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PROTECTING U.S. SOVEREIGNTY: COAST GUARD OPERATIONS IN THE ARCTIC

(112–63)

HEARING

BEFORE THE

SUBCOMMITTEE ON
COAST GUARD AND MARITIME TRANSPORTATION

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

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

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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.

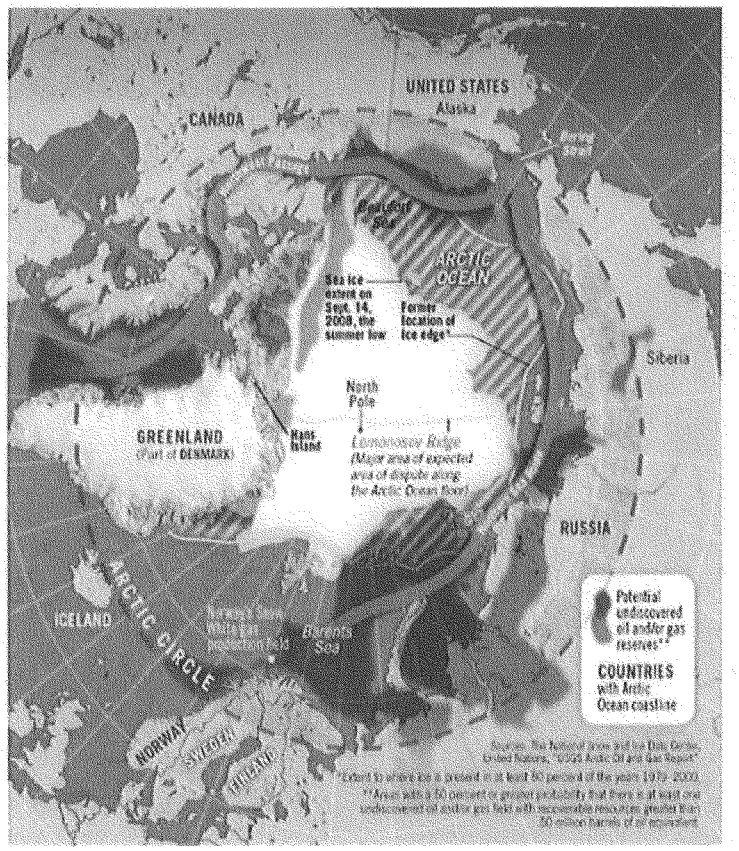
BACKGROUND

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. Kelly Falkner
Deputy Director, Office of Polar Programs
National Science Foundation

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

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

Rear Admiral Jeffrey Garrett (USCG ret.)

PROTECTING U.S. SOVEREIGNTY: COAST GUARD OPERATIONS IN THE ARCTIC

THURSDAY, DECEMBER 1, 2011

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COAST GUARD AND
MARITIME TRANSPORTATION,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 11:00 a.m. in Room 2167, Rayburn House Office Building, Hon. Frank LoBiondo (Chairman of the subcommittee) presiding.

Mr. LOBIONDO. The subcommittee will come to order. The subcommittee is meeting this morning to review Coast Guard operations in the Arctic. As we all know, the ice caps are shrinking in the Arctic, effectively creating new coastline and navigable waters where the Coast Guard will be required to operate.

This opening is already providing significant economic opportunities for the energy and maritime transportation sectors, but also has exposed a new set of risks and challenges to our national security and sovereignty. The subcommittee has been talking about the Arctic for years, and has continuously advocated for increased polar capabilities. However, the Coast Guard's ability to respond to emerging threats and emergencies in the Arctic is less today than it has been at any point in the last 50 years.

Neither of the Polar Icebreakers is currently operational, though the taxpayer is spending millions of dollars a year to maintain those ships in a caretaker status. It is time that we stop wasting money on old, ineffective assets, and focus instead on acquiring assets that will provide the capabilities we need to continue to increase our foothold in the Arctic.

What we really need is to have an honest national conversation about what we want our involvement in the Arctic to be, and what we need to do to maintain that presence. We will continue to ask for, beg for, plead for, wait for a coherent Arctic vision from the administration and a subsequent resource proposal, because having a vision and having a proposal without the resources is not going to go very far.

Again, I firmly believe that we need to be protecting our national interest in the Arctic, and hope that the subcommittee's actions will draw light to this increasingly important and urgent issue.

I would like to thank Admiral Papp and Mr. Treadwell for being here today. But first I would like to turn it over to Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman, and thank you for scheduling this morning's hearing to assess the capabilities of the U.S.

Coast Guard's ability to maintain and protect the sovereign interests of the United States in the Arctic.

