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The Arctic's Changing Landscape *Addressing New Maritime Challenges*

POLICY BRIEF



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With decreasing sea ice and temperatures warming twice as fast as the rest of the globe, the Arctic's geography is quickly changing.¹ The region is becoming increasingly accessible to a wide variety of maritime users, from companies expanding business opportunities in commercial shipping, adventure tourism, mineral extraction and oil and gas exploration and even organizations involved in illicit activities. Given these Arctic trends, the U.S. government's presence, especially the ability to respond to security and environmental risks, must be commensurate with the increasing activity in the region.

High-level attention by the U.S. government on Arctic issues is a relatively new development. From the Cold War period until recently, U.S. Arctic policy was not a national priority.² Over the past six years, recognizing the region's changing geography, U.S. policymakers have begun to recognize the need for high level policy guidance and subsequent strategic planning on the Arctic. In the past year, the Obama administration released its National Strategy for the Arctic Region and a companion Implementation Plan for The National Strategy for

the Arctic Region. Complementing these inter-agency plans, several government agencies have published their own new or updated Arctic strategies, which together provide a solid foundation for the United States to address emerging priorities for the region.³ However, policymakers are in the beginning stages of implementing these plans, and it is critical they consider the multitude of dynamic factors shaping Arctic security. Additionally, there are areas of high priority that the U.S. government should focus on for immediate implementation.

As maritime activity grows, there is mounting concern that the Arctic is at risk of environmental degradation, illicit activity, economic competition and restricted freedom of navigation for U.S. military and commercial vessels. Moreover, because the Arctic is a harsh environment with both physical and logistical limitations, it will take years, if not decades, to build the air, sea and land infrastructure necessary to support the region's increasing maritime activity and to achieve the whole range of objectives outlined in the U.S. Arctic strategy recently released by the White House.

This publication seeks to support policymakers as they address the region's emerging challenges. It first identifies current and predicted Arctic maritime trends, and then analyzes the key themes and objectives offered by recent U.S. government Arctic

strategies. It concludes by offering a number of recommendations to the U.S. government as agencies begin to implement the strategies. These recommendations are focused on near-term measures that will protect vital security, safety, social and economic interests in the region. These recommendations could greatly reduce risk and prepare the U.S. for the additional maritime activity anticipated to occur within the next decade.

Maritime Trends and Challenges

Many scientific models predict that within 10 years the Arctic will be virtually ice-free for at least several weeks in the early fall.⁴ These changes in the weather patterns are of direct significance to U.S. security: more ice-free months will lead to greater activity in the region. In particular, the United States will face specific threats that emanate from increased human presence, including greater potential for illicit activity and dangerous environmental conditions, which will have an adverse impact on the social and food security of local communities.⁵ In addition, there could also be excessive maritime claims – that is, competing claims for maritime territory or exclusive navigation rights that would threaten U.S. sovereignty. To exacerbate these issues, maritime domain awareness in the region is very limited. There is minimal U.S. government waterborne presence in the Arctic, and the region lacks an adequate communications infrastructure for response operations and to protect national security.

POTENTIAL FOR ILLICIT ACTIVITY

With the opening of new Arctic shipping routes, maritime borders are increasingly accessible in a manner not previously possible due to ice coverage. (See Figure 1.) With a coastline approximately 34,000 miles long, Alaska has an expansive and mostly unmonitored open maritime border that is subject to increased organized crime – such as narcotics, human and arms trafficking – which already occurs in many seaports and coastal communities in the continental United States.

Organized crime in the Arctic exists and is a growing concern among Arctic nations.⁶ Sweden, Norway, Denmark, Finland, Iceland and Russia established a special task force in 2005 to address human trafficking and organized crime in the eastern Arctic. Such an effort has not been replicated in the western Arctic by the United States, Russia and Canada. Illegal drug manufacturing and importation is already a serious problem in Alaskan communities and is on the rise.⁷ Research and documentation of these activities is limited, but their seriousness demands greater attention by community and national leaders. The U.S. Coast Guard and other law enforcement agencies are unable to combat these illicit activities meaningfully with existing resources and capabilities in the Arctic.

