

America and the Arctic Superhighway:
Developing Economic Opportunities in a Warming Arctic

Kristopher R. McClellan
The Project on International Peace and Security (PIPS)
Department of Government
The College of William and Mary
P.O. Box 8795
Williamsburg, Virginia 23187-8795
pips@wm.edu

Institute for Theory and Practice of International Relations
The College of William and Mary
P.O. Box 8795
Williamsburg, VA 23187-8795
T. 757.221.3020
F. 757.221.1868
www.pips.wm.edu
pips@wm.edu

POLICY BRIEF

Climate change and shrinking sea ice in the Arctic create new opportunities for cheaper commercial shipping and increased access to new oil reserves and other resources. Russia and Canada already exploit new oil and shipping prospects in the High North. The United States can also benefit from these emerging opportunities by creating an “Arctic Superhighway” for safe and predictable commercial shipping and energy transportation. This “Superhighway” would form the cornerstone of U.S. strategy in an ice-free Arctic by overcoming current obstacles like long range communications, limited disaster response capability, unresolved territorial disputes, and unregulated resource extraction practices.

Arctic Climate Change and Economic Opportunities

Global climate change in the Arctic reduces sea ice thickness and extent, raising questions about potential resource extraction opportunities and new viable shipping routes. Natural gas and oil extraction and new sea routes may lead to competition over sovereignty and use of resources.

Reduced Sea Ice

Arctic warming reduces both the thickness and extent of sea ice. Sea ice coverage decreased 40 percent since 1979, and research suggests an ice-free Arctic summer as early as 2040.¹ Warmer waters result in more annual melting, reducing thick multiyear ice that poses the greatest danger to vessels. Thinner young ice will allow commercial shipping to navigate previously inaccessible routes.²

Economic Opportunities

A warmer Arctic will allow access to faster, cheaper shipping lanes, and new oil and natural gas reserves.

1. *Reduced travel times and costs:* Arctic routes between Asia and Europe would decrease transit times by more than a third compared to the Suez or Panama canals.³ For example, using Arctic shipping routes from China to New York would save 3,000 miles and over \$2 million in fuel and fees (USD).⁴

2. *Access to new oil reserves:* The Arctic may contain up to 22 percent of the world's undiscovered oil reserves.⁵ Already, more than 400 oil and gas fields have been discovered in the Arctic, and that number is expected to rise.⁶ The North American Arctic is expected to hold 65 percent of undiscovered oil, with the largest reserves in Arctic Alaska.⁷
3. *Access to new natural gas reserves:* The Arctic is believed to contain 30 percent of the world's undiscovered natural gas reserves.⁸ The Arctic holds an estimated 1,670 trillion cubic feet of natural gas and 44 billion barrels of natural gas liquids (NGL).⁹

Around 74 percent of natural gas is on the Eurasian side of the Arctic.¹⁰ The West Siberian Basin, East Barents Basin, and Arctic Alaska are estimated to contain the vast majority of accessible natural gas and NGL reserves. Russia is expanding operations in Western Siberia to access the largest predicted Arctic reserves.¹¹

Developing the Arctic Superhighway

The Arctic Superhighway refers to the new Arctic shipping routes that would reduce transit times for intercontinental commercial shipping and facilitate the export of Arctic fossil fuels to meet global energy demands. This highway will be founded on a network of multilateral and bilateral agreements among Arctic states. The same frameworks supporting this superhighway will also enable the development of resource extraction by providing access to drilling sites and establishing legal rights and responsibilities for Arctic operators.

The Superhighway supports the responsible development of Arctic resources and the expansion of Arctic shipping by providing the following core elements:

- Long range communications and navigation infrastructure for commercial vessels, including detailed mapping, and weather reporting;
- Search and rescue and disaster response capacity using both sea and air assets to assist stranded vessels and contain the effects of an oil spill or other environmental disaster;
- Comprehensive, mandatory standards for shipping and resource extraction that protect human lives and the environment; and
- Peaceful territorial dispute resolution among affected parties to establish definitive rights and responsibilities over valuable Arctic assets.

Current Obstacles

Legal, political, and technological obstacles currently stand in the way of an effective Arctic Superhighway:

1. *Legal obstacles:*

The United States is not a party to UNCLOS and current shipping and environmental standards are too weak to protect lives and the environment in the Arctic.

