



Committee on Transportation and Infrastructure  
U.S. House of Representatives  
Washington, DC 20515

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June 1, 2018

**SUMMARY OF SUBJECT MATTER**

**TO:** Members, Subcommittee on Coast Guard and Maritime Transportation  
**FROM:** Staff, Subcommittee on Coast Guard and Maritime Transportation  
**RE:** Hearing on “Maritime Transportation in the Arctic: The U.S. Role”

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**PURPOSE**

The Subcommittee on Coast Guard and Maritime Transportation will hold a hearing on Thursday, June 7, 2018, at 11:00 a.m., in 2167 Rayburn House Office Building to examine U.S. infrastructure needed to facilitate safe and efficient maritime transportation in the Arctic. The Subcommittee will hear from the United States Coast Guard (Coast Guard or Service), the National Oceanic and Atmospheric Administration (NOAA), scientists, and policy experts.

**BACKGROUND**

The Arctic region is the area north of the Arctic Circle, North Latitude 66.5622°. The Arctic Ocean dominates the Polar region, covering six million square miles (15.6 million square kilometers). Arctic temperatures range from an average winter temperature of -40° F (-40° C) to an average summer temperature just under 32° F (0° C).

The U.S. Arctic, as defined in statute<sup>1</sup>, encompasses U.S. territory north of the Arctic Circle and along the Alaskan coast, including the Aleutian Islands. Three Arctic seas - the Bering, the Chukchi, and the Beaufort - border Alaska and these seas have historically been frozen for more than half the year. The U.S. Arctic Exclusive Economic Zone contains 568,000 square nautical miles (SNM), of which less than half is considered by NOAA to be “navigationally significant”. NOAA has designated 38,000 SNM of the navigationally significant areas as survey priority locations in the Arctic and estimates that it could take up to 25 years to conduct modern hydrographic surveys in the priority locations, if resources remain at their current level.<sup>2</sup>

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<sup>1</sup> The Arctic Research and Policy Act of 1984, as amended (Public Law 98-373)

<sup>2</sup> NOAA National Ocean Service, <https://oceanservice.noaa.gov/economy/arctic/>, accessed May 21, 2018.

Currently, most cargo ship traffic is not trans-Arctic; rather it is regional, focusing on the transport of natural resources and general cargo to and from widely dispersed communities. While there has been a recent increase in shipping activity, that increase is more related to a rise in commodity prices than with the melting of Arctic ice.<sup>3</sup> While all areas of the Arctic are seeing increased vessel activity, the Northern Sea Route along the Eurasian Arctic coast continues to account for the bulk of Arctic shipping activity.<sup>4</sup>

Vessel traffic between the North Atlantic and the North Pacific through the Arctic requires transit through the Bering Strait, located along the U.S. boundary with Russia. Since 2008, the Coast Guard has been collecting data on vessel transits in the U.S. Arctic and uses the annual transit count as a general indicator of vessel activity in the Arctic.<sup>5</sup> In the past decade, the overall trend is towards increasing maritime activity, although traffic activity differs by vessel type (see Figure 3).

The International Code for Ships Operating in Polar Waters (Polar Code) adopted by the International Maritime Organization (IMO) in November 2014 went into effect on January 1, 2017.<sup>6</sup> The Polar Code requirements are intended to improve vessel safety and prevent pollution from vessels in the Arctic, and includes provisions on ship construction, ship equipment related to navigation, crew training, and ship operation. The Code applies to passenger and cargo ships of 500 gross tons or more engaged in international voyages.

International cooperation in the Arctic is largely facilitated through the Arctic Council, which was established in 1996 with the signing of the Ottawa Declaration. The Council is made up of the eight Arctic nations (Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the United States). Organizations representing Arctic indigenous peoples also have permanent participant status on the Council. As of May 2018, 13 non-Arctic Nations have observer status on the Arctic Council (France, Germany, Italian Republic, Japan, The Netherlands, People's Republic of China, Poland, Republic of India, Republic of Korea, Republic of Singapore, Spain, Switzerland, United Kingdom).<sup>7</sup> The Council is a consensus based, intergovernmental forum

**Arctic Boundary as defined by the Arctic Research and Policy Act (ARPA)**  
All United States and foreign territory north of the Arctic Circle and all United States territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering and Chukchi Seas, and the Aleutian chain.<sup>1</sup>



Figure 1. The Arctic as defined in U.S. statute.  
 Source: United States Arctic Research Commission



Figure 2. Arctic shipping routes. Source:  
 Modified from The Arctic Institute

<sup>3</sup> Ronald O'Rourke, Congressional Research Service. *Changes in the Arctic: Background and Issues for Congress*. April 24, 2018.