ENVIRONMENTAL IMPACT

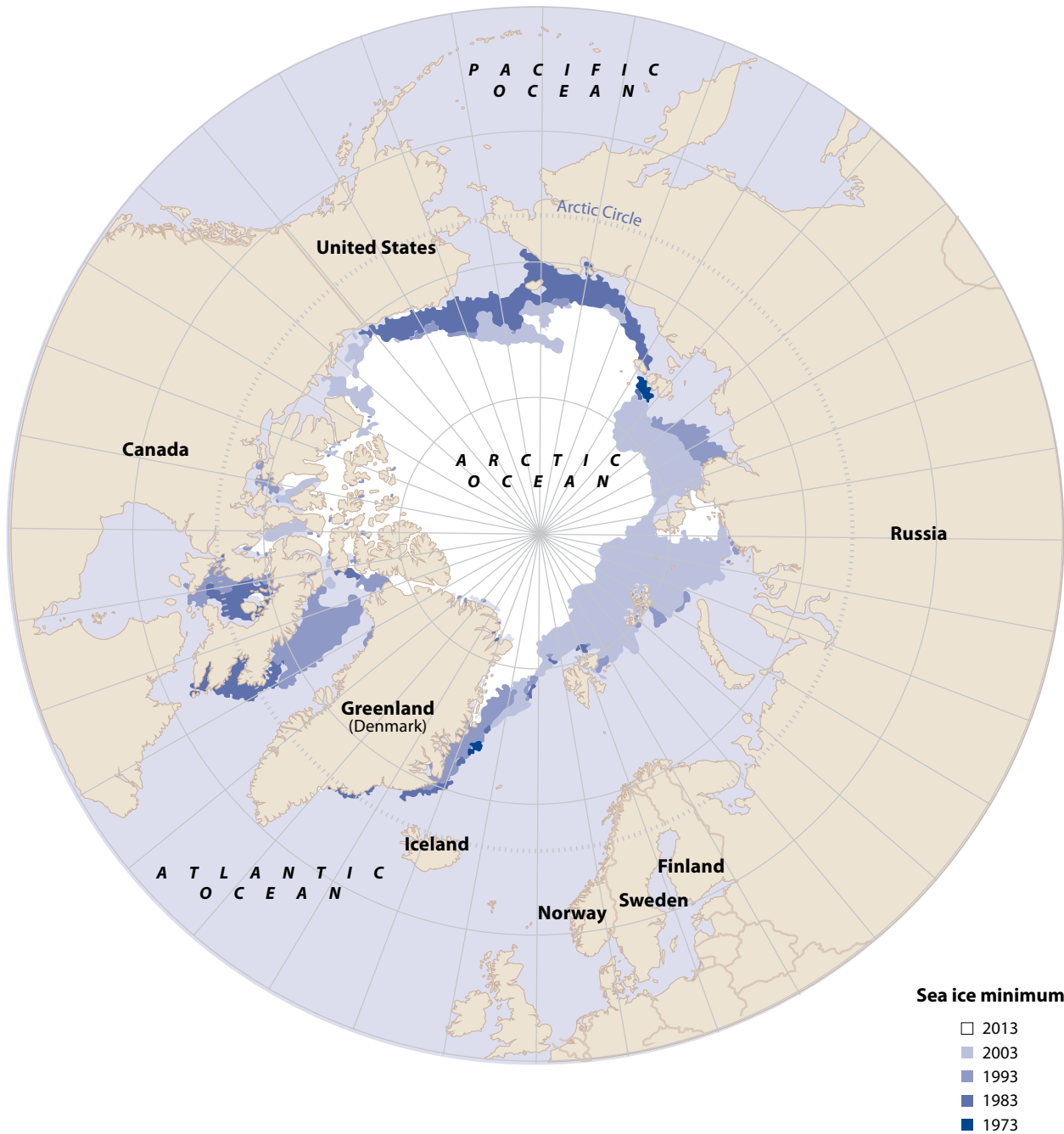
The rise of waterborne activity boosts the probability of vessel collisions, groundings, whale strikes and oil or chemical spills. Even if the Arctic is ice-free or ice-diminished, seasonal conditions will continue to present hazards to navigation, including unpredictable weather, moving ice floes and unsettled wave patterns.⁸

Harsh weather, rugged geography, limited spill response equipment and minimal land or air transportation infrastructure in the Arctic add to the complexity of oil and chemical spill response. Public and privately owned spill cleanup equipment and response personnel are extremely limited throughout the region, and the consequences of a spill can be more severe in the Arctic than elsewhere.⁹

EXCESSIVE MARITIME CLAIMS

In May 2008, the United States signed the *Ilulissat Declaration*, an agreement among the five coastal states bordering the Arctic Ocean to abide by the customary law of the sea framework, even while it has not yet ratified the broadly accepted United Nations

FIGURE 1: ARCTIC ICE MELT FROM 1973-2013



Source: Courtesy of Sean R. Helfrich, National Oceanic and Atmospheric Administration, U.S. National Ice Center, 2014.



