arctic is fundamentally altering the region's strategic importance. Increased accessibility, due to decreased ice coverage, leads to new possibilities for shipping and extraction of natural resources. For some time, the debate about whether the climate is changing has been decided. Currently, the debate concerns its implications, among which are those that affect international security. This is evident from President Obama's speech at the UN General Assembly on 23 September 2009: "The danger posed by climate change cannot be denied. Our responsibility to meet it must not be deferred. If we continue down our current course, every member of this Assembly will see irreversible changes within their borders. Our efforts to end conflicts will be eclipsed by wars over refugees and resources."²

An important actor concerning climate change is the Intergovernmental Panel on Climate Change (IPCC). It was established by the UN in 1989 to conduct an unbiased review of scientific evidence concerning climate change. The IPCC was honored with the 2007 Nobel Peace Prize. According to the IPCC, the polar regions are the areas where climate change will be most abrupt and will be experienced earliest.³ In fact, it is already occurring. The Arctic glaciers and the Greenland ice sheet are melting.⁴ According to the IPCC, by 2050 the Northern Sea Route, which passes through the Arctic close to the Russian coast, will have conditions that allow for the navigation of ice-strengthened cargo ships 125 days per year.⁵ The Northwest Passage, which passes close to Canada's northern coast, was ice free for the first time in 2007; it may shorten the journey between Europe and Asia by 2,500 miles. In the past 20 years, the ice coverage of the Arctic has decreased by an area equal to one-third of the continental United States.⁶

The decreasing ice coverage does not affect shipping routes only. The United States Geological Survey (USGS) assessed undiscovered oil and gas resources in the Arctic. It concluded that the region is the earth's largest remaining unexplored area for these resources. It is estimated that undiscovered oil and gas resources amount to 90 billion barrels of oil, 1,669 trillion cubic feet of natural gas, and 44 billion barrels of gas liquids.⁷ Compared to the total volume of estimated undiscovered energy resources, the Arctic's resources include 13 percent of the undiscovered oil and 30 percent of the undiscovered natural gas.⁸

Climate change is affecting the Arctic and shrinking the extent of the ice cap. The result is easier access to natural resources, as well

as the possibility of new, shorter sea routes. Hence, the strategic importance of the region is increasing. Additionally, the global consequences of climate change will include upward pressure on oil prices caused by instability in oil-producing regions.⁹ This development will further increase the importance of the region. The next section examines the broad trends of analysis about possible US policy on climate change and on the Arctic.

Existing Academic Recommendations concerning Strategies in the Arctic

Numerous organizations study climate change and its implications for international security. There is a general agreement that the challenges created by climate change, due to its global nature, should result in increased international cooperation.¹⁰ Even studies conducted at military academic institutions generally favor multinational cooperation.¹¹

In 2007 the CNA Corporation published the study *National Security and the Threat of Climate Change*. The study suggests that the main threats to international stability are increasing difficulties for failing states, mass migration, and conflicts concerning resources. Climate change will reinforce these threats.¹² The study recommends that the United States integrate the consequences of climate change in its national defense strategy, make a stronger commitment to stabilize climate change, commit to a global partnership to assist less-developed nations, improve energy (fuel) efficiency in its combat forces, and assess the impact on US military installations globally.¹³ The study argues that ongoing climate change is most significant in the Arctic. The decreasing amount of ice could bring more competition for resources as well as more commercial and military activity.¹⁴ The CNA study recognizes that projected climate change is a serious threat to US national security. It states that more international cooperation is needed to address the challenge.¹⁵

The Center for a New American Security (CNAS) performed an in-depth analysis of the implications climate change may have for national security. The analysis argues that climate change will aggravate existing international tensions.¹⁶ It also states that, if not addressed, the effects of climate change may come to represent the greatest challenge to US national security.¹⁷ Three different scenarios are studied: expected, severe, and catastrophic climate change.¹⁸ The study concludes by presenting 10 security implications of climate change, including north-south tensions, migration challenges, resource conflicts, challenges to global governance, China's role, and

the unpredictability in balance of power shifts.¹⁹ The policy recommendations for the United States are very vague. The CNAS argues for international cooperation, especially among the United States, China, and Europe, and stresses the importance of US leadership.²⁰ Concerning the Arctic, the report states that for the first time in recorded history, the Northwest Passage has become navigable and that the decrease in the Arctic ice cap is likely to continue.²¹