<sup>4</sup> Ibid

<sup>5</sup> U.S. Coast Guard. Port Access Route Study: In the Chukchi Sea, Bering Strait, and Bering Sea. Preliminary Findings. 23 December 2016. Docket Number USCG-2014-0941 and USCG-2010-0833.

<sup>6</sup> <http://www.imo.org/en/MediaCentre/HotTopics/polar/Pages/default.aspx>, accessed May 21, 2018.

<sup>7</sup> <http://www.arctic-council.org/index.php/en/about-us/arctic-council/observers>, accessed May 21, 2018

that works to promote environmental, social, and economic aspects of sustainable development in the Arctic.

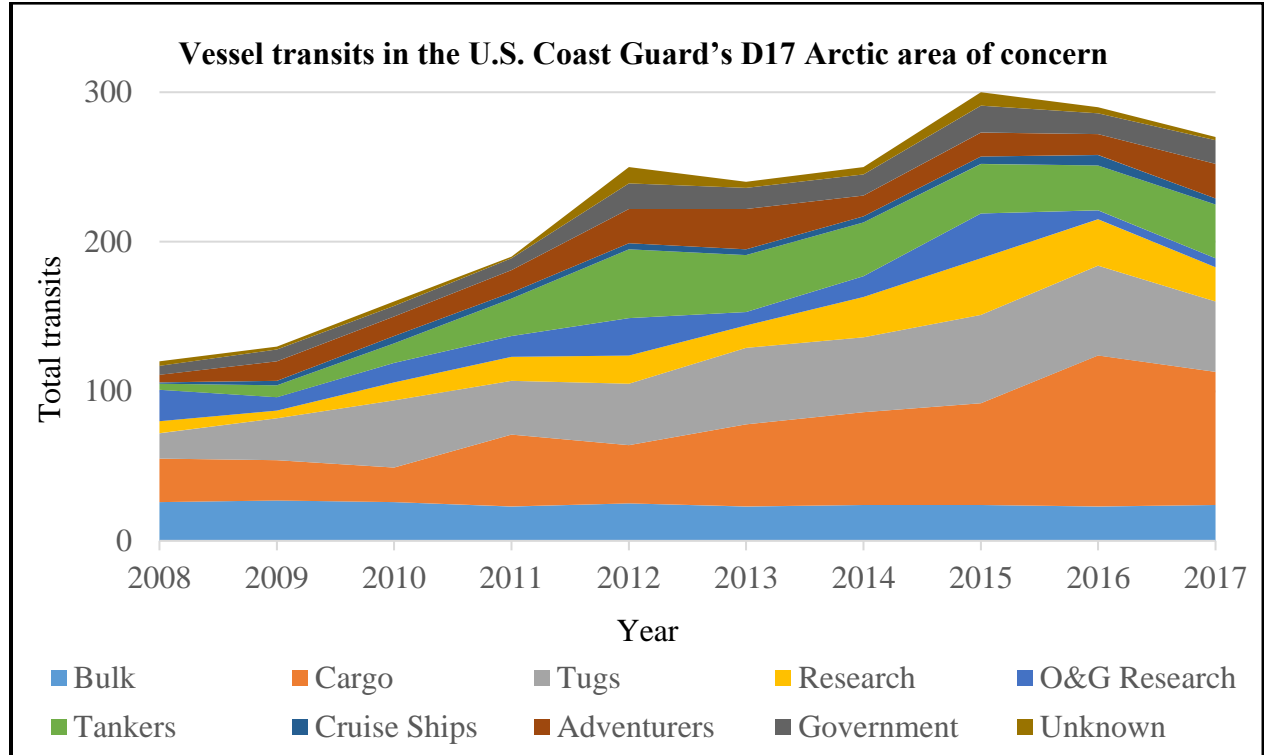


Figure 3. Vessel transits in the U.S. Coast Guard's D17 Arctic area of concern. The "D17 Arctic area of concern" is defined as an area north of the Bering Strait to the North Pole, east into the Canadian Arctic to Banks Island and west into Russia past the Russian port of Pevek. Source: Modified with data provided by the U.S. Coast Guard and from Figure 5 in the U.S. Coast Guard. Port Access Route Study: In the Chukchi Sea, Bering Strait, and Bering Sea. Preliminary Findings. 23 December 2016. Docket Number USCG-2014-0941 and USCG-2010-0833.

The Arctic Council maintains a web-portal, the Arctic Shipping Best Practice Information Forum, where participants share information relevant to operating in accordance with the newly established IMO Polar Code.<sup>8</sup> The Forum facilitates the exchange of information and best practices between participants on specific shipping topics, including hydrography, search and rescue logistics, industry guidelines, and ship systems.

While U.S. agencies have a physical presence and substantial interests in the Arctic, the Coast Guard has experience, material assets, and installations located throughout Alaska, establishing it as a key maritime operational presence in the U.S. Arctic. In Alaska, the Coast Guard maintains the Seventeenth District offices in Juneau and the Service's largest installation in Kodiak.<sup>9</sup> In addition to continuous operations from year-round facilities, the Coast Guard conducts seasonal operations, as part of its Operation Arctic Shield, in locations such as Kotzebue, Nome, and Utqiagvik (formerly Barrow).<sup>10</sup> With no assets permanently stationed above the Arctic Circle, the Service's seasonal presence includes employing mobile command and control platforms, such as large cutters and ocean-going ice-strengthened buoy tenders, and establishing seasonal air and communications capabilities by deploying and leasing assets and facilities. These mobile and seasonal assets and facilities have proven to be important enablers

