

**Testimony by Mead Treadwell, Chair
U.S. Arctic Research Commission
Before the Senate Committee on Appropriations,
Homeland Security Subcommittee
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**U.S. strategic interests in the age of an accessible Arctic
... what we need to know and do now**

Senator Murkowski, thank you, Chairman Inouye and Chairman Byrd for the opportunity to testify today on the strategic importance of the Arctic and U.S. Policy.

As a member of the U.S. Arctic Research Commission¹ since 2001 and chair since 2006, I can report that our Commission shares with you the understanding that the Arctic is a vital, strategically important region of the United States – and is getting more so.

In 1867, after a bloody Civil War, the United States struggled with whether we should become an Arctic nation. Detractors of the Alaska Purchase called it “Seward’s Folly.” Russian America, which had supplied the world great quantities of whale oil and fur, was decried also as “an icebox,” a “sucked orange” with the bulk of its resources already exploited, or, my favorite, “Walrussia.” In 1959, Congress again struggled with Alaska: in the Statehood debate, a major issue was whether Alaska could support itself, and contribute to the nation.

Today, those who think about America’s strategic interests know better. General Billy Mitchell, considered the father of the U.S. Air Force, predicted the strategic value of Alaska as the world entered the air age. An attack and occupation in the Aleutian Islands by Japan in World War II, which quieted ship and troop transport via the North Pacific’s “great circle” route, further indicated the strategic value of Alaska’s location. Since oil began flowing through the Alaska pipeline in 1977, America’s Arctic has been a major producer of energy – helping the nation buy less from foreign sources and increasing our national security thereby. A recent USGS estimate that 13% of the world’s undiscovered oil and 30% of the world’s undiscovered natural gas is to be found inside the Arctic Circle – not to speak of the vast tidal, wind, methane hydrates and unconventional fossil fuels, coal, geothermal, hydro energy resources also to be found – strengthens the case that the United States has strategic interests here.

¹ Mead Treadwell is chair of the U.S. Arctic Research Commission, www.arctic.gov. The Commission, established by the Arctic Research and Policy Act of 1984, has seven members appointed by the President to set goals for the U.S. Arctic Research Program. The director of the National Science Foundation serves as an *ex-officio* member of the Commission and chair of the Interagency Arctic Research Policy Committee (IARPC), which takes the Commission’s established goals and coordinates approximately \$400 million in annual Arctic research activities conducted by over a dozen federal agencies with Universities and international partners. Treadwell is Senior Fellow of the Institute of the North, founded by former Alaska Governor Walter J. Hickel. The Institute conducts research on Arctic policy, energy and fishing, infrastructure, defense and security issues. Treadwell is CEO of Venture Ad Astra, LLC, a private investment development firm. With Tim Wiepking, he co-chaired the Commonwealth North study group which published, May, 2009, **Why the Arctic Matters: America’s Responsibilities as an Arctic Nation.** <http://www.commonwealthnorth.org/index.cfm?fa=docjump&documentid=370>

Clearly, our Arctic is no “sucked orange.” It is well understood that the Arctic helps feed, fuel, and defend America. Arctic fisheries, in the Bering Sea near here, or the North and Barents Sea near Iceland and Norway, lead the world in production. Global air transport criss-crosses the Arctic to link the continents, and after 500 years of exploration and imagination about Northern Sea Routes, sea transport may, soon, as well. Arctic military assets –the DEW Line, our submarines, our sensors in the air and at sea, our soldiers, sailors and airmen– stood guard during the Cold War. The missile defense installation activated recently at Ft. Greely does the same – sited on northern latitude “high ground” that puts it in position to deflect inbound ballistic missiles aimed at North America from the Middle East or the Western Pacific.