The Carnegie Endowment for International Peace, in its report *The Arctic Climate Change and Security Policy Conference*, stresses that the implications for US security interests as a result of climate change in the Arctic are profound. Its advice to the United States is to ratify the UN Convention of the Law of the Sea, promote a stronger role for the Arctic Council, and support Arctic subregional forums. According to the report, the key security issue in the Arctic is environmental security. The Carnegie Endowment for International Peace concludes that there are no significant geopolitical fault lines and no imminent reasons to expect wars because of natural resources.²²

Existing academic analyses are generally favorable to increased international cooperation. They do not address how to handle increased competition of resources other than stating the need for increased international cooperation. There is a common academic appreciation of the challenge, but when studying the Arctic, it is obvious that the foundation for international cooperation is fragile and that the main actors are not acting in accordance with the recommendations.

Recent Strategic Development in the Arctic

The actors in the Arctic consist of international agreements/institutions and states. Those discussed here are the UN Convention of the Law of the Sea (UNCLOS), the Arctic Council, the International Maritime Organization (IMO), the Seabed Arms Control Treaty, and the Arctic countries. For brevity's sake, this essay will analyze only the Arctic countries of Russia, Canada, Denmark, Norway, and the United States. Based upon tradition and geography, I deem these countries most important. The United States is discussed in a separate section.

International Agreements/Institutions

The UNCLOS was established on 10 December 1982 after 14 years of work involving more than 150 countries. It entered into force on 16 November 1994. The UNCLOS establishes rules concerning use of the oceans and extraction of their resources, as well as serving as a legal

framework for dispute resolution. The UNCLOS defines a state's EEZ, in which it has the sovereign right to extract natural resources, as an area within 200 nautical miles (nm) of its baseline.²³ This sovereign right may extend to 350 nm if the state's continental shelf extends beyond the 200 nm limit. The Commission on the Limits of the Continental Shelf (CLCS), established under the convention, makes recommendations concerning the extent of different states' continental shelves. To support a claim concerning its continental shelf, each nation is obliged to submit scientific evidence to the commission. Disputes regarding the right to resources can be submitted to the International Tribunal for the Law of the Sea, also established under the convention.

Of the Arctic countries, the United States is the only one that has not ratified the UNCLOS.²⁴ Several countries, though, have declared that they do not recognize the UNCLOS's right of binding decisions or have declared other exceptions. Russia, for example, does not accept the UNCLOS's procedures for binding decisions or dispute resolution concerning the exercise of sovereign rights. Canada reserves the right to take any position on any declaration by the UNCLOS that it deems appropriate. Both Norway and Denmark have made reservations concerning dispute resolution.²⁵ Although the UNCLOS is the critical framework in the Arctic, other relevant treaties and organizations exist.

The main purpose of the Arctic Council is to maintain peace and stability in the Arctic. The council was established in 1996, and today all of the Arctic countries are members. Besides nations, several organizations of indigenous Arctic populations are included as permanent participants in the council. The Arctic Council does not handle matters associated with military security. Instead, it contributes to peace and stability by addressing issues such as living conditions, sustainable development, and environmental protection. However, according to its chairman Lars Møller, the Arctic Council together with the UNCLOS can be viewed as the main framework within which security-related issues can be dealt with.²⁶

The International Maritime Organization, founded in 1958, is a UN organization concerned with maritime safety and cooperation. It is based in Great Britain and has 169 member nations. The safety issues encompass shipping as well as environmental safety.²⁷ The Seabed Arms Control Treaty of 1971 is a multinational agreement among 84 countries banning the placement of weapons of mass destruction on the ocean floor, beyond the 12-mile territorial zone.²⁸

With the exception of the Seabed Arms Control Treaty, the international framework in the Arctic does not consider those issues that

are strictly security related. A different international framework has developed for the Antarctic. The Antarctic Treaty was signed in 1959; among other things, it states that Antarctica is to be used only for peaceful purposes. It also allows for inspections of other nations' bases/stations on the continent. However, there are still unresolved overlapping territorial claims even in Antarctica.²⁹ There is an important difference between the Arctic and Antarctic and every other area on land or above the continental shelf. There is no history in the Arctic or Antarctic of territorial sovereignty; hence there exists no customary law of economic rights. At the same time, because several countries have declared they do not recognize the UNCLOS's right of binding decisions, the significance of the existing international framework is unclear.