<sup>8</sup> <https://pame.is/arcticshippingforum>, accessed May 21, 2018

<sup>9</sup> The 17th District encompasses over 3,853,500 sq. miles and over 47,300 miles of shoreline throughout Alaska and the Arctic.

<sup>10</sup> <https://www.pacificarea.uscg.mil/Our-Organization/District-17/Arctic-Shield/>, accessed May 21, 2018

for addressing front-line priorities in the region, including search and rescue operations, maritime border security, critical intelligence gathering, emergency response, and marine environmental protection and law enforcement.

Since 2012, the Coast Guard has implemented Arctic Shield operations, with the objectives to perform Coast Guard missions, enhance Arctic maritime domain awareness, broaden partnerships, and enhance and improve preparedness, prevention, and response capabilities. The Service deployed a number of assets as part of its Arctic Shield 2017 operations, including Coast Guard Cutter (CGC) HEALY, a medium icebreaker; CGC SHERMAN, a high endurance cutter; CGC ALEX HALEY, a medium endurance cutter; CGC MAPLE, a seagoing buoy tender; and two Coast Guard MH-60 Jayhawk helicopters from Air Station Kodiak, Alaska which were forward deployed to Kotzebue, Alaska. Arctic Shield 2017 included Operation Arctic Guardian, an oil spill exercise near Utqiagvik, Alaska, engagement with nine remote Alaskan villages, a historic transit of the Northwest Passage by CGC MAPLE and joint operations with the Royal Canadian Navy, as well as the completion of 28 search and rescue cases which resulted in 20 lives saved.

A decade-long effort to provide the United States with the capabilities necessary for assured access to the Arctic has recently found footing in Congress and the Nation's first new heavy icebreaker in more than 40 years is expected to be delivered by 2023. The Coast Guard and Navy have established a Joint Program Office to capitalize on experience and best practices from both Services, and Congress has appropriated over \$350 million to accelerate the design process for a new icebreaker. Additional funding is under consideration for Fiscal Year 2019 appropriations.