In 1994, the United States issued, in secret, the first Arctic Policy written with public input. According to a press release at the time, that policy emphasized the opportunity for international cooperation to protect the environment, and led the U.S. to join the eight-nation Arctic Council. In 2007, our Commission recommended to the President that he conduct a new Arctic policy review – given the great changes we’ve witnessed in the North. The new Arctic Policy document approved earlier this year was the first public National Security Presidential Directive/Homeland Security Presidential Directive ever issued for this region, and it details, in response to change, a broad range of U.S. objectives in the North.² The Commission thanks you, Senator Murkowski, for the extra effort we know you made with the President to get that policy signed last winter and released into the light of day. We participated in the interagency deliberation that developed this policy, and we are working now with fellow agencies in the U.S. government – from the Department of State, the Coast Guard in Homeland Security, the Department of Interior, NSF and NOAA, among them – to see it implemented.

Madame Chair, there are a number of goals and objectives in the policy, but as I think of the task of implementation ahead of us for the nation, it comes down to three things, “i-words,” if you will: **investigation, investment, and international cooperation**. Let me address each of these in turn:

Investigation: Change in the Arctic requires a robust program of research. Scientific research is necessary to understand climate change, and to guide the global response in both “mitigation” and “adaptation.” A global climate mitigation program without polar (Arctic and Antarctic) research to back it up would be a ship without a chart – or a rudder.

Research is necessary to understand the resource potential of the Arctic, and what may be at risk from fishing or oil spills, as shipping and industrial activity moves into the Arctic Ocean.

² The text of NSPD-66 / HSPD-25, issued January 9, 2009, can be found at <http://www.arctic.gov/news/2009%20Arctic%20Region%20Policy.pdf>

It states that the **policy of the United States** is to:

1. Meet national security and homeland security needs relevant to the Arctic region;
2. Protect the Arctic environment and conserve its biological resources;
3. Ensure that natural resource management and economic development in the region are environmentally sustainable;
4. Strengthen institutions for cooperation among the eight Arctic nations (the United States, Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, and Sweden);
5. Involve the Arctic's indigenous communities in decisions that affect them; and
6. Enhance scientific monitoring and research into local, regional, and global environmental issues.

Research is necessary to help Arctic people, especially our indigenous peoples, respond to change. While satellite pictures can show you the rapid retreat of sea ice, what you can't see –but should be just as concerned about – is the rapid loss of indigenous languages, spoken for thousands of years in the Arctic. With that loss, a tremendous loss of knowledge, culture and identity goes with it.

And while we're on the subject of people, it is the Commission's strong recommendation that our national health research program dig deep, much deeper than before, into the causes of the suicide epidemic that takes so many native youth – not just in Alaska, where the rate is four times that of the national average, but across the North.³

Investment: An accessible Arctic Ocean requires our presence. As I've heard my colleague, Coast Guard Commandant Admiral Allen, say about the Arctic many times, "where there was once ice there is now water."

We pay particular attention to the use of Coast Guard icebreakers, ice-strengthened research vessels, and sensor networks (buoys, satellites, and other elements of monitoring networks in or under the sea, on the land, in the air and in space) in Arctic research. But as was shown in the Arctic Marine Shipping Assessment, completed by the eight Arctic nations this spring, the Arctic Ocean will need aids to navigation, hydrographic mapping, search and rescue, ports of refuge, and salvage capability as this ocean becomes accessible to the world. We appreciate the fact that Congressman Young has introduced an Arctic Marine Shipping Assessment Implementation Act to address this investment need, and that you and Senator Begich have introduced companion bills.

Infrastructure investment onshore, to help our communities respond to rapidly eroding shorelines, is also necessary. As areas that were protected by ice are increasingly swamped by water, this committee and its sister appropriators have a choice to make – invest now, or send FEMA later. Our belief is you want to invest now, and we have urged an appropriate research program to guide that effort. Senator Begich, in his collection of Arctic bills introduced recently, addresses this in S. 1566, the Arctic Climate Adaptation Act.

