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

John L. Mica
Chairman

James W. Coon II, Chief of Staff

Nick J. Rahall, II
Ranking Member

James H. Zoia, Democrat Chief of Staff

November 22, 2011

# MEMORANDUM

TO: Members, Subcommittee on Coast Guard and Maritime Transportation

FROM: Staff, Subcommittee on Coast Guard and Maritime Transportation

RE: Hearing on "Protecting U.S. Sovereignty: Coast Guard Operations in the Arctic".

## PURPOSE

On Thursday, December 1, 2011, at 11:00 a.m. in 2167 Rayburn House Office Building, the Subcommittee on Coast Guard and Maritime Transportation will hold a hearing to examine the Coast Guard's ability to execute its statutory missions in the Arctic.

## BACKGROUND

### The Arctic: Geographic & Political Scope

The Arctic is generally defined as those lands and waters north of the Arctic Circle (66° 33′ 44″ North latitude). U.S. territory in the Arctic includes the northernmost third of Alaska, the Chukchi Sea, which separates that part of Alaska from Russia, as well as U.S. territorial and Exclusive Economic Zone (EEZ) waters in the Beaufort Sea and the Arctic Ocean. In addition to the U.S., seven other countries have territory north of the Arctic Circle: Canada, Russia, Norway, Denmark (by virtue of Greenland), Finland, Sweden, and Iceland. Together these countries are often referred to as the Arctic countries, and they are the member states of the Arctic Council, an intergovernmental forum established in 1996 to coordinate activities in the area and address issues faced by the region's indigenous communities. The Arctic Research and Policy Act of 1984 (ARPA) (15 U.S.C. 4101 et. al) provides another definition of U.S. territory in the Arctic.

ARPA defines the Arctic as all water north the Aleutian Chain and all territory north of the Yukon, Porcupine, and Kuskokwim Rivers in Alaska.

Climate conditions in the Arctic have changed over the last few decades. The percentage of the Arctic Circle covered in ice during the summer months continues to shrink. As a result, waters previously blocked by ice have become navigable in the summer. This opens opportunities for ships to transit between the Atlantic and Pacific Oceans through the Northwest Passage and the Northern Sea Route. It may also ease the difficulties faced in extracting potential oil and gas resources, as well as expand fishing and tourism activities.

## Arctic Policy

In 2009, President Bush signed a Presidential Directive on Arctic Region Policy (NSPD – 66/HSPD 25). The directive established U.S. policy with regard to the Arctic. It declared that it is the policy of the U.S. 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;
5. Involve the Arctic's indigenous communities in decisions that affect them;
6. Enhance scientific monitoring and research into local, regional, and global environmental issues.

Additionally, NSPD 66/HSPD25 outlined policy on national security and homeland security, international governance, extended continental shelf and boundary issues, international scientific cooperation, maritime transportation, economic issues (including energy), environmental protection, and conservation of natural resources.

NSPD 66/HSPD25 also requires the heads of the departments and agencies with responsibilities relating to the Arctic region to work to identify future budget, administrative, personnel, or new authorities to implement the policy directive. NSPD 66/HSPD 25 remains unchanged in the Obama administration.

## Coast Guard Operations in the Arctic

The Coast Guard has a long history of operating in the Arctic. Revenue Cutters began patrolling Arctic water soon after the U.S. purchased Alaska in 1867. Although the Coast Guard is the federal agency with the most presence in the Arctic, the Service currently conducts only limited operations in the region. Of its 11 statutory missions, the Service primarily conducts ice operations (ice breaking and charting) and supports scientific research in the region conducted by the National Science Foundation (NSF). However, as human presence in the Arctic expands as the ice cap recedes, the Service expects to deal with a growing caseload of search and rescue, marine pollution response, law enforcement, and defense missions.

*Aircraft and Infrastructure:*

Coast Guard aircraft are capable of conducting operations in the Arctic and are often involved in over flights, resupply, and emergency evacuation missions in the region. Operating primarily out of its Air Station in Kodiak, Alaska, the Service frequently deploys its HC-130 Long Range Surveillance Aircraft on missions to the area and has begun forward deploying HH-60 helicopters to Point Barrow, Alaska, during the summer

months. The Service, however, does not have any permanent bases, communications infrastructure, or other facilities capable of supporting extended operations in the Arctic.