State Behavior

Since the end of the Cold War, the Arctic has been somewhat disconnected from power politics. There are, however, certain indications that this is about to change.³⁰ Oil companies from several nations are extending their offshore fields farther north. The possibility of increased shipping has led to disputes between Canada and Denmark about Hans Island, located at the entrance of the Northwest Passage. Both countries, and Russia, have sent warships to the region to emphasize their interests.³¹ Additionally, several countries have made overlapping claims to parts of the Arctic.³²

In August 2007 a Russian adventurer placed a Russian flag on the ocean floor, 4,300 meters below the North Pole. By doing so, he claimed 1.2 million square kilometers of the Arctic for Russia.³³ Russia first made a claim to the UNCLOS about this territory in 2001. Russia argued that its continental shelf, and hence its EEZ, extended far beyond 200 nm. Because of lack of evidence, Russia's claim was turned down. However, both the expedition of 2007 and others were intended to document new evidence to support its claim.³⁴ Russia's security interests are in part military, since its nuclear submarine fleet is based at the Kola Peninsula.³⁵ Although the Russian Navy has downsized, the Northern Fleet is still vital to Russia's military strategy. It operates Russia's single aircraft carrier as well as the nuclear-powered missile submarines that are the backbone of Russia's strategic naval nuclear force.³⁶

A new Russian strategy for the Arctic was signed on 18 September 2008 by Pres. Dmitry Medvedev. Russia aims to maintain its leading position as an Arctic power and over time to transform the Arctic into its main resource base. This is a natural consequence of the Russian

argument that a large part of the Arctic seabed is an extension of the Siberian continental shelf. Russia is economically dependent on exports of oil, gas, and metals. The area's significance to Russia is apparent by the estimation that the amount of oil in the Arctic equals Russia's total known reserves.³⁷ The definition of Russia's continental shelf therefore becomes an important issue. Russia plans to develop military units capable of protecting its security interests in the region, among which are control of natural resources and increased control of a shipping route—the Northern Sea Route. Russia's strategy also states that competition about natural resources in the Arctic may result in military conflict.³⁸ However, Russian officials refer to the Arctic as a zone of peace.³⁹

Canada also appears to be building up its military capabilities in the region. A key issue for Canada is whether the Northwest Passage is in Canadian or international waters. Canada has made vessel notification in the Northwest Passage mandatory.⁴⁰ It appears that Canada is focusing on the Arctic's military strategic importance. During the Cold War, the United States contributed the bulk of military forces while Canada minimized its military presence. After the Cold War, Canada further reduced its military activity in the Arctic. Then in 1999 Canada created the Arctic Security Interdepartmental Working Group to coordinate the nation's security policy in the Arctic. Canada has acknowledged that the region has large amounts of natural resources as well as a fragile ecosystem. Canada's 2000 *Arctic Capabilities Study* is based on the assumption that the strategic situation in the Arctic is changing. The study made some recommendations to Canada's Department of National Defence, including the following: increase interdepartmental cooperation, increase Ranger capabilities, implement new exercises for the Canadian Forces, include the Arctic dimension in future Canadian Forces planning, and improve surveillance of the region. In 2002 the Canadian Forces conducted their first joint exercise in the Arctic in over 20 years, which has been followed by additional exercises.⁴¹

