

Testimony by Mead Treadwell, Chair  
U.S. Arctic Research Commission  
“Is America Prepared For An Accessible Arctic?”  
Senate Commerce Committee Hearing  
“Climate Change Impacts on The Transportation Sector”  
Washington, DC – June 24, 2008

Good morning, Mr. Chairman, Mr. Co-Chairman, and members of the Committee. My name is Mead Treadwell. Since 2006, I have chaired the U.S. Arctic Research Commission (USARC).<sup>1</sup> As a senior fellow at the Institute of the North, based in Anchorage, Alaska, and in the private sector, I have worked for much of my career on the economics, feasibility, and sustainability of Arctic transportation in shipping, pipelines, railroads, tourism and aviation.<sup>2</sup>

On behalf of my fellow Commissioners, thank you for your invitation to be here today. The Arctic component to this hearing is essential. During this International Polar Year, the United States and other nations are laying down an Arctic Observing Network<sup>3</sup> to better understand, model and predict the vast changes coming to the northern part of the globe. The Arctic Council’s eight nations, with indigenous participants and the global shipping industry, are conducting the Arctic Marine Shipping Assessment, due to be published in 2009.<sup>4</sup> While science is finding the Arctic to be suddenly, and surprisingly accessible, our assessment is finding that regular Arctic Ocean shipping, tied to specific resource development projects, tourism, or serving the needs of Arctic communities is large now, and is growing.<sup>5</sup>

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<sup>1</sup> Under the Arctic Research and Policy Act of 1984, the seven Commissioners of the USARC are appointed by the President and report to the President and the Congress on goals and priorities for the U.S. Arctic Research Program. That program is coordinated by the Interagency Arctic Research Policy Committee, (IARPC) chaired by National Science Foundation Director Dr. Arden Bement, who is also an *ex-officio* member of the Commission. See [www.arctic.gov](http://www.arctic.gov) for Commission publications, including the Commission’s 2007 Goals Report.

<sup>2</sup> The Institute of the North, [www.institutenorth.org](http://www.institutenorth.org), founded by former Alaska Governor and U.S. Interior Secretary Walter J. Hickel, has programs that focus on economics and policy related to management of common resources, onshore and offshore. Our work in Arctic infrastructure (including energy, transportation and telecommunication) supports the work of the eight-nation Arctic Council and the circumpolar, regional governments of the Northern Forum. Our defense, security and geography studies stem from Alaska’s unique, strategic location.

<sup>3</sup> AON report is here: <http://www.nsf.gov/od/opp/arctic/iarpc/start.jsp>. Pending legislation to support the Integrated Ocean Observing System is needed to assure that studies of Arctic climate changes will be initialized and maintained. These are important to understand the processes that affect the ice cover and circulation of the Arctic Ocean and thus shipping.

<sup>4</sup> AMSA is led by the U.S., Canada, and Finland, and is Chaired by Dr. Lawson Brigham, Deputy Director of the U.S. Arctic Research Commission, a former U.S. Coast Guard icebreaker captain. For details on AMSA. See: <http://arcticportal.org/pame/amsa>

<sup>5</sup> See slides, attached, and the website for June 5, 2008 Arctic Transportation Conference sponsored by DOT/MARAD. See: <http://www.marad.dot.gov/Arctic%20Conference/Arctic%20index.html>

New Arctic capable ships are under construction in Southeast Asia and Europe. That trend brings with it the need for new policies – rulemaking, research, and investment – by governments of the Arctic region.

In the United States, it is necessary to recognize that the Alaska Purchase in 1867 made us an Arctic nation. Our ocean boundaries are more than the Atlantic and Pacific. In the 20<sup>th</sup> century, the advent of aircraft, missiles, and missile defense made the Arctic region a major venue for projection of power and a frontier for protecting the security of North America, Asia and Europe. Great circle air routes through the Arctic currently carry the bulk of travelers and air cargo between these continents. Today's Arctic infrastructure is global infrastructure. In the 21<sup>st</sup> century, Arctic seaways have the potential to serve as a major venue for shipping between these continents, as explorers envisioned as early as 500 years ago.

Much of the U.S. Arctic Research Commission's work is to encourage the U.S. government to do its homework – homework that is necessary in response to an accessible Arctic Ocean<sup>6</sup>. In today's testimony, I will focus on five points, and direct the Committee to sources of additional information.