In other words, to meet our responsibilities in the changing Arctic, we need to have the means and willingness to invest both capital and operating sums.

International cooperation: The policy of the United States also speaks directly to the need for international cooperation to accomplish many, if not all, of our goals in the newly accessible Arctic.

The basis of cooperation in the Arctic is not just the eight-nation Arctic Council, but the global United Nations Convention on the Law of the Sea. For several years now, our Commission has recommended that treaty be ratified by the Senate. Doing so will help extend the territory of the United States in areas where the continental shelf goes

³ The U.S. Arctic Research Commission has established five thematic **goals for the nation's Arctic research** program: Environmental Change of the Arctic Ocean and Bering Sea, Arctic Human Health, Civil Infrastructure Research, Natural Resource Assessment and Earth Science, Indigenous Language, Identity, and Culture. See http://www.arctic.gov/reports_goals.html Those goals are carried out by an interagency process, headed by the **Interagency Arctic Research Policy Committee (IARPC)**, <http://www.nsf.gov/od/opp/arctic/iarpc/start.jsp>

outside our 200-mile limit. Our nation is doing the work to make a claim, but we cannot sit at the table, make our claim or comment on those being made by four other Arctic nations in this ocean, until we ratify the treaty.

We need to work with our Arctic neighbors, as well as other national partners, on other objectives as well. We should resolve our boundary with Canada in the Beaufort Sea region. We should work with all nations bordering the Arctic Ocean to get the same rights to research throughout the Arctic Ocean that legitimate researchers have in Antarctica. In the past several years, Russia has denied U.S. and other nations research vessels access inside their exclusive economic zone many times.

When it comes to shipping, the policy contemplates cooperative efforts in establishing vessel traffic rules for areas like the Bering Strait, and common efforts to provide search and rescue in the Arctic Ocean.⁴

When it comes to fishing, the United States' plans for a moratorium on fishing in the high North could be much for naught unless we reach cooperation with Canada and Russia, and those nations who would fish the high seas.⁵

When it comes to oil and gas development, in our nation or others, a common approach to high standards is advisable, through the Arctic Council or other means. Last fall, the United States and Canada held a conference here in Anchorage, supported in part by the Commission, to compare ways we can improve Arctic oil and gas development.

Finally, to meet our nation's research objectives, we need not only access throughout the Arctic, but cooperation in establishing trans-boundary Arctic monitoring networks. There is much work to be done in this Arctic neighborhood.

Madame Chairman, as this is the Homeland Security Subcommittee of the U.S. Senate's Appropriations Committee, let me conclude with a set of recommendations from the Commission's standing objectives that this Committee may wish to address.

1. Homeland security infrastructure: The Commission is on record in support of building two new Polar Class icebreakers to replace the *Polar Star* and *Polar Sea*, which are operating past the end of their service life. The policy of the United States is not yet as specific, but the need for an all-weather, all conditions maritime capability is clear. Ice is receding, but it can ridge up into conditions no other kind of icebreaker can handle. Our icebreakers are used for a variety of missions – from having a national presence in the Arctic Ocean (as well as in the Antarctic), being able to provide law enforcement, border protection, fisheries enforcement, environmental and other emergency response, and search and rescue. As well, these vessels are our primary platform for Arctic Ocean research. During time of war, these ships perform the functions of a naval

⁴ The Commission provided staffing for leadership of the Arctic Council's **Arctic Marine Shipping Assessment (AMSA)**, which established an eight-nation agenda for cooperation in Arctic shipping, much of it to be accomplished before the United Nations International Maritime Organization (IMO). See http://www.arctic.gov/publications/AMSA_2009_Report_2nd_print.pdf

⁵ Toward this end, the U.S. Arctic Research Commission is among the sponsors of "**Managing Resources for a Changing Arctic**," an International Arctic Fisheries Symposium 19-21 October 2009 in Anchorage, Alaska, designed to initiate international discussions for conserving and managing future fisheries in the Arctic Ocean, including managing migratory, trans-boundary and straddling fish stocks. <http://www.nprb.org/iafs2009/>

vessel. If we are serious about maintaining safety, security, and the natural environment of the Arctic Ocean, we must have those icebreakers. If we are serious about being sure that our own rules and those of the Law of the Sea will stick, we must have these icebreakers. We can only get them if the Congress and the President make the funding commitment.