U.S. Coast Guard cutter Healy crew members retrieve a NOAA small unmanned aircraft system, designed to identify oil spills in icy water in extreme weather conditions, during a multiagency oil spill response exercise in Beaufort Sea, September 2013.

(PETTY OFFICER 3RD CLASS GRANT DEVUYST/U.S. Coast Guard)

Convention on Law of the Sea (UNCLOS).¹⁰ While the *Ilulissat Declaration* establishes the body of law for managing the rights and obligations of states specifically within the Arctic Ocean, UNCLOS provides the primary mechanism for peaceful resolution of disputes and recognizes underwater territorial boundaries on the extended continental shelf.

Without ratification of UNCLOS, the United States lacks the legal power to contest the claims of other states in issues of overlapping maritime boundaries and the rights to resources on the continental shelf. This could give rise to what the international legal community terms excessive maritime claims. Therefore, unless the United States ratifies UNCLOS, the nation cannot properly protect its freedom of navigation as well as natural resource, energy and environmental interests in the Arctic.¹¹

The White House, Department of Defense (DOD), U.S. Coast Guard as well as many voices

from private industry support U.S. accession to UNCLOS. However, the Senate, which must approve international treaty accession, has not ratified the convention, notwithstanding its attractive provision as a legally binding international agreement to protect natural resources and the freedom of navigation.

PERSISTENT CHALLENGES

The trends and challenges highlighted in this section are just a few of the issues facing the United States as the region develops. Other issues related to natural resource management and food security for Native communities will persist and escalate if not carefully addressed.¹² Climate change will have an increasingly adverse effect on the region, particularly for indigenous peoples heavily reliant on an ecosystem subject to severe storm surges, diminishing permafrost and coastal erosion.¹³

INSUFFICIENT MARITIME DOMAIN AWARENESS

Despite all of this, operators and government agencies are challenged with inadequate physical infrastructure in the Arctic, which greatly limits the full and comprehensive knowledge of activities throughout the region. Effective Maritime Domain Awareness (MDA) – the understanding and awareness of waterborne activities that impact safety, security, economy and the environment – is paramount as Arctic maritime activity increases.¹⁴

Arctic shipping lanes greatly reduce the time and distance between certain seaports – particularly between Europe, Asia and North America – and will become more frequently transited as sea ice diminishes.¹⁵ (See Figure 2.) As oil and offshore gas extraction grows in areas adjacent to shipping lanes, MDA will become increasingly important to reduce the risk of vessel accidents, oil and chemical spills, illegal fishing and other adverse effects on the environment.¹⁶ With limited communication infrastructure and physical presence in the Arctic, the U.S. government is not adequately equipped to achieve comprehensive MDA.

For safety at sea, modern ships are generally outfitted with digital satellite communication equipment. In most cases, satellite and marine-based communication systems for the lower Arctic latitudes are considered sufficient. In the higher Arctic latitudes and in remote areas, voice and data transmissions at sea for military and commercial vessels are nonexistent.¹⁷ The unreliability or lack of satellite signal across much of the region hinders the ability of the U.S. Coast Guard to detect and deter illicit activities, prevent accidents, coordinate response operations, ensure safety at sea and ultimately communicate.