First, climate is changing to create an accessible Arctic. Sea ice coverage is reducing in area and thickness faster than our climate models predicted.<sup>7</sup> This, combined with the advent of more efficient icebreaking technology, and global demand for Arctic resources, works to make Arctic shipping more economically feasible and attractive to investors.<sup>8</sup>

Second, Arctic residents, governments and industry are assessing both the opportunities and the challenges of an accessible Arctic.<sup>9</sup> Within these assessments is a fundamental question: Will trans-Arctic seaways be as important to global shipping as the Panama and Suez Canals? Or, will the Arctic Ocean continue more as venue for shipping in and out of the Arctic itself, for tourism, local needs, and for bringing natural resources to market?

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<sup>6</sup> See USARC's summary report on goals and objectives for Arctic research 2007 for the U.S. Arctic Research Plan, [www.arctic.gov](http://www.arctic.gov).

<sup>7</sup> See National Snow and Ice Data Center's website at: <http://nsidc.org/arcticseaincnews/>

<sup>8</sup> See slides, attached.

<sup>9</sup> See AMSA: <http://arcticportal.org/pame/amsa> and Arctic Shuttle Container Link Study conducted for the State of Alaska and the Port of Adak by the Institute of the North and Aker Arctic. See: <http://www.institutenorth.org/servlet/content/studies.html>. Also see the Sept. 2004 Arctic Marine Transport Workshop report here: <http://www.institutenorth.org/servlet/content/reports.html>.

Third, policies are being conceived, developed and implemented toward a goal of ensuring that shipping in the Arctic is, to quote my colleague at the Department of State, Assistant Secretary Dan Sullivan, “safe, secure and reliable.”<sup>10</sup> To me, those three words have large meaning. Safe refers to protecting human life, and mitigating any ill effects shipping will have on the environment, biodiversity, cultures and traditions of the Arctic. Likewise, navies and coast guards must expand their capacity to ensure security for those ships, particularly those carrying strategic commodities. Finally, the word reliable refers to issues raised by the shipping industry. The Arctic Ocean is a “patchwork quilt” of tolls and regulations by several coastal nations. Arctic shipping will grow when rules are certain and when products can be delivered competitively with other routes. This means on a time and cost basis, not just on shorter distances.

Mr. Chairman, a regime for safe, secure, and reliable shipping is something our nation can lead in developing, through existing mechanisms like the International Maritime Organization, the Arctic Council, and –when acceded to by the U.S. – via the Law of the Sea convention. The U.S. Arctic Research Commission continues to urge the Senate to accede to this convention.

The United States last revised its Arctic policy in 1994. While environmental protection was then made a principal objective, climate change and growth in Arctic shipping were not contemplated.<sup>11</sup> As the Executive Branch currently conducts a review of U.S. Arctic policy, the Commission has urged consideration of policies to ensure safe, secure, and reliable shipping.

Fourth, strong research programs are needed in the Arctic Ocean, and some of that research is on deadline. The U.S. Arctic Research Commission has developed a set of research goals related to shipping, and those goals will be included in the report due to Congress in 2009. Decisions to be made by governments on climate issues require understanding of what is happening in the Arctic Ocean, the Greenland icecap, in the changing heat, freshwater and greenhouse gas budgets of the earth.

Several “wild card” issues related to Arctic shipping have been identified through the AMSA process and will be included in the Commission’s goals for shipping research

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<sup>10</sup> See:  
[http://www.nytimes.com/2007/10/19/us/19arctic.html?\\_r=1&scp=1&sq=shipping%20Arctic%20sullivan&st=cse&oref=slogin](http://www.nytimes.com/2007/10/19/us/19arctic.html?_r=1&scp=1&sq=shipping%20Arctic%20sullivan&st=cse&oref=slogin)

<sup>11</sup> The current State Department summary on Arctic Policy lists the six principal objectives of Arctic Policy See:  
<http://www.state.gov/g/oes/ocns/arc/>

as part of the 2009 report. These include understanding the effects of air pollution and noise from ships on the Arctic ecosystem. As well, the tradeoff between warming effects of ship emissions in the Arctic and potential reduced emissions from shipping worldwide, due to shorter routes, is a goal of study. Also, the U.S. and Iceland are cooperating on development of hydrogen technologies. The prospect of hydrogen-powered ships, under development by Iceland, is of interest to the entire Arctic community.