Before I begin my remarks, I want to take a moment to welcome, actually, three of our witnesses who have traveled quite some ways to get here. The first two from Washington State, Rear Admiral Jeff Garrett, who will be on the second panel, U.S. Coast Guard (retired), served with distinction as the CO of the Coast Guard icebreakers *Polar Sea* and *Healy*, and was involved in polar icebreaking deployments throughout the eastern and western Arctic and Antarctica. So, we welcome Admiral Garrett. And, I am sure his many years of experience will shed some helpful insights on our issue.

Also, I want to thank and welcome Mr. David Whitcomb, vice president for production support of Vigor Industrial. Vigor Industrial recently acquired the former Todd Pacific Shipyards in Seattle, which for years maintained the Coast Guard's fleet of icebreakers. I want to thank Mr. Whitcomb for participating, and I look forward to an update from him on the status and pace of repairs to the *Polar Star*.

Also, just an added note here to my comments, I want to thank Lieutenant Governor Treadwell here. And if you could, pass on my greetings to my former resident assistant at Pacific Lutheran University known only then as Sean Parnell, who is now Governor Sean Parnell of Alaska. Please express my greetings to the Governor. I appreciate that very much.

Mr. Chairman, in reflecting on this morning's topic, it is hard for me to recall another instance where the solution to a policy problem has been so apparent, yet the reaction of the Congress is so contrary or unresponsive. I may not know the precise definition of the word "irony," but scheduling a hearing to discuss the Coast Guard capabilities in the Arctic less than 3 weeks after the House passed legislation that would decommission the Coast Guard's two heavy icebreakers seems ironic to me.

It has been the policy of the U.S. since 1965 for the U.S. Coast Guard to develop, establish, maintain, and operate the U.S. icebreaking fleet in each polar region. Anyone who has looked at this issue over the years has come to the same conclusion: we need to invest now in new heavy icebreakers, or face a sharply diminished presence in the Arctic and Antarctic.

As our Nation's primary Federal maritime agency, the Coast Guard has played and will continue to play a significant role in Arctic policy implementation and enforcement, while also fulfilling its other mission responsibilities for search and rescue operations, maritime safety, scientific research, and environmental protection.

I want to commend Commandant Papp for his efforts to stay the Service and to maintain and enhance the Coast Guard's operational capabilities in these very challenging budgetary times.

Due to the extreme operating environments found at high latitudes, the Coast Guard icebreakers serve as a mobile, multimission operating platform. This has enabled the Coast Guard to project U.S. global leadership and to protect our national security and economic interests in the Arctic and Antarctic. And, by all accounts, the Coast Guard's use of icebreakers has served the Nation very well, until recently.

As far back as October 1990, Polar Icebreaker requirements report the handwriting has been on the wall. If we are going to maintain a reliable presence in the high north, we must make the necessary investments to sustain an icebreaker fleet. Fortunately, the Coast Guard responded positively to this report, and provided the appropriations necessary to build and launch the Coast Guard icebreaker *Healy* in 1999. Regrettably, the declining condition of both Coast Guard heavy icebreakers, the Sea and the Star, each of which have exceeded their 30-year life expectancies, has failed to generate a similar response from Congress, and no new funding for recapitalization of icebreakers is on the horizon.

Instead, over the past several years the Congress has received multiple reports from the Government Accountability Office, the Department of Homeland Security's inspector general, the National Research Council, the Coast Guard, and other agencies that make basically the same recommendations as in the 1990 report: We need to invest now in new heavy icebreakers, or lose our capabilities to operate in the Arctic and Antarctic.

What I find especially frustrating is that this comes at precisely the same time other nations, including Russia, China, Norway, Korea are rushing to build new icebreakers to stake their claims in this emerging area in the Arctic. It is absurd for us in Congress to maintain that Coast Guard can do more with less when the best minds in our Nation have, for years, recommended, if not admonished, the Congress to do one thing to protect our national interests in the Arctic: invest in new heavy icebreakers.

Instead, as I mentioned earlier, we have passed legislation to decommission our two heavier icebreakers within the next 3 years, an idea which I believe is misguided, for which the administration has forcefully and rightfully stated its strong opposition. However, I also note the administration has not provided us a plan for how to fund new icebreakers.

The bottom line is that we can't afford to outsource the Coast Guard's icebreaking mission to any country. Considering that it will take anywhere between 8 to 10 years to plan, design, and build a new heavy icebreaker, we had best initiate a discussion now with our colleagues in the Senate, the administration, the Coast Guard, and other Federal agencies to reach agreement on a long-term strategy to provide not only new heavy icebreakers, but also the other infrastructure investments that are going to be absolutely necessary to support Coast Guard operations above the Arctic Circle.

We either choose to address this challenge or we risk losing a critical foothold necessary to maintain U.S. sovereignty in an Arctic frontier of emerging global economic importance. Too much is at stake to remain complacent, and we need to act.