- *Limited rights to the continental shelf:* The United States does not enjoy the full protections and privileges afforded to coastal states because it is not a party to the UN Convention on the Law of the Sea (UNCLOS). Unless it joins UNCLOS, the United States cannot submit claims on its extended continental shelf to the Commission on the Limits of the Continental Shelf established in Annex II of UNCLOS¹² or assert its “exclusive right to authorize and regulate drilling on the continental shelf for all purposes.”¹³ This limits U.S. resource claims to its Exclusive Economic Zone.
- *Non-binding environmental and shipping regulations:* The most comprehensive set of regulations for Arctic shipping operations is the International Maritime Organization’s “Guidelines for Ships Operating in Arctic Ice-Covered Waters,” which focus on mitigating the risks of pollution, protecting human lives, and ensuring safe navigation through appropriate equipment and communications capabilities.¹⁴ The Arctic Council’s “Offshore Oil and Gas Guidelines” are also fairly comprehensive and detailed, explaining environmental impact assessment and monitoring standards as well as safety procedures and operating practices to protect infrastructure and workers.¹⁵ Despite their extensive content, both of these guidelines are merely recommendations and do little to protect human lives or the environment in the Arctic.

2. Political obstacles:

The Arctic Council is ineffective and territorial disputes disrupt development.

- *The Arctic Council is unable to provide effective regulation and monitoring:* The Arctic Council is an eight-member intergovernmental organization “for promoting cooperation, coordination, and interaction among the Arctic States.”¹⁶ The Arctic Council recently called for national and international regulations to ensure the safety of Arctic shipping, cooperation for disaster response, and the extension of the “precautionary” and “polluter pays” principles to the Arctic.¹⁷ Because the Council operates on consensus, however, it has been unable to produce binding and effective regulations for Arctic shipping and resource extraction.
- *Unresolved territorial disputes:* The United States has outstanding territorial disputes over known areas with even its closest Arctic partner, Canada. For example, the United States and Canada have awarded oil exploration and fishing rights within a 21,436 square kilometer area of the Beaufort Sea, but have both prohibited any work in the disputed zone until the border is resolved.¹⁸ The United States and Canada also contest the status of the Northwest Passage (NWP) near Canada, preventing shipping companies from determining applicable law for ships transiting the NWP.¹⁹

3. Technological obstacles:

The United States lacks effective disaster response capability.

- *Lack of needed icebreakers:* Several US military leaders argue that “the nation’s icebreaking capability has diminished substantially and is at risk of being unable to support our national interests in the Arctic regions.”²⁰ The United States currently has only three Polar-class icebreakers, two of which surpassed their 30-year service life.²¹ It would cost \$800-\$925 million and take 7-10 years to build a new Polar-class icebreaker and cost over \$56 million just to reactivate one of the older cutters for another decade.²² Until the Arctic is completely ice-free, ice breakers will remain the most effective instrument for large scale, timely disaster response and for the maintenance of passable sea routes.

Policy Options for Building the Arctic Superhighway

The United States has several policy options to create the Arctic Superhighway: maintenance of the status quo, unilateral development by the U.S. government and American business, a single comprehensive multilateral development treaty, and a network of international agreements to facilitate the development of the various elements of the superhighway. The creation of an Arctic Superhighway through the simultaneous use of bilateral treaties and incremental multilateral framework agreements is the most effective option to exploit emerging economic opportunities.

1. *Maintain the status quo*

Given the uncertainty surrounding possible resources and changing ice conditions in the Arctic, it is tempting to maintain the status quo and not invest in new capabilities to exploit opportunities in the High North. Even if these predictions hold true, Arctic infrastructure is difficult to develop and costly to maintain due to frigid temperatures, drifting ice, poor soil conditions, and geographic isolation.

Strengths: The United States government and American companies would conserve resources and avoid the risk of uncertain Arctic development. These resources could instead be applied to more predictable and proven methods to improve transportation and access new energy reserves.

Weaknesses: Other nations, such as Russia and Canada, will continue to develop new technologies to better exploit their Arctic resources, and the United States will lose a limited chance to gain from new economic opportunities in the Arctic. Current technologies are also inadequate to respond to environmental disasters in the Arctic.

2. *Unilateral access and development*

The United States could act unilaterally to develop an Arctic Superhighway for extracting natural resources and opening new shipping routes. American companies would be required to significantly increase investment in highly specialized capital for Arctic resource extraction, and the U.S. government would need to develop new capabilities to patrol and secure the Arctic.