This unavailability of satellite signals also impedes electronic charting and navigation safety systems that identify hazards to ships traveling throughout the region. Navigation charts – paper or electronic

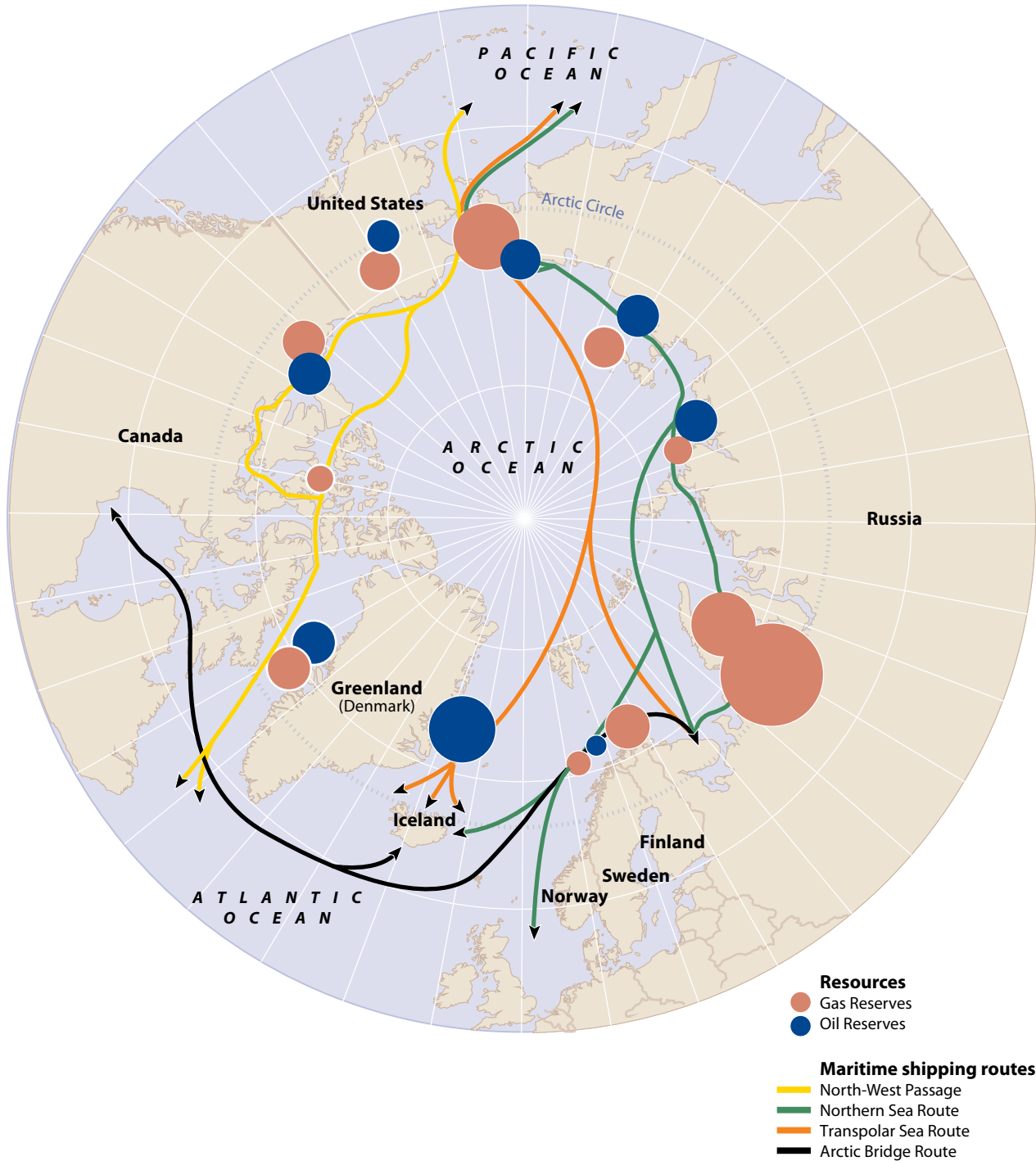
– depict accurate shorelines and provide commercial, recreational and military vessels current information on water depth, aids to navigation and locations of hazards. Without reliable, updated charts and timely navigation safety bulletins, vessels face a greater risk of grounding or incurring hull damage from contact with fixed or underwater obstructions.