Investments in shipping infrastructure are contemplated by the Arctic Marine Shipping Assessment Implementation Act, legislation I mentioned above that is proposed by all three members of Alaska's Congressional delegation. Those investments include aids to navigation, hydrographic mapping, spill response capability, automatic identification system receivers (AIS) to tell us when vessels are approaching, and other safety and security needs. AMSA showed us this is a new ocean for shipping, but one increasingly used today and one that could be heavily used soon.

2. Monitoring Networks, Imagery, and Mapping, including the Sustaining Arctic Observing Network (SAON), which relies on sea, air, land and space sensing, terrestrial and space telecommunications infrastructure. Homeland security operations in the North, as well as scientific research, depend on a common infrastructure that includes appropriate means to understand weather and climatic conditions, such as sea ice, and to communicate that information anywhere on earth. We need space and air based imagery to detect change, both on near term for emergency response, and a long-term to support research and resource management. Finer mapping of Alaska and the Arctic region will assist intelligence and defense objectives, as well as emergency response to storms and wildfires. This Committee should be aware of the important work done by the National Ice Center, a joint operation of NOAA, the U.S. Navy, and the U.S. Coast Guard, which serves mariners information about ice conditions anywhere in the world. In 2006, the Commission sponsored a workshop with telecommunications providers and researchers to understand what capabilities exist to provide data, voice and video links to and from the highest latitudes within our jurisdiction. The Iridium network, for high latitudes especially, is an important asset for operations in the Arctic – whether they are research, security, tourism, fishing, or oil and gas development offshore. The United States serves as an “anchor tenant” for that network, and it is important to understand its strategic value as next generation satellites are designed and launched.

To underscore the importance of the NSF-led program on Arctic Observing Networks, please note this: the United States intends to embark this December, with other nations, on a global mitigation scheme for climate change by reducing greenhouse gas emissions. Two of the largest “wild cards” critical to the success of that mitigation scheme involve “feedbacks” from the amplified air and water temperature of the Arctic region. Temperature rise can produce a massive injection of methane from Arctic sources, a greenhouse gas at least 23 times as potent as carbon dioxide. With receding ice comes reduced albedo of the earth, where much more solar radiation is absorbed by darker seawater instead of being reflected into space by whiter sea ice. An appropriate monitoring system is a strategic asset for the world in the objective of dealing with climate change. We need it to track how well mitigation programs are working. It will give us fair warning on other concerns as well, from shoreline

erosion, change of ocean currents, ocean acidification that could damage or destroy certain fisheries.

From the Commission's standpoint, Arctic Observing Networks are the most important legacy of the International Polar Year, and we are working through the process established in the Arctic Research and Policy Act to make sure the Senate Appropriations Committee has the specific information it needs to see a working network established. Agencies of the Department of Homeland Security, including the Coast Guard, FEMA, the National Ice Center, all will depend on this information to fulfill their missions.

3. Oil Spill Research Program: Perhaps the most important near-term action this subcommittee can take as a result of this hearing is to join with us to help kick-start a renewed Arctic oil spill research program. Madame Chairman, I had the opportunity after the Exxon Valdez disaster to work with the Congress as it crafted the Oil Pollution Act of 1990. That law provided for a robust oil spill research program, to be coordinated by the Interagency Oil Pollution Research Coordinating Committee. (IOPRCC) It also provided authorization for funding the program through the Oil Spill Liability Trust Fund, which collects a nickel per barrel from all oil produced or imported into the country. As a matter of oversight, the Congress should know that today that this program is not working. Helping it work, both nationally and within the Arctic, is within your committee's jurisdiction.