In 2005 Canada issued *Canada's International Policy Statement*. It elaborates the need for Canada to monitor and control events in its northern region and stresses the increasing demands on sovereignty as activities in the Arctic increase. As a consequence, the Canadian Forces need to increase their presence and capabilities in the region.⁴² This issue is addressed in Canada's current defense strategy, *Canada First*. It includes modernization of its military forces, Arctic patrol ships, destroyers, frigates, and maritime patrol aircraft, providing all with increased Arctic climate capabilities. Improved surveillance capability of the region is also being studied.⁴³ The defense

strategy should be considered together with Canada's Northern Strategy, released in the summer of 2009 by the minister of foreign affairs, Mr. Lawrence Cannon. The strategy acknowledges the need for international cooperation, but at the same time it states that the Arctic is a priority for Canada and that it intends to be the international leader in the region. The strategy expresses a commitment to protect and patrol the region. One Canadian goal is, through the UNCLOS, to obtain recognition of the extent of Canada's continental shelf beyond 200 nm.⁴⁴ An example of Canadian resolve is the previously mentioned dispute with Denmark about Hans Island. In 2005 Canada's defence minister visited the small uninhabited island, where Canadian troops erected a Canadian flag. Hans Island is claimed by both countries.⁴⁵

Both Denmark and Norway acknowledge the need for international cooperation in the Arctic. However, a study of their actions in the area shows that both countries are concerned with securing access to natural resources. Denmark's position is unique because of Greenland. Following the Russian expedition of 2007, Denmark launched its own expedition with the objective of establishing the extent of Greenland's continental shelf.⁴⁶ Norway's 2007 *Strategy of the High North* states that the Arctic is Norway's most strategically important area and that it will intensify its efforts to exercise Norwegian sovereignty. The area's importance is due to resources—fishing and energy. A focal point in the strategy is the islands of Svalbard and Spitsbergen. Further, the strategy discusses Norway's claims concerning the extent of its continental shelf. Norway appears to have identified Russia as its main counterpart in the region. The strategy praises cooperation with Russia, while it also expresses concerns over Russia's development. The presence of military combat forces, which provide the ability to exercise sovereignty and authority, is a vital part of Norway's strategy. However, the primary tasks for the armed forces in this region are surveillance and intelligence gathering, which are mainly done by Coast Guard assets and maritime patrol aircraft.⁴⁷ The status of the Svalbard archipelago is disputed. Norway claims exclusive rights to its resources through the Svalbard Treaty of 1920. Other states have expressed reservations about Norway's claim. The situation is complicated by the Svalbard and the Spitsbergen treaties as well as the UNCLOS. Occasionally, it has led to Norway's seizing of other countries' fishing vessels.⁴⁸

Territorial claims put forward to the UNCLOS contain both unclaimed areas and overlapping claims in the region.⁴⁹ The most interesting section is an almost circular area of 460,800 square miles, north of the nearest Arctic country's 200-nm zone.⁵⁰ Below this area

runs the Lomonosov Ridge. It expands 1,700 kilometers from the continental shelf of North America, over the North Pole, to the continental shelf of the New Siberian Islands.⁵¹ Hence, establishing the exact origin of the Lomonosov Ridge and the extension of the continental shelves of Canada, Russia, Norway, and Greenland becomes very important.⁵² Since the CLCS has a mandate only to review geological evidence and make recommendations, there may be counterclaims and appeals.⁵³

The lack of a security-related treaty in the Arctic is in stark contrast to the amount of security-related activities. All concerned countries stress the importance of international cooperation, but their actions imply that they do not trust the ability of international institutions/agreements to settle existing disputes. The disputes concern rights to natural resources, control of shipping routes, and, to some extent, the identity of the leading country in the region. All nations have shown resolve in protecting their interests.

So in a region that is changing and increasing in importance, there are conflicting interests, demonstrated national resolve, little historical guidance, and an impotent international framework. The framework that does exist is being used to promote national interests. Furthermore, the discussion above suggests that unfavorable recommendations by the UNCLOS and CLCS will not be easily accepted. With this conclusion in mind, the next section analyzes US Arctic policy.