Section 307 of the Coast Guard Authorization Act of 2010 (P.L. 111-281) requires the Coast Guard to work through the International Maritime Organization (IMO) to coordinate placement and maintenance of aids to navigation; marine safety, tug, and salvage capabilities; oil spill prevention and response capability; maritime domain awareness, including long-range vessel tracking; and search and rescue with other Arctic nations.

Section 308, of H.R. 2838, the Coast Guard and Maritime Transportation Act of 2011 requires the Coast Guard to report back to the Committee with an analysis of the capability of current Coast Guard assets to operate effectively in the Arctic, as well as an assessment of shore infrastructure, logistics, and communications to support operations in the Arctic.

*Icebreakers Status & Condition:*

To conduct its current mission in the Arctic, the Coast Guard principally relies on its medium icebreaker HEALY (WAGB 20). The HEALY was commissioned on August 21, 2000. It is 420 feet long and displaces about 16,000 tons. It can break through ice up to 4½ feet thick at a speed of 3 knots, and embark a scientific research staff of 35 (with room for another 15 surge personnel and two visitors). The HEALY can operate in temperatures as low as -50 degrees F. However, as a medium icebreaker, the HEALY does not possess the power or maneuverability to conduct unassisted polar icebreaking operations.

In addition to the HEALY, the Coast Guard currently has in its inventory two Polar Class heavy icebreakers: the POLAR STAR (WAGB 10) and POLAR SEA (WAGB 11). Both cutters are 399 feet long and displace about 13,200 tons. They are the world's most powerful non-nuclear-powered icebreakers, with a capability to break through ice up to 6 feet thick at a speed of 3 knots. In addition to a crew of 134, each ship can embark a scientific research staff of 32 people and operate in temperatures as low as -60 degrees F. Neither cutter, however, is currently operational.

The POLAR STAR was commissioned on January 19, 1976, but has been in non-operating commissioned status since 2006. It is currently undergoing a major life extension at Vigor Shipyards in Seattle, Washington. In fiscal years 2010 and 2011, Congress appropriated a total of over $60 million to conduct a service life extension of the POLAR STAR which is expected to be completed by December 2012. The Coast Guard has told Subcommittee staff the project will extend its service life by five to seven years. However, the Commandant of the Coast Guard, Admiral Papp stated in a recent a *Navy Times* article that, "it's a little uncertain to me how many more years we can get out of her in her current condition, even after we do the engine repairs" (Cid Standifer, "Papp:

Refurbished Icebreaker Hulls Could Last 'An Awful Long Time,'" *Inside the Navy*, August 30, 2010.).

The POLAR SEA was commissioned on February 23, 1978. In 2006, the Coast Guard began a rehabilitation project that was supposed to extend the cutter's expected service life to 2014. However, in May 2010 the POLAR SEA suffered an unexpected engine casualty and has been incapable of conducting operations since then. President Obama's fiscal 2012 budget provided for the decommissioning of the cutter. The Coast Guard placed the POLAR SEA in commissioned, inactive status on October 14, 2011, and is transferring certain major equipment from it to the POLAR STAR to facilitate the POLAR STAR's return to service.

The primary mission of the POLAR STAR and POLAR SEA was to support NSF research in the Antarctic including the annual breakout of McMurdo Sound to resupply the U.S. research station in Antarctica. As the primary customer of icebreaking services, the NSF took over budget authority for the operations of the POLAR SEA and POLAR STAR in fiscal year 2006. However, neither cutter has participated in an Antarctic mission since 2007. In the interim, NSF has paid nearly $8 million annually to charter privately operated Russian and Swedish icebreakers to conduct the operation over the last several fiscal years. The Director of the NSF testified before the Subcommittee on July 16, 2008, and noted that the Coast Guard polar icebreakers are a "fragile resource," explaining that as the vessels approach the end of their service life, they have become increasingly unreliable and too expensive to operate. The NSF has not contributed towards the operations of the Coast Guard polar icebreakers since 2009.

## Studies on Polar Icebreakers

Although NSPD 66/HSPD 25 calls for a strong U.S. presence in the Arctic, the last time the federal government produced a Presidential level declaration of policy regarding U.S. requirements for polar icebreaking was a report to Congress in 1990 (Presidential Report to Congress. October 1990). However, several studies have been conducted outlining the need for a robust U.S. fleet of polar icebreakers.