The United States has collected billions of dollars from the sale of leases for oil and gas exploration in the Beaufort and Chukchi Seas. The risk of spills in ice we might need to deal with come not just from those prospects, but from ships and fishing vessels coming through the Bering Sea and Arctic Ocean, oil drilling in other areas, including Russia and Canada.

Much of the nation's oil spill research relevant to this region is conducted through a Joint Industry Program in Norway. A recent test there, costing over \$10 million, showed promising results for a number of technologies including burning, skimming, dispersants, coagulants, and bioremediation. Recently Dr. John Farrell, the Commission's Executive Director and I visited with the SINTEF scientists in Trondheim who lead this program, and there is more work to be done.

Likewise, the Commission recently asked former Commissioner Dr. Walter Parker to attend Canada's Arctic Marine Oil Program (AMOP) conference, and he reported to us that current research is in sore need of significant support.

Twice in the past decade, the Commission has co-sponsored meetings of experts on Arctic spills to help develop a research agenda. While we give high credit to the work our workshop partners are doing at the Prince William Sound Oil Spill Recovery Institute in Cordova, Alaska, and the NOAA Coastal Response Research Center at the University of New Hampshire, we are concerned that no

Arctic spill research program, broad scale and integrated across federal agencies, can be said to exist.⁶

We don't believe that a robust research program can answer every concern we've heard voiced about OCS development and shipping by residents of the North Slope Borough, Madama Chair, but we are confident that the nation can do a better job planning, and involving the public, in an Arctic oil spill research program. I'm also confident that the nation has the means, with the Oil Spill Liability Trust Fund, to fund a program that Congress has asked to be developed but hasn't been.

Before making this statement to you, I had conversations with the leaders of NOAA and the Coast Guard, with the Governor of Alaska and his Commissioner of Environmental Conservation, with the Mayor of the North Slope Borough and leaders at the Department of the Interior, which has issued OCS leases. We have heard from the oil industry that has bought the leases and they, too, while confident they can respond appropriately now to an accident, want to see a research program in place. The law calls for it, so let's do it. We have to come together.

If the Interagency Oil Pollution Research Coordinating Committee, chaired by the Coast Guard, calls a meeting to start this process, we will help. We will do what we can to have the appropriate agency players, industry players, community leaders, and spill research specialists, including the Prince William Sound Oil Spill Recovery Institute, involved. We will take a proposal for funding, as a result of the Committee's work, to the President's science advisor and the Office of Management and Budget. We will encourage their plan to be adopted by the Interagency Arctic Research Policy Committee. We will work to help build ties between U.S. research efforts, the State of Alaska, and those of other nations. We will let you know, as the law requires, if the process is working, and we will let you know if it falls down.

Billions of dollars are at stake in the offshore Arctic with decisions pending on oil and gas exploration. Our nation's energy security is at stake, and the Alaska pipeline is running at only one quarter of its capacity. Statistics show that spills are a greater risk from shipping and fishing vessels, and those vessels are moving north. Whatever we do as a nation, the ships and oil and gas exploration activities of other nations may have an effect on our Arctic shores. The time to start an effective, enduring Arctic oil spill research program is now.

4. Homeland Security Research: The Committee should be aware that the Department of Homeland Security supports a University Center of Excellence called CIMES (Center for Island, Maritime, and Extreme Environment Security), a partnership between the University of Hawaii, the University of Puerto Rico

⁶ See the Commission's 2004 Workshop Report written with the Prince William Sound Oil Spill Recovery Institute (OSRI), **Advancing Oil Spill Response in Ice Covered Waters**, http://www.arctic.gov/publications/oil_in_ice.pdf Also, see the NOAA/University of New Hampshire Coastal Response Research Center's 2008 Workshop Report, **Opening the Arctic Seas: Envisioning Disasters and Framing Solutions**, issued January, 2009: http://www.crrc.unh.edu/workshops/arctic_spill_summit/arctic_summit_report_final.pdf