US Policy concerning the Arctic

There are not many official documents concerning US Arctic policy. The 2002 and 2006 national security strategies and the 2008 national defense strategy do not include any specific US policy in the region. The White House Web site concerning foreign policy discusses a number of issues and identifies climate change as one of several distinct challenges but does not include a specific Arctic policy.⁵⁴ There exists an old presidential decision directive from 1994 (PDD-26, *US Antarctica Policy*) covering US Arctic and Antarctic policy. Then in January last year, the White House issued a new national security presidential directive (NSPD-66, *Arctic Region Policy*) concerning US Arctic strategy. The context for a new directive was, among other things, the effects of climate change and the recognition of the region's richness of resources. According to NSPD-66, US objectives in the Arctic can be simplified and summarized as intense international cooperation concerning environmental issues, freedom of the seas (for the Northwest Passage and the Northern Sea Route), and maximum extension of the US continental shelf. To attain these objectives,

ratification of the UNCLOS, as well as a significant military presence, is deemed vital. NSPD-66 supersedes PDD-26 concerning US Arctic policy, but not Antarctic policy.⁵⁵

In 2007 the Senate Foreign Relations Committee sent the UNCLOS treaty to the full Senate for ratification, where it needs a two-thirds majority for ratification. It has yet to be ratified. The main objections in the Senate are the short time frame available between ratification and the deadline for making territorial claims, an unclear dispute-resolution process, infringements on US sovereignty, and possible limitations on US military activity.⁵⁶

Not many US activities in the Arctic can be tied to an Arctic policy. Since 2006, the United States no longer has a permanent military presence in Iceland.⁵⁷ This may validate a continuing shift in military priority, from the Cold War fault lines toward the global war on terrorism and the Central Command area.

Suggestions for US Policy

In contrast to other countries, the United States does not have a highly developed Arctic policy and is not a member of the most important international institution concerning the Arctic, the UNCLOS. The directive that does exist is a legacy from former president George W. Bush.

The Arctic policy of the Obama administration should be shaped by overall US interests and the larger context for the policy. Although the new administration has yet to publish a national security strategy, US overall interests can be described as a combination of long- and short-term objectives. The long-term objectives concern the United States' role in the world and its perception in the international community. It is obvious that President Obama strives for a change in strategic leadership. The emphasis when interacting with other nations is on multilateral cooperation. The administration's preferred leadership style appears to be more persuasive than coercive and more inclusive than exclusive.⁵⁸ Therefore, US Arctic policy must be limited to actions that have legitimacy in the international community. At the same time, the security of the United States and its citizens is one of the president's main responsibilities and cannot be compromised.

The short-term objectives encompass avoiding military conflict as well as denying any other country dominance of the Arctic. From an economic perspective, US interests can be described as maximizing its access to natural resources and securing the access of new shipping routes. But solving the disputed issues may be more impor-

tant, and even more profitable, than maximizing the extent of the US continental shelf. Ensuring that available resources and shortened shipping routes benefit the world economy may be the true economic interest.

Besides considering US objectives, US Arctic policy must address recent and likely future developments in the region. A decrease in the Arctic ice cap will make new sea routes available and permit extraction of more natural resources. Since climate change is likely to increase instability in the Middle East, the strategic significance of the Arctic will grow, resulting in greater commercial as well as military activity in the region. The key strategic challenges are to settle the dispute concerning the EEZs and, to a lesser degree, the control over new shipping routes. It may be tempting to pursue a policy similar to that of other Arctic countries: to ratify the UNCLOS and then file US territorial claims. However, that would not bring the issue closer to a solution. Another possibility may be an international conference to reach an agreement concerning the continental shelf. Because of conflicting interests, this approach is unlikely to succeed. But it is possible to formulate a policy that creates synergy by combining the objective of increasing the credibility of US strategic leadership with securing economic gain and a peaceful development in the Arctic. Actually, this opportunity exists because of the conflicting national interests and the uncertain significance of the international framework. It combines multi- and bilateral initiatives within the existing international framework.

My suggestion for US Arctic policy encompasses broadening the issue to other areas and contains activities at several different levels. First, the foundation of the policy is the UNCLOS; it needs to be ratified by Congress. To convince the Senate, President Obama needs to invest political will in the issue and compromise in other areas. Next, it is highly unlikely that the concerned nations in the near future will be able to agree upon a solution about the continental shelf. Therefore, the US Geological Survey should be tasked to make an overall, and objective, recommendation about the continental shelf issue. The recommendation should be used as a starting point in bilateral negotiations with Russia, Canada, Denmark, and Norway to reach an agreement.