Strengths: The United States could restrict its activity to its Exclusive Economic Zone, which would be easier and less costly than trying to cover the high seas in the Arctic.

Weaknesses: This scenario would deny the United States the benefits of a true trans-Arctic shipping route and prove extremely costly, both in terms of financial expenses and international political capital. It could also lead to conflict with other Arctic states over the future of the region and leave the United States with an inadequate support network in the event of a human or environmental catastrophe.

3. *Multilateral development through a single binding treaty*

Building on the success of the Antarctic Treaty, which established comprehensive rules for Antarctica through a single binding treaty, the United States could lead the creation of an “Antarctic Treaty for the Arctic” to establish the Arctic Superhighway. This approach would include creating binding obligations on a wide range of issues, from shipping access and resource extraction to military operations and research opportunities. The United States could remain outside UNCLOS to avoid unpopular resource-sharing obligations which might discourage investment in those resources. This new treaty would likely need to encompass many of the basic provisions of UNCLOS, however, in order to protect other states’ interests in their territorial waters.

Strengths: This option would likely be the best way to protect the Arctic environment and establish predictable shipping conditions. Congress would be more likely to support a proposal that avoids joining UNCLOS.

Weaknesses: Binding regulations would be difficult to amend in the face of changing conditions, and states would delay ratification of such regulations until the future of the Arctic was more certain. By then it may be too late to prevent irreparable environmental damage or a wasteful duplication of efforts as states try to grab as much as possible before a treaty restricts such activities. A binding treaty might also produce weak standards based on the “lowest common denominator.” The Arctic states previously stated their belief that existing international law provides a suitable framework for the Arctic in the Ilulissat Declaration and the Tromsø Declaration, indicating that this option is not popular at present.

4. *The Arctic Superhighway: Voluntary multilateral development*

A combination of multilateral framework agreements and specific bilateral treaties could pave the way for the development of an Arctic Superhighway by providing solutions to three major obstacles: insufficient communications and search and rescue capabilities, vague and ineffective regulations for shipping and resource extraction, and competing territorial claims.

a. *Communication and Search and Rescue (SAR): The Arctic's "AAA"*

Shipping and resource companies want to protect their investments and employees in the Arctic, but they lack the resources to offer complete protection individually. The Arctic nations could coordinate their communication and SAR capabilities to cover all areas of operation in the Arctic through multilateral assistance agreements. Multinational search and rescue procedures and responsibilities could be based on current systems like the Automated Mutual-Assistance Vessel Rescue System (AMVER) which includes 17,000 vessels from 155 countries. This basic mutual assistance scheme could be augmented with interoperability guidelines and other requirements to overcome unique Arctic challenges.

b. *Shipping and Resource Extraction: Rules of the Road*

The International Maritime Organization (IMO) approved "Guidelines for Ships Operating in Arctic Ice-Covered Waters" in 2002. The Guidelines present comprehensive standards for construction, equipment, and operation of vessels in the Arctic.²³ The present Guidelines lack any compliance requirements or mechanisms.²⁴ The Arctic Council also outlined voluntary "Offshore Oil and Gas Guidelines" for resource exploration and exploitation.

Both of these voluntary agreements could be the foundation of binding multilateral framework agreements. These agreements would use the incremental approach pioneered in climate change agreements to require stricter standards as Arctic research and technology advance. States and companies would support such agreements because they would be able to meet the relatively low initial standards and then work up to stricter standards over time.

c. *Competing Territorial Claims: Mapping the Road*

The United States needs to resolve outstanding territorial disputes with Canada and establish a procedure with Russia to recognize continental shelf claims if the United States remains outside of the UNCLOS system. Bilateral treaties with the relevant states are the most direct solution to these issues. These treaties would delineate access rights to certain waters and specially equipped ports, resolve territorial disputes, provide for joint patrols, and harmonize fees and regulations. The United States can also benefit from close cooperation with Canada on border and customs patrols, icebreaking, navigational maintenance, and search and rescue.

Strengths: This option ensures that the United States can benefit from faster, cheaper trans-Arctic shipping and new energy reserves at the lowest cost and risk to the United States. The network of agreements will be easier to negotiate and ratify than a single binding treaty which would likely be seen as an infringement on U.S. sovereignty and an impediment to American business interests. The combination of multilateral framework agreements and issue-specific bilateral treaties allows states

to adapt to changing conditions and emerging opportunities while achieving minimum requirements to overcome known obstacles.