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In addition, there are almost no visual aids to navigation in the Arctic Ocean, such as buoys or fixed structures, which mark shipping channels and underwater obstructions. Mariners must rely solely on charts and local knowledge to navigate the region safely. Although National Oceanic and Atmospheric Administration (NOAA) underwater surveys and charting are being conducted and planned at least through 2018, the absence of reliable satellite communications to obtain the most updated nautical charts and navigation safety bulletins leads to a higher probability of maritime accidents, which could cause a catastrophic oil spill or hazardous material release.¹⁸

The U.S. military is also limited in its waterborne capability and maritime mobility. Since 1965, the U.S. Coast Guard has been responsible for polar ice-breaking activities for the entire U.S. government. Polar-class icebreakers are vital to national

FIGURE 2: ARCTIC SHIPPING ROUTES IN PROXIMITY TO OIL AND GAS FIELDS



Sources: Lloyd's Register's Strategic Research Group, QinetiQ and the University of Strathclyde, Global Marine Trends 2030, (2013), <http://www.lr.org/sectors/marine/GTC/gmt2030.aspx>, 47; and The Arctic Institute, Arctic Shipping Routes, (November 27, 2012), <http://www.thearcticinstitute.org/search?q=transpolar+sea+route>.

security since they improve MDA and are critical for search and rescue operations. In addition, polar-class icebreakers support scientific research, conduct marine environmental response, remove hazards to navigation and are equipped as helicopter refueling platforms and landing zones.

Currently, the United States owns three polar-class icebreakers. Two are in operation; the third remains inoperable in a “caretaker” status due to age and excessive wear.¹⁹ Compared with Russia’s fleet of 25 icebreakers, the U.S. Coast Guard cannot meet the growing demand for increased polar presence for year-round search and rescue operations and spill response. Additionally, it cannot support maritime mobility for non-ice-capable ships or deter illegal harvesting of natural resources.

In short, the United States will have to closely consider how to improve MDA in the region, and the U.S. Coast Guard, NOAA and other agencies will likely need greater resources to do so.

U.S. Approach to Arctic Governance

Toward the end of the Bush administration, the White House issued *National Security Presidential Directive-66*, which outlined a very basic framework for U.S. Arctic policy. In the years since, the Obama administration produced the *National Strategy for the Arctic Region* and the subsequent *Implementation Plan for The National Strategy for the Arctic Region*. These documents articulate three key strategic objectives for federal agencies to pursue in their planning for the changes in the Arctic: advancing U.S. security interests, pursuing responsible Arctic region stewardship and strengthening international cooperation.²⁰

Within this framework, federal agencies are required to undertake certain measures including charting the Arctic, collecting environmental data and gathering information for the development and establishment of local and international cooperative

measures. They also must develop short-term and long-term planning processes and report on their progress annually to ensure that the United States is advancing national security, responsible stewardship and international cooperation.²¹ These three objectives depict how the U.S. government plans to safeguard its interests in the Arctic.

ADVANCING U.S. SECURITY INTERESTS

The national strategy is quite clear that the highest priority for the U.S. government in the region is to “protect the American people, sovereign territory and rights, natural resources and other interests.”²² Security in the region is not relegated solely to any one federal agency. The departments of Homeland Security (DHS), Transportation, Commerce, State, Energy, Interior, Defense and the U.S. Environmental Protection Agency all share responsibility to enforce U.S. law and prevent illicit activities that threaten national security.²³ All of these agencies have a presence in the Arctic and authorities related to the region. The recent emphasis on establishing a U.S. Arctic ambassador presents an excellent opportunity for greater coordination among federal agencies as they expand their focus on Arctic activities.

The Arctic is currently considered a peaceful, stable region, free of conflict and governed by international cooperation and mutual trust among Arctic nations.²⁴ As activity in the Arctic increases, so will the role of the U.S. military – primarily the U.S. Coast Guard. In *A Cooperative Strategy for 21st Century Seapower* (2007), the U.S. Navy, U.S. Coast Guard and U.S. Marine Corps service chiefs noted with an anticipated escalation in Arctic activity, there could be a greater military presence to oversee safety, security and stewardship of this strategically important region.²⁵ The Navy fulfilled domestic and international ice-breaking needs until 1965, when responsibility for polar ice-breaking was permanently transferred to the U.S. Coast Guard.

All the recent Arctic strategy documents emphasize the importance of responsible stewardship, which requires careful conservation of resources, the application of scientific and traditional knowledge of physical and living environments and the ability to mitigate risks to the environment.