While much of the Nation's focus regarding the Arctic in recent years has been on the critical need for new icebreakers, new vessels are far from the only need in the region. A report conducted by the Homeland Security Operational Analysis Center identified four major gaps in Coast Guard Arctic Capabilities, including unreliable communications, lack of adequate maritime domain awareness, scarcity of available assets and supporting infrastructure, and institutional difficulty to identify, articulate, and close capability gaps.<sup>11</sup> The report states that if these capability gaps are not closed by the 2030s, the Coast Guard risks facing substantial vulnerabilities in several of its missions in the Arctic, including search and rescue, marine safety, ice operations, marine environmental protection, and ports, waterways, and coastal safety.<sup>12</sup>

Numerous governmental and academic reports have identified infrastructure and operational challenges to maritime transportation in the U.S. Arctic, including limited satellite coverage and architecture to support voice and data communications, the lack of a deep-draft port (accommodating ships with a draft of up to 35 feet), hazardous weather and ice conditions, and the lack of channel marking buoys and other floating visual aids to navigation, which are not possible due to continuously moving ice sheets.<sup>13</sup> In order to ensure safe and efficient maritime

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<sup>11</sup> Homeland Security Operational Analysis Center (2018) *Identifying Potential Gaps in the U.S. Coast Guard Arctic Capabilities*.

<sup>12</sup> Ronald O'Rourke, Congressional Research Service. *Changes in the Arctic: Background and Issues for Congress*. April 24, 2018.

<sup>13</sup> Arctic Council (2009) *Arctic Marine Shipping Assessment*; U.S. White House (2013) *National Strategy for the Arctic Region*; U.S. Government Accountability Office (2014) *Maritime Infrastructure: Key Issues Related to Commercial Activity in the U.S. Arctic over the Next Decade*; Alaska Arctic Policy Commission (2015) *Final Report*; U.S. Committee on the Marine

transportation in the region, it is necessary to conduct surveys to improve nautical charts, improve communications capabilities, improve weather forecasting and modeling, construct a deep-draft U.S. Arctic port, and develop community and regional emergency response networks in preparation for vessel and aircraft accidents and environmental damage related to increased ship traffic and industry.

In addition to known infrastructure requirements, the Coast Guard is exploring the need for the creation of new vessel routing measures to reduce the risk of marine casualties and increase the efficiency and predictability of vessel traffic in the U.S. Arctic.<sup>14</sup> The Coast Guard is also conducting several Arctic-focused research projects including methodologies to minimize environmental damage from spilled oil in extreme cold, enhanced navigational capabilities in the Arctic, establishing exposure limits for Search and Rescue team members in extreme cold, and developing a classification system of ice conditions.<sup>15</sup>

Other efforts to improve Arctic capabilities include the International Arctic Ocean Buoy Program, which maintains an international network of drifting buoys in the Arctic Ocean to provide meteorological and oceanographic data for real-time operational and research purposes. Additionally, legislation has been introduced in the 115<sup>th</sup> Congress to reauthorize funding for U.S. ocean observing systems, both for the Arctic and other U.S. regions.

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Transportation System (2016) *A Ten-Year Prioritization of Infrastructure Needs in the U.S. Arctic*; Council on Foreign Relations (2017) *Arctic Imperatives, Reinforcing U.S. Strategy on America's Fourth Coast*; Center for Strategic and International Studies (2017) *Maritime Futures, the Arctic and the Bering Strait Region*; Homeland Security Operational Analysis Center (2018) *Identifying Potential Gaps in the U.S. Coast Guard Arctic Capabilities*.

<sup>14</sup> U.S. Coast Guard. Port Access Route Study: In the Chukchi Sea, Bering Strait, and Bering Sea. Preliminary Findings. 23 December 2016. Docket Number USCG-2014-0941 and USCG-2010-0833.

<sup>15</sup> U.S. Coast Guard. Acquisition Directorate. Research, Development, Test & Evaluation. *FY18 RDT&E Project Portfolio*. March 2018. Examples: Next Generation Arctic Navigational Safety Information System (proj #6211), Arctic Operations Support (proj #6210), Robust Maritime Arctic Communications (proj #6213), Safety Parameters for ICE Operations (proj #5301), Response to Oil in Ice (proj #4701), Ice Condition Risk Assessment Tool (proj #6512), and Arctic Technology Evaluation 2018 (proj #62101).

**WITNESS LIST**

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