*National Research Council Report:*

In the Department of Homeland Security (DHS) Appropriations Act of 2005 (P.L. 108-334), Congress required the Coast Guard to commission the National Research Council of the National Academy of Sciences to examine the role of Coast Guard icebreakers in supporting U.S. operations in the Arctic and the Antarctic and the future needs for such icebreakers. The report (*Polar Icebreakers in a Changing World: An Assessment of U.S. Needs*) was competed on September 26, 2006, and included the following conclusions and recommendations:

- The nation needs the capability to operate in both polar regions reliably and at will;

- The United States should continue to project an active and influential presence in the Arctic and Antarctic to support its interests. This requires U.S. government polar icebreaking capability to assure year-round access throughout the Arctic and sufficient capability to break a channel into and assure the maritime resupply of McMurdo Station;

- The United States should maintain leadership in polar research. This requires icebreaking capability to provide access to the polar regions;

- Operations and maintenance of the polar icebreaking fleet have been underfunded for years, and the capabilities of the fleet have diminished dramatically;

- Deferred long-term maintenance and failure to execute a plan for replacement or refurbishment have placed national interests in the polar regions at risk;

- National interests in the polar regions require that the United States immediately program, budget, design, and construct two new polar icebreakers to be operated by the Coast Guard;

- To provide continuity of United States icebreaking capabilities, the POLAR SEA should remain mission capable and the POLAR STAR should remain available for reactivation until the new polar icebreakers enter service; and

- The Coast Guard should be provided sufficient operations and maintenance budget to support an increased, regular, and influential presence in the Arctic. Other agencies should reimburse incremental costs associated with directed mission tasking.

*U.S. Arctic Research Commission:*

The U.S. Arctic Research Commission is an independent federal agency created by ARPA. It consists of a nonpartisan advisory body of scientists, physicians, indigenous leaders, and industry representatives appointed by the President. The Commission sets U.S. Arctic research policy and builds cooperative links in Arctic research with international partners. It recently released its Report on Goals and Objectives for Arctic Research for 2009–2010. This biennial report to the President and Congress details immediate Arctic research needs, including necessary infrastructure to support such research. Specifically, it calls for an investment in human capital, research platforms, and infrastructure, including the acquisition of new polar class icebreakers.

*Naval Operations Concept 2010:*

On May 24, 2010, the Chief of Naval Operations for the Navy and the Commandants of the Coast Guard and Marine Corps released the Naval Operations

Concept 2010 (NOC-10) which describes when, where and how U.S. naval forces will contribute to enhancing security, preventing conflict and prevailing in war.

NOC-10 notes increased activity in the Arctic and declares that the U.S. must maintain an active maritime presence in the region. Specifically, it states that icebreakers must be at least ready for deployment to the region at all times. Additionally, NOC-10 notes that the Coast Guard is the sole repository of icebreaking capability and knowledge in the U.S. military and reiterates that icebreakers are essential to Navy and Marine Corps operations in the Arctic.

*DHS Inspector General Report:*

In January 2011, the DHS Inspector General conducted an audit of the strengths and weaknesses of Coast Guard's polar icebreaking program and released a report entitled *The Coast Guard's Polar Icebreaker Maintenance, Upgrade, and Acquisition Program* (OIG-11-31). The report found the following:

- The Coast Guard does not have a sufficient number of icebreakers to accomplish its missions in the Polar Regions;
- The Coast Guard's current icebreaking resources are unlikely to meet future demands; and
- Without an investment in icebreakers, the United States will lose its ability to maintain a presence in the Polar Regions, the Coast Guard's expertise to perform ice operations will continue to diminish, and critical missions will go unmet.

The Inspector General made the following five recommendations:

1. The Coast Guard should request budgetary authority for the operation, maintenance, and upgrade of its icebreakers;
2. In coordination with DHS, the Service should request clarification from Congress to determine whether Arctic missions should be performed by Coast Guard assets or contracted vessels;
3. In coordination with DHS, the Service should request clarification from Congress to determine whether Antarctic missions should be performed by Coast Guard assets or contracted vessels;
4. The Service should conduct the necessary analysis to determine whether the Coast Guard should replace or perform service-life extensions on its two existing heavy-duty icebreaking ships; and
5. The Service should request appropriations necessary to meet mission requirements in the Arctic and Antarctic.