As the lead federal agency for search and rescue, marine environmental response and maritime mobility, the U.S. Coast Guard relies upon its polar-class ice-breaking capability to provide surface presence to safeguard the Arctic's inhabitants and resources.²⁶ However, the U.S. Coast Guard has limited resources to fulfill its broad range of statutory responsibilities and will need financial backing from Congress to attain the vessels and equipment necessary to maintain a concerted U.S. surface presence in the region. Currently, the U.S. Navy sees its role in the Arctic as one of support and does not plan to develop ice-breaking or ice-capable ships through the next decade.²⁷

PURSUIING RESPONSIBLE ARCTIC REGION STEWARDSHIP

Second, all the recent Arctic strategy documents emphasize the importance of responsible stewardship, which requires careful conservation of resources, the application of scientific and traditional knowledge of physical and living environments and the ability to mitigate risks to the environment.²⁸ The Obama administration adopted the Department of Interior's "Integrated Arctic Management" approach to coordinate a

government wide effort to identify trends – environmental, cultural, social and economic – and address the needs of stakeholders in the region.²⁹ Integrated Arctic Management is designed to be more than an interagency coordinating mechanism or governance structure. It is a science-based, whole-of-government approach to sustainably develop regional economies, balance the long-term health of ecosystems and preserve cultural activities for people who depend on the Arctic environment.³⁰

DOD may be called upon to provide support in response to natural or man-made disasters in the Arctic, such as the Exxon Valdez oil spill in 1989.³¹ To maintain the military's response capability, the United States Northern Command and its component Joint Task Force-Alaska engage in realistic scenarios and exercises to test their ability to conduct search and rescue, disaster recovery and oil and hazardous spill response activities.³² This is the only place in the world where DOD extensively engages in such exercises, but even with this practice, the damage or danger of a real scenario will challenge their ability to respond in the Arctic's often harsh weather conditions.

To increase MDA throughout the region, the U.S. Coast Guard conducts Operation Arctic Shield every summer and early fall, the Arctic's busiest season, thereby providing additional presence for law enforcement, improving maritime safety and increasing search and rescue capacity. Importantly, Operation Arctic Shield is a prime opportunity for federal agencies to collaborate closely with the state of Alaska, Alaska Native organizations, marine shipping and oil industries, environmental groups and international partners to promote environmental stewardship. This surge provides meaningful additional capacity for maritime stewardship and protection.

STRENGTHENING INTERNATIONAL COOPERATION

Finally, the strategies as a whole emphasize the importance of international cooperation for a range of maritime security objectives, including enhanced search and rescue, spill response and maritime safety. The United States is committed to cooperation among Arctic nations and the international maritime community to coordinate search and rescue efforts and prevent environmental damage.

Unanimously adopted in May 2011, the *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic* was the first legally binding agreement negotiated by the Arctic Council.³³ Sharing weather condition and sea observations as well as coordinating rescue efforts among Arctic nations is paramount for safely operating in the region. Information sharing in the agreement includes locations of search and rescue facilities, available airfields and ports for refueling and supply, medical facilities as well as conducting joint search and rescue training exercises.³⁴ In several instances since ratification of this accord by Arctic states, it has proved a successful framework for international coordination.

Signed during the ministerial-level meeting of the Arctic Council in May 2013, the *Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic* is the Arctic Council's second legally binding agreement.³⁵ Arctic nations formally committed to develop spill response plans and remain equipped to respond in the event of an oil or hazardous material release. Should such a spill occur, this accord outlines the protocol for circum-polar countries to collectively address spill and risk mitigation efforts. The agreement also opens lines of communication and provides internationally accepted guidelines for oil and hazardous material response coordination. Given the recent ratification by the Arctic states, the full extent of the spill response agreement has yet to be tested.

FIGURE 3: BERING STRAIT



Source: U.S. Coast Guard

Last year at the International Maritime Organization's (IMO) General Assembly, the United States strongly encouraged IMO member states to support and adopt the IMO *Polar Code* to prevent accidents in the Arctic and Antarctic.³⁶ The *Polar Code*, if adopted at the next IMO meeting in May 2014, will provide uniform shipping industry standards to promote the safety of mariners, passengers and cargo.

Recommendations

The three core objectives emerging from the U.S. government strategies provide an excellent start for implementing agencies. They will help guide the key discussions about how to resource the implementation of U.S. Arctic policy. The recommendations below highlight priority areas U.S. policymakers should pursue to protect and advance Arctic interests.

DEVELOP WESTERN ARCTIC MDA PROTOCOLS

The United States has an opportunity to strengthen relations with its closest Arctic neighbors, Canada and Russia, by formalizing information-sharing protocols through a multilateral cooperative agreement to enhance MDA in the western Arctic

region. Considering the vast size of the U.S. and Canadian Arctic coastlines and the narrow Bering Strait, which separates the United States and Russia, sharing information would better convey changing environmental conditions and identify hazards along shipping routes; provide a greater opportunity to locate, respond to and police illicit activity; and bolster search and rescue response coordination. (See Figure 3.)