The United States must add other issues to the discussions, issues that may differ depending on the counterpart. Introducing the issue of control of shipping routes as well as other economic and military/security instruments of national power to the discussion can help the parties reach compromises. With Norway and Denmark, the United States could inject security and foreign military sales issues in the

discussion—for example, the condition for purchase of the joint strike fighter. In negotiations with Russia, the strategy versus Iran, cooperation in the conflict against Islamic fundamentalist groups, and NATO's missile defense system are possible issues to discuss. With Canada, control of the Northwest Passage and trade issues may be included in negotiations. The United States can then submit a final compromise multilaterally to the UNCLOS and CLCS. Additionally, a security-related treaty similar to the Antarctic Treaty should be initiated.

From a military perspective, the division of the Arctic among several combatant commanders is not preferable. The commander of the US Northern Command should be responsible for the Arctic area north of each Arctic country's 200-nm zone. Such a change would facilitate coordination of the national instruments of power. From the United States' perspective, the suggested policy would probably not maximize the extension of its continental shelf, a stated goal in NSPD-66. However, it would strengthen US strategic leadership, have a positive effect on the world economy, and promote peaceful development in the Arctic region. Hence, the suggested policy accommodates both the long- and short-term objectives concerning US interests. If the policy is wisely introduced in a strategic communications context, its outcome may be further enhanced.

Conclusion

History has shown that strategic geography influences international relations. For example, the United States has frequently used military means to demonstrate its interests in the Panama Canal, and in 1956 the Suez Canal was the scene of armed conflict involving two of the great powers: Great Britain and France. It is obvious that the European discovery of America—with the ensuing competition for America's resources and the eventual birth of a superpower—has affected great-power politics ever since. I do not suggest that these examples are perfect analogies. However, they do illustrate that important sea routes as well as disputed rights to natural resources can play an important part in international politics. A dramatic environmental change in the Arctic may cause serious competition over resources and affect international security.

The Arctic has some very specific characteristics. Most of its territory is neither a continent nor an island; hence, it does not and cannot have a tradition of ordinary human settlement. It has an inhospitable climate and was until recently extremely difficult to access. The shrinking Arctic ice cap will open new sea routes and permit increased extraction of natural resources. Therefore, the strategic sig-

nificance of the Arctic is increasing. The international framework that does exist is not sufficient. At the same time, several nations' actions imply a risk of increased tension concerning unresolved issues about the right to resources. The key strategic challenge for the United States is to settle the dispute concerning the EEZs, while at the same time protecting overall US interests. The suggested US policy would enhance its credibility as the world's strategic leader and encourage development of the world economy. Hence, it meets the nation's long- and short-term objectives.

Notes

1. I use the Arctic Council's definition of the Arctic. Countries include Canada, Iceland, Denmark/Greenland/Faroe Islands, Finland, Norway, Russia, Sweden, and the United States. Arctic Council, Protection of the Arctic Marine Environment Working Group, *Arctic Offshore Oil and Gas Guidelines 2009*, 29 April 2009, 5, <http://arctic-council.org/filearchive/Arctic%20Offshore%20Oil%20and%20Gas%20Guidelines%202009.pdf> (accessed 19 October 2009).

2. Pres. Barack Obama (speech, UN General Assembly, New York, 23 September 2009), http://www.whitehouse.gov/the_press_office/Remarks-by-the-President-to-the-United-Nations-General-Assembly (accessed 28 September 2009).

3. Martin L. Parry et al., eds., *Climate Change 2007: Impacts, Adaptation and Vulnerability*, contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (Cambridge, UK: Cambridge University Press, 2007).

4. *Ibid.*, 656.

5. *Ibid.*, 676.

6. Vsevolod Gunitskiy, "On Thin Ice: Water Rights and Resource Disputes in the Arctic Ocean," *Journal of International Affairs* 61, no. 2 (Spring/Summer 2008): 261–71.

7. Peter H. Stauffer, ed., "Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle," US Geological Survey Fact Sheet 2008-3049, 23 July 2008.