The Interagency Arctic Research Policy Committee, acting on the USARC's recommendation, has commissioned an interagency research plan on Arctic infrastructure, in light of climate change. This will cover many climate impacts on transportation in the Arctic, including roads, maritime transport, and the need for improved oil spill research in ice-covered waters.<sup>12</sup>

Nations are mustering bathymetric and seismic expeditions to delineate the extended continental shelf of the Arctic region, for new territorial claims allowed under the United Nations Convention on the Law of the Sea (UNCLOS). And as those claims by some nations could make parts of the Arctic Ocean legally less accessible to research, the science community is pressing to ensure greater access with the diplomatic community.<sup>13</sup>

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<sup>12</sup> Under the leadership of the U.S. Army Corps of Engineers' Cold Region Research and Engineering Laboratory, in Hanover, N.H., the plan will cover research and development goals for civil works and housing (including permafrost and shoreline erosion), oil spills, energy use, and marine transportation.

<sup>13</sup> The USARC has been informed by the Department of State that applications from the U.S. to Russia for approval to conduct marine scientific research in Russia's Exclusive Economic Zone was denied 11 of the 13 times requested between 1996 and 2006, and 6 of the 14 times between 1992 and 1995 (Personal communication to the Chair and Executive Director of the USARC, April 7, 2008).

See also this appeal was submitted by the USARC, and others, to the U.S. Department of State.

**Appeal to the U.S. Department of State  
In anticipation of the meeting of ministers from the five Arctic coastal nations  
In Ilulisat, Greenland, on May 28, 2008**

As you, representing the United States, meet with representatives from other Arctic coastal states, to discuss the future of the Arctic Ocean, we, representing the U.S. science community working in this region, make this appeal: please take all necessary effort to enable research to thrive by ensuring free and open scientific access to the Arctic. The open nature of the Antarctic Treaty, and the free support of and exchanges in science, have been the hallmark of international cooperation on that continent for 50 years. The Arctic also would benefit from such openness.

We especially urge the coastal Arctic states to remove obstacles to ship access for research in the Arctic Ocean. In recent years, important scientific expeditions have been cancelled through parts of the Arctic due to the expense and complications of national rules for foreign ships wishing to enter the Exclusive Economic Zone of certain Arctic nations. Further, some ships – whose voyages were solely dedicated to research – have been categorically denied access. We are concerned that Arctic nations' expanded jurisdiction of the ocean floor, that will come about through Law of the Sea claims, threatens to further limit the full range of customary research activities that need to be conducted by scientists in the Arctic. Although it may be useful to ensure rights of inspection for such vessels, there are many benefits to be derived from open access for scientific purposes.

Fifth and finally, an accessible Arctic means a need for investment. Your Committee, Mr. Chairman, has recognized that, and reported legislation calling for construction of two new Polar class icebreakers for the Coast Guard and the nation, while maintaining the existing fleet in working condition.<sup>14</sup> The U.S. Arctic Research Commission has urged the President and Congress to move expeditiously in building and maintaining those ships. Certainly, they will be used as they are now –as research platforms and as the visible U.S. maritime presence in both polar regions. But the advent of Arctic transportation means the other, more traditional missions of the Coast Guard will take center stage. These ships are needed to provide the same protections the U.S. Coast Guard affords the rest of the nation: search and rescue, law enforcement, border protection, environmental protection and oil spill response<sup>15</sup>.

Aid to commerce is an important mission of our Great Lakes icebreakers. Under a regime worked out with Canada, the St. Lawrence Seaway/Great Lakes system has become an important part of the global transportation network. The Executive Order signed by President Franklin Roosevelt, committing icebreakers to support U.S. maritime commerce could apply to the U.S. Arctic as well<sup>16</sup>.

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Second, please address the well-documented need for sharing of data that has been, or will be, collected in the Arctic Ocean region. We appeal to nations to continue to make available previously collected data, and to commit to further sharing of new data collected within jurisdictional borders.

Knowledge gained from Arctic research is important to the entire world. Policy decisions on climate change, energy, environment, human health, security, commerce, and other subjects will be made by many nations based on this knowledge. Scientific research should be based on sound conclusions drawn from valid data, unfettered by national borders.