Weaknesses: This option requires the active leadership of an influential state to coordinate the parallel development and implementation of the three major components of the Arctic Superhighway. To date, no state has been willing to guide this process.

5. Final Policy Recommendation

The United States has a limited timeframe to take advantage of emerging economic opportunities in the Arctic by shaping the course of Arctic shipping and resource extraction. The Arctic Superhighway is the most effective strategy for the United States in the Arctic because it will reduce the burden on the United States while improving safety and reliability along the entire transit route and opening faster, cheaper shipping lanes sooner than unilateral development. The Superhighway provides freedom for a broader U.S. strategy in an ice-free Arctic by overcoming current obstacles such as minimal long range communications, limited disaster response capability, unresolved territorial disputes, and unregulated resource extraction practices.

¹ John Roach, "As Arctic Ice Melts, Rush Is On for Shipping Lanes, More," National Geographic, 25 February 2005, http://news.nationalgeographic.com/news/2005/02/0r225_050225_arctic_landrush.html (accessed 9 January 2010).

² Di Silvestro, Roger. "The Proof is in the Science." *National Wildlife*. In *The Reference Shelf: Global Climate Change*. Ed. Paul McCaffrey. H. W. Wilson, 2006. 10.

³ John Roach, "As Arctic Ice Melts, Rush Is On for Shipping Lanes, More."

⁴ Matt Hilburn, "Trans-Arctic Shipping?" *Seapower* 51, no. 8 (Aug. 2008): 34-36, <http://www.web.ebscohost.com> (accessed 9 January 2010). 34.

⁵ Brian Beary, "Race for the Arctic," *CQ Researcher* 2, no. 8 (August 2008), <http://library.cqpress.com> (accessed 10 January 2010).

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Ibid.*

⁹ United States Geographical Survey, "Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle," 4.

¹⁰ U.S. Energy Information Administration, "Arctic Oil and Natural Gas Potential," 7.

¹¹ Brian Beary, "Race for the Arctic."

¹² UNCLOS. Part VI. Article 76. 53-54. Other rules/guidelines established in Article 76.

¹³ UNCLOS. Part VI. Article 81. 55.

¹⁴ IMO. "Guidelines." Guide. Paragraph 2.1-2.5. 4.

¹⁵ The Arctic Council. "Offshore Oil and Gas Guidelines." October 2002 Ministerial Meeting, Inari, Finland. Preamble.

¹⁶ "Declaration on the Establishment of the Arctic Council." Signed 19 September 1996 in Ottawa. http://arctic-council.org/section/founding_documents

¹⁷ The Arctic Council. "Tromsø Declaration." 29 April 2009. Sixth Ministerial Meeting of the Arctic Council. 1. <http://arctic-council.org/section/documentation>.

¹⁸ Bowell, Randy. "NDP Press Harper to Raise U.S.-Canada Boundary Dispute with Obama." Canwest News Service,

15 September 2009.

<http://www.canada.com/news/press+Harper+raise+Canada+boundary+dispute+with+Obama/1997222/story.html>

¹⁹ “Northwest Passage gets political name change.” *The Edmonton Journal*, 6 April 2006.

<http://www.canada.com/edmontonjournal/news/story.html?id=6d4815ac-4fdb-4cf3-a8a6-4225a8bd08df>

²⁰ General Reunart, General Schwartz, and Admiral Keating. “Memorandum for Chairman, Joint Chiefs of Staff on Icebreaker Support.”

²¹ Webber, Caitlin. “Aging Icebreaker Fleet Threatens U.S. Position as Arctic Opportunities Emerge.” *Congressional Quarterly*, 21 July 2008. <http://public.cq.com/docs/hs/hsnews110-000002922311.html>

²² Webber, Caitlin. “Aging Icebreaker Fleet Threatens U.S. Position as Arctic Opportunities Emerge.” *Congressional Quarterly*, 21 July 2008. <http://public.cq.com/docs/hs/hsnews110-000002922311.html>

²³ IMO. “Guidelines.” Guide. Paragraph 1.1. 3.

²⁴ IMO. “Guidelines.” Preamble. Paragraph 1.3. 2.