Mayaguez and the University of Alaska, Fairbanks.⁷ This group is looking into unique issues related to our Arctic infrastructure, and has projects to improve the use of space imaging and coastal radar for ship detection in Arctic waters. We see other areas of the Department's responsibility that could benefit from greater integration with the U.S. Arctic Research program. For example, as the Department looks at threats to critical infrastructure from an Electro-Magnetic Pulse Attack or a solar flare (the Compton effect or the Carrington effect) it should pay attention to the fact that close to 200 Alaska rural communities may have, as a result of these incidents, no power or telecommunication or air support whatsoever. As you look at the Department's plans in this area, we urge a consideration of Arctic need. Likewise, as the Department plays a major role in U.S. planning for a response to disease epidemics, such as bird flu, it can benefit from the understanding of migratory bird pathways conducted in the Arctic.

5. Extended Continental Shelf claim research: The Commission is a member of the interagency group guiding the nation's work toward a claim for extended continental shelf under the Law of the Sea. Off Alaska alone, our claim could be greater than the size of California. We appreciate the work being done by the U.S. Coast Guard and urge full funding of this program, through several agencies.
6. Energy Research: While energy research is not specifically the purview of this subcommittee, I wanted to take the opportunity, Senator Murkowski, to thank you for your help in having the National Renewable Energy Laboratory place a staffer in Alaska. The Commission urged the Department of Energy to do so, as you did. We are concerned that the Arctic Energy Office, funded through the Department of Energy's Office of Fossil Fuels, is limited in the scope of work it can pursue. Alaska's energy needs require research and experimentation in a wide-range of alternatives, based on places. Diversification of our energy supply, away from diesel, will help reduce the risk of spills. New energy sources promises to make life in some Arctic communities more economically sustainable. The U.S. Coast Guard oversees environmental issues at a large number of bulk fuel tanks throughout rural Alaska, and alternative energy options can help reduce the Coast Guard's expense, as well as that borne by the Denali Commission and the State of Alaska, in this area. We understand the Senate Energy Committee has a hearing on these issues at Chena Hot Springs later this week, and we wanted to draw the connection with Homeland Security.

Let me conclude my testimony by passing on a comment raised by Commissioner Vera Metcalf, a resident of Nome. In her capacity as a Commissioner and as director of the Arctic Eskimo Walrus Commission, Vera has worked to help the Coast Guard – moving operations North – to have closer communication with Arctic residents and Arctic communities.

⁷ USARC Commissioner Buck Sharpton of the University of Alaska, Fairbanks is CIMES co-chair. A description of CIMES programs may be found at <http://cimes.hawaii.edu>. This author, in his capacity as a Senior Fellow at the Institute of the North, www.institutenorth.org, has written extensively on the need for national and local planning for Electromagnetic Pulse Attack and high-energy solar flares. The Congressionally created Commission to Assess the Threat to the United States from Electromagnetic Pulse Attack, www.empcommission.org, has made specific recommendations to the Department of Homeland Security on this subject.

“If there were a way for coastal communities to become more aware of important issues such as these (town-hall meetings?), it’d be helpful for us,” Vera wrote. “The Bering Strait is becoming more of a portal for all ship traffic, e.g., USCG and others in the region. I’m sure there is some form of high level agreement with Russia for Search and Rescue, fishing regulation, oil spills, but the Strait is a prime strategic area.”

Madame Chair, Commissioner Metcalf is right. The Bering Strait, sometimes now called the Bering Gate, is “a prime strategic area,” and the entire Arctic region is as well. Work to make sure that activity in this part of the world’s oceans is “safe, secure, and reliable” has just begun. We look forward to this subcommittee’s understanding and support in the years to come.

Thank you.