As co-guardians of the shallow and narrow passage between the Pacific and Arctic Oceans, the United States and Russia have a key opportunity to cooperatively develop and manage an international traffic management scheme to enhance the safety of shipping routes through the western Arctic.

EXPLORE PUBLIC-PRIVATE PARTNERSHIPS

Operating in the Arctic can be logistically challenging and expensive.³⁷ Little land-based commercial infrastructure is available for use in an emergency. Building public-private partnerships between the U.S. government and private industry to develop basic infrastructure in the Arctic would increase the United States' presence in the region and ability to manage risks. Collaboration through public-private partnerships would also encourage innovation in Arctic resource management and stewardship, create shorter timelines for infrastructure improvements and minimize taxpayer burden.

The following areas of public-private cooperation could be mutually beneficial for private industry and the federal government to advance interests in the Arctic:

- Share and utilize all available government and industry underwater survey data to improve navigation safety.
- Improve satellite and land communications systems.
- Build an integrated port for commercial and military vessels to share shore-based services and provide a place of refuge for vessels in distress.
- Develop marine traffic management and MDA protocols to share information.
- Require towing vessels designed for ice operations to escort large commercial vessels – especially oil tankers, chemical carriers and high-capacity passenger vessels transiting through ice-covered waters – to prevent maritime accidents, reduce environmental impact and decrease the risk of ships becoming beset by ice.

ESTABLISH A JOINT DOD/DHS OPERATIONAL COMMAND

With limited critical infrastructure and the high cost of operating in the Arctic, the United States would benefit from the creation of a joint DOD/DHS command in the region. Both DOD and DHS have key responsibilities and jurisdictional authorities in the Arctic. A joint operational command for Arctic operations would reduce redundancy between these two agencies, pool scarce resources and maximize existing capabilities.

INCREASE WATERBORNE PRESENCE

The United States should accelerate design, construction and acquisition processes to boost the U.S. Coast Guard's polar icebreaker capacity. Doing so would enable the U.S. Coast Guard to maintain an active presence in the region to protect U.S. sovereignty, monitor sea traffic, police activity in the Exclusive Economic Zone north of Alaska, conduct search and rescue and protect living marine resources. As demands on the U.S. Coast Guard's ice-breaking capacity continue to rise and evolve simultaneously with increased human and maritime activity in the Arctic, the United States must project an active and influential presence to ensure safety, security and environmental stewardship.

IMPROVE SPILL PREVENTION AND RESPONSE

Oil and chemical spill response is demanding under any circumstances. An oil or chemical spill in the Arctic would have a detrimental impact on one of the world's most sensitive ecosystems. The United States should continue to improve MDA, communication systems and navigation charting to prevent accidents, groundings or collisions with fixed objects, which would greatly reduce the probability of an accidental discharge.

The United States should also continue to conduct oil and chemical spill "worst case scenario" response exercises with private industry and international partners. Additionally, the United States should invest in further research to develop equipment specifically designed to remove oil trapped under ice or caught in ice-covered waters.

RATIFY THE LAW OF THE SEA

The United States should accede to UNCLOS and file an internationally accepted claim for jurisdiction over the continental shelf extending beyond the 200-nautical mile Exclusive Economic Zone. In taking this step, the United States would legitimize its claim to nearly 300,000 square miles of sovereign underwater territory for scientific exploration, marine stewardship and natural resource exploration and extraction.³⁸ Most importantly, acceding to UNCLOS would protect the nation's sovereignty, ensure freedom of navigation in the Arctic for U.S. commercial and military vessels and prevent competing maritime claims against U.S. sovereignty.

Conclusion

To manage the imminent challenges presented by growing maritime activity in the Arctic, the United States must develop targeted near-term measures to protect vital security, safety, social and economic interests in the region. Implementation of these ideas would place the United States in the best position possible to

address and manage emerging Arctic's risks, promote practices that will protect the region's fragile ecosystem and help realize the Arctic's strategic potential.

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Cover image: U.S. Coast Guard icebreaker
Healy operating in the Arctic Circle

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