8. Zachary Colie, "Rush to Arctic as Warming Opens Oil Deposits," *San Francisco Chronicle*, 12 August 2008, <http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/08/12/MN5R1290QE.DTL> (accessed 28 September 2009).

9. Kurt M. Campbell et al., *The Age of Consequences: The Foreign Policy and National Security Implications of Global Climate Change* (Washington, DC: Center for a New American Security, November 2007), 65, <http://handle.dtic.mil/100.2/ADA473826> (accessed 28 September 2009).

10. See, as an example, Christiane Callsen, "Climate Change and Security Policy," *CSS [Center for Security Studies] Analyses in Security Policy* 2, no. 26 (December 2007): 3.

11. See, as an example, Douglas V. Johnson, II, *Global Climate Change: National Security Implications*, Colloquium Brief (Carlisle, PA: Army War College, Strategic Studies Institute, 2007), 2, <http://handle.dtic.mil/100.2/ADA466551> (accessed 28 September 2009).

12. David M. Caturious, Jr., et al., *National Security and the Threat of Climate Change* (Alexandria, VA: The CNA Corporation, 2007), 13ff., <http://securityandclimate.cna.org/report/National%20Security%20and%20the%20Threat%20of%20Climate%20Change.pdf> (accessed 28 September 2009).

13. *Ibid.*, 7–8.
14. *Ibid.*, 38.
15. *Ibid.*, 44–45.
16. Campbell et al., *Age of Consequences*, 8.
17. *Ibid.*, 10.
18. *Ibid.*, 38–39.
19. *Ibid.*, 105ff.
20. *Ibid.*, 99.
21. *Ibid.*, 5, 47.
22. Kenneth S. Yalowitz, James F. Collins, and Ross A. Virginia, *The Arctic Climate Change and Security Policy Conference: Final Report and Findings*, sponsored by Dickey Center for International Understanding at Dartmouth College, Carnegie Endowment for International Peace, and University of the Arctic Institute for Applied Circumpolar Policy, Dartmouth College, Hanover, New Hampshire, December 2008, 1–2, 17, http://www.carnegieendowment.org/files/arctic_climate_change.pdf (accessed 24 September 2009).
23. A nation's baseline is determined by UNCLOS. Normally, it is the low-water line along the coast.
24. UN, "United Nations Convention on the Law of the Sea of 10 December 1982: Overview and Full Text," http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm (accessed 13 October 2009).
25. *Ibid.*
26. Arctic Council, "Declaration of the Establishment of the Arctic Council," <http://arctic-council.org/article/about> (accessed 19 October 2009).
27. International Maritime Organization, Web site, <http://www.imo.org> (accessed 19 October 2009).
28. "Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof" (Seabed Treaty), 11 February 1971, 23 U.S.T. 701, T.I.A.S. No. 7337, <http://www.state.gov/www/global/arms/treaties/seabed1.html> (accessed 20 July 2010).
29. Secretariat of the Antarctic Treaty, "The Antarctic Treaty," http://www.ats.aq/e/ats_treaty.htm (accessed 19 October 2009).
30. Yalowitz, Collins, and Virginia, *Arctic Climate Change*, 15.
31. Doug Mellgren, "Technology, Climate Change Spark Race to Claim Arctic Resources," Associated Press, 24 March 2007, http://www.usatoday.com/money/world/2007-03-24-arcticbonanza_N.htm (accessed 19 October 2009).
32. Gunitskiy, "On Thin Ice."
33. Campbell et al., *Age of Consequences*, 5.
34. Oxford Analytica, "Russia's Arctic Plays Concern Region," *Forbes.com*, 12 August 2009, <http://www.forbes.com/2009/08/11/russia-energy-climate-change-business-energy-oxford.html> (accessed 19 October 2009).
35. Yalowitz, Collins, and Virginia, *Arctic Climate Change*, 15.
36. Ilya Kramnik, "Northern Fleet Protecting Russian Arctic," *Rianovosti*, 2 June 2009, <http://en.rian.ru/analysis/20090602/155147701.html> (accessed 28 September 2009).
37. Dmitry Solovyov, "Russia to Boost Arctic Troops to Defend Resources," Reuters, 27 March 2009, <http://www.reuters.com/article/environmentNews/idUSTRE52P5NS20090327> (accessed 19 October 2009).
38. Katarzyna Zysk, "Russia's National Security Strategy to 2020," Institut for forsvarsstudier, 15 June 2009, http://www.geopoliticsnorth.org/index.php?option=com_content&view=article&id=2%3Aarussia-norway-and-the-high-north-past-present-future&catid=3%3Anewsflash&Itemid=1&limitstart=2 (accessed 26 October 2009).