Thank you for your attention to these issues. We wish you a productive meeting.

**Signed by the following four organizations:**

- **Arctic Research Consortium** of the U.S. ([www.arcus.org](http://www.arcus.org)), representing over 5,000 scientists worldwide from 51 member institutions
- **Consortium for Ocean Leadership** ([www.oceanleadership.org](http://www.oceanleadership.org)) representing over 10,000 scientists from 95 member institutions in the U.S. and Canada
- **Marine Mammal Commission** ([www.mmc.gov](http://www.mmc.gov))
- **U.S. Arctic Research Commission** ([www.arctic.gov](http://www.arctic.gov))

<sup>14</sup> See USCG authorization bill reported in the Senate: <http://thomas.loc.gov/cgi-bin/query/D?c110:2::temp/~c110UjJvKU::>

<sup>15</sup> See attached letter March 18, 2008 from Alaska Governor Sarah Palin to President Bush. See also the attached memorandum for the Joint Chiefs of Staff that was received by the USARC on June 8, 2008. Both documents refer to national needs for new icebreaker capacity. The 2006 National Research Council's study "Polar Icebreakers in a Changing World: An Assessment of U.S. Needs" can be accessed here: [http://www.nap.edu/catalog.php?record\\_id=11753](http://www.nap.edu/catalog.php?record_id=11753)

<sup>16</sup> See: <http://www.conservativeusa.org/eo/1936/eo7521.htm> EX. ORD. NO. 7521. USE OF VESSELS FOR ICE-BREAKING OPERATIONS IN CHANNELS AND HARBORS. Ex. Ord. No. 7521, Dec. 21, 1936, 1 F.R. 2527, provided: 1. The Coast Guard, operating under the direction of the Secretary of the Treasury, is hereby directed to assist in keeping open to navigation by means of ice-breaking operations, in so far as practicable and as the exigencies may require, channels and harbors in accordance

Polar class icebreakers also support the essential mission of national presence in the Arctic and the Antarctic, both in maintaining our position and in supporting freedom of navigation. Indeed, an accessible Arctic Ocean also means new or expanded routes for the U.S. military sealift to move assets from one part of the world to another. Coast Guard polar icebreakers are an essential component to guarantee that this U.S. polar maritime mobility exists.

Shipping and research activities in the Arctic depend today on a strong system to predict ice conditions, provided by satellites above, and analysis by our Navy/NOAA/Coast Guard National Ice Center, near here in Suitland, Maryland. Current activity in the Arctic depends on good meteorology, developed in cooperation with our neighbors. Appropriate spill response and search and rescue require additional investment. My predecessor, George Newton, as Chair of the USARC has spoken of the necessity for an “Arctic 911” capability, and led the effort to encourage the National Geospatial Intelligence Agency (NGA) to add the Arctic region to the oceans of the world supported by notices to mariners. The question of where we need new port facilities, as safe harbors and transshipping points, is yet to be fully addressed.

Mr. Chairman, to conclude, we understand it is this nation’s goal –expressed with other nations – to reverse the trend of climate change caused by humans. In the Arctic, research to support adaptation to and mitigation of climate change is high on our agenda. But as more forces than climate are working to produce an accessible Arctic, it is essential that our nation act now. Research, policies and coordinated investment in infrastructure will ensure safe, secure, and reliable Arctic shipping. Under the principle of freedom of navigation, global shipping can come to our doorstep whether we invite it or not. Whether you envision the Arctic Ocean as a new seaway, for trans-Arctic shipping, competitive with the Panama and Suez Canals, or only foresee an expansion of the current shipping in and out of the Arctic, the time to prepare is now.

Thank you very much.

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with the reasonable demands of commerce; and to use for that purpose such vessels subject to its control and jurisdiction or which may be made available to it under paragraph 2 hereof as are necessary and are reasonably suitable for such operations. 2. The Secretary of War (Army), the Secretary of the Navy, and the Secretary of Commerce are hereby directed to cooperate with the Coast Guard in such ice-breaking operations, and to furnish the Coast Guard, upon the request of the Commandant thereof, for this service such vessels under their jurisdiction and control as in the opinion of the Commandant, with the concurrence of the head of the Department concerned, are available and are, or may readily be made, suitable for this service.