The Coast Guard concurred with all five recommendations and indicated it would take action to accomplish them.

*High Latitude Study*

In September 2011, the Coast Guard provided its High Latitude Region Mission Analysis Report to Congress. The report noted the need to protect important national interests in the Arctic, which is a unique geographic area where other nations are actively pursuing their own national goals. It also cited a significant polar icebreaking capability gap that will continue to prevent the Coast Guard from conducting its critical missions in that region. The report concluded:

- The Coast Guard requires three heavy and three medium icebreakers to fulfill its statutory missions.

- The Coast Guard requires six heavy and four medium icebreakers to fulfill its statutory missions *and* maintain the continuous presence requirements of the Naval Operations Concept (NOC).

- Applying non-material alternatives for crewing and homeporting reduces the overall requirement to four heavy and two medium icebreakers.

The report also notes that several other factors currently impact the Coast Guard's ability to carry out its missions in the Arctic. Specifically, these factors include gaps in communications system capability, limited forward operating locations, and gaps in environmental response and mitigation capability in ice-covered waters.

## Icebreaker Recapitalization

The Coast Guard currently has no plans for the acquisition of additional polar icebreaking capability. The President's fiscal year 2012 budget request for the Coast Guard states that "the Coast Guard will participate in a DHS led interagency working group to develop final requirements for acquisition of the 21st Century icebreaking capability." No such interagency working group has yet been established and it remains unclear when such final requirements will be developed.

The Coast Guard expects to get as many as 7 to 10 years of additional service life out of the POLAR STAR once the cutter is reactivated in December 2012. The Service estimates that designing and building a new polar icebreaker could require 8 to 10 years. On this basis, in order to avoid gaps in ongoing non-research icebreaking capability, it would appear that the acquisition process to build a replacement for the POLAR STAR would need to begin now. No funding, however, is included in the fiscal year 2012

budget, or in the Coast Guard's fiscal years 2012 to 2016 Capital Investment Plan for such acquisition, nor has Congress appropriated funding for this purpose.

Section 307, of the Coast Guard Authorization Act of 2010 (Public Law 111-281) requires the Coast Guard to use an independent third party to conduct a comparative cost-benefit analysis of the recapitalization of the existing fleet of polar icebreakers. The Coast Guard provided the analysis to the Committee on November 1, 2011. The analysis found:

- It would cost approximately $859 million to construct a new polar class icebreaker
- It would cost approximately $1.12 billion to reconstruct the POLAR SEA or POLAR STAR to current standard for heavy icebreakers.

The analysis came to the following conclusions:

- The polar icebreaker fleet should be recapitalized by constructing new heavy polar icebreakers for operation by the Coast Guard;
- The acquisition of heavy polar icebreakers within the existing Coast Guard budget would have significant adverse impact on all Coast Guard activities;
- Given the age of the POLAR STAR, and based on inspection records and ship visits, there is risk to assume POLAR STAR can remain fully operational until at least 2020 once it completes its revitalization;
- The design-build timetable for a new heavy icebreaker, even under an aggressive schedule, is at best eight years. It is paramount that planning and budgeting begin immediately.
- The recapitalization of the polar icebreaker fleet cannot be funded within the Coast Guard or NSF budgets. Funding from other agencies would be required.

In a separate analysis, the Service estimated that performing the extensive maintenance, repair, and modernization work needed to extend the service lives of the POLAR STAR and the POLAR SEA by 25 years would cost over $500 million per cutter. The Service has not provided a cost estimate to lease a U.S. built and owned icebreaker.

**WITNESSES**

Panel I:

Admiral Robert J. Papp
Commandant
United States Coast Guard

The Honorable Mead Treadwell
Lieutenant Governor
State of Alaska

Panel II:

Dr. Subra Suresh *(invited)*
Director
The National Science Foundation

Mr. Stephen Caldwell
Director, Homeland Security and Justice Issues
Government Accountability Office

Mr. David Whitcomb
Vice President for Production Support
Vigor Industries
*On behalf of*
The Shipbuilders Council of America

Rear Admiral Jeffrey Garrett (ret.)
U.S. Coast Guard