39. Oxford Analytica, "Russia's Arctic Plays."
40. Yalowitz, Collins, and Virginia, *Arctic Climate Change*, 15–16.
41. Rob Huebert, "Renaissance in Canadian Arctic Security?" *Canadian Military Journal*, 14 July 2008, <http://www.journal.dnd.ca/vo6/no4/north-nord-eng.asp> (accessed 24 September 2009).
42. Ibid.
43. Department of National Defence, "Rebuilding the Canadian Forces," *Canada First Defence Strategy*, 3 April 2009, <http://www.forces.gc.ca/site/pri/first-premier/defstra/rebuild-rebatir-eng.asp> (accessed 26 October 2009).
44. Lawrence Cannon (address, Department of Foreign Affairs and International Trade Canada, Gatineau, Quebec, 26 July 2009), <http://www.international.gc.ca/media/aff/speeches-discours/2009/387436.aspx?lang=en> (accessed 26 October 2009).
45. "Charging round the Block," *Economist* 376, no. 8440 (20 August 2005): 29–30.
46. Gunitskiy, "On Thin Ice."
47. Norwegian Ministry of Foreign Affairs, *The Norwegian Government's High North Strategy*, report, 2006, <http://www.regjeringen.no/upload/UD/Vedlegg/strategien.pdf> (accessed 2 November 2009).
48. Torbjørn Pedersen, "The Dynamics of Svalbard Diplomacy," *Diplomacy and Statecraft* 19, no. 2 (June 2008): 236–37, 253.
49. Yalowitz, Collins, and Virginia, *Arctic Climate Change*, 16.
50. Gunitskiy, "On Thin Ice."
51. International Bathymetric Chart of the Arctic Ocean, "Selective Comparisons of GEBCO (1979) and IBCAO (2000) Maps," http://www.ngdc.noaa.gov/mgg/bathymetry/arctic/ibcao_gebco_comp.html (accessed 2 November 2009).
52. Colie, "Rush to Arctic."
53. Gunitskiy, "On Thin Ice."
54. Pres. Barack Obama, "Foreign Policy," White House Web site, <http://www.whitehouse.gov/issues/foreign-policy> (accessed 11 November 2009).
55. Pres. George W. Bush, National Security Presidential Directive (NSPD) 66, "Arctic Region Policy," 9 January 2009, <http://georgewbush-whitehouse.archives.gov/news/releases/2009/01/20090112-3.html> (accessed 2 November 2009).
56. Kevin Drawbaugh, "U.S. Senate Panel Backs Law of the Sea Treaty," Reuters, 31 October 2007, <http://www.reuters.com/article/idUSN31335584> (accessed 11 January 2010); and Clifford Krauss et al., "As Polar Ice Turns to Water, Dreams of Treasure Abound," *New York Times*, 10 October 2005, <http://www.nytimes.com/2005/10/10/science/10arctic.html> (accessed 11 January 2010).
57. Valur Ingimundarson, "Iceland's Post-American Security Policy, Russian Geopolitics and the Arctic Question," *RUSI Journal* 154, no. 4 (August 2009): 74.
58. This is evident from, for example, President Obama's recent speeches in Cairo and the UN and the White House Web site concerning foreign policy.

Abbreviations

CLCS	Commission on the Limits of the Continental Shelf
CNAS	Center for a New American Security
CSS	Center for Security Studies
EEZ	exclusive economic zone
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
nm	nautical mile
NSPD	national security presidential directive
PDD	presidential decision directive
UN	United Nations
UNCLOS	UN Convention of the Law of the Sea
USGS	United States Geological Survey