With that, I yield back.

Mr. LOBIONDO. Thank you, Mr. Larsen. I would just like to say I—trying to find the right word to say for your comment of ironic, which I guess it is. But maybe more so, sad. And I welcome your efforts to use your considerable influence and power with the administration to get some articulated, you know, view of policy and, maybe more importantly, the resources to go with it.

I think we are more in agreement on this issue than in disagreement. But I would have loved to have had something substantive to move with. And I appreciate your concern and interest. You have got, I think, a unique perspective on it.

Mr. LARSEN. Thank you, Mr. Chairman. You will note my comments here, as well as my comments on the floor during the debate on the Coast Guard bill, that not only did the administration oppose the Coast Guard bill because of the decommissioning language, but I also noted on the floor as well, as I noted here today, that they have as well failed to provide a funding plan about—with regards to icebreakers.

So, I do think we have a—we are pretty close in agreement on this, but we need to flush these things out, which is the importance of this hearing today, and I appreciate you scheduling this.

Mr. LOBIONDO. And now to give us the answer to put it over the top, Mr. Young of Alaska.

[Laughter.]

Mr. YOUNG. Thank you, Mr. Chairman. I can't really top what's been said. But I am the only real representative of the Arctic in Congress. I say this with a great deal of pride. I live above the Arctic Circle. And Alaska has made the United States an Arctic nation. I think that is crucially important.

What has been said here is—by both you and the ranking member, that this is our waters, 200 miles out for sure. And then it becomes international waters, and there is where the interests of China and Russia and—actually, there are five nations involved, and we are fifth of the five being, you know, involved.

And as far as Admiral Papp—this is not your fault, it is Congress' fault. It is hard to get Congress to concentrate on what is necessary for the future. They have no vision, as far as the need and the necessity of the Coast Guard involvement because of the Arctic. The shipping route was mentioned, the icebreaker necessity. And we will be able to, I believe—in the near future be able to ship things much cheaper with that route than you would with the Panama Canal. We look at cost of fuel, et cetera.

But we sit here—and we can argue about the Coast Guard capability. I was involved in the funding of the first—the three Coast Guard icebreakers we had. And they're wore out. And they are really not heavy icebreakers. They are—I call medium icebreakers, not heavy icebreakers. I think we have to look at all aspects of getting icebreaking capability, including leasing, and I will say that again and again. Buy-in, if we can get this Congress to recognize it. But this Congress has to come to the plate. We would like to get a recommendation from this administration and future administrations. And the past administrations failed us, too.

And so, this is very, very important. We are supposedly the most powerful country in the world. And yet we are neglecting the one, I think, bright spot, because I know in my State we have tremendous potential for minerals and necessary things that we are importing now that have been locked up because of the ice. And then, consequently, now it will be free. But we need the navigation capability.

Admiral, you know, because of the closeness to the Pole a lot of GPSs don't work correctly. There is a lot of other problems of navigation. And we have to start looking at the whole program.

And as far as I know, there is no oil spill that knows borders. And China is involved, Russia is involved, Canada is involved, Iceland is involved. And they are drilling in the Arctic—which in fact, if they had a spill—with no safeguards at all. And that could—and it will cross into our borders, and potentially do us great damage.

So, I think we should be more aggressive, Mr. Chairman. I compliment you and the ranking member on the interest not only in the Arctic, but the Coast Guard. But that Congress, as a whole—you mention Coast Guard, and they roll their eyes. And I think that is so very, very unfortunate. Because the Arctic is the future of this Nation.

So I look forward to the witnesses today, and get some reports from them and urge both the admirals and the Coast Guard to come out with a program.

And if you can't do it, we should be able to do it as a Congress, and I expect the chairman to help us do this, and get our leadership to understand if we are going to go ahead and cut back on the military, let's not be cutting back on the Coast Guard. Because that will be—as they have been in the past—an active unit of our military that is working constantly, not only for search and rescue, but for the development of our resources.

And with that, I yield back my time.

Mr. LOBIONDO. Mr. Landry?

Mr. LANDRY. Thank you, Mr. Chairman. Admiral, Lieutenant Governor, thank you for being here. I know it seems odd that a congressman from South Louisiana who probably sees water freeze maybe once every 5 years would be interested in this particular topic, but you know, I grew up at a time when America and Congress did big things, and the people that served in Congress were titans. We led. Frontiers were things that challenged us.

And, you know, we sent a man to the moon, we built an interstate system, we brought Alaska into the union. We built a fleet of space shuttles. We did big things. And, you know, we can still do big things. Under this current fiscal environment we still are required to lead. We still should be challenged by those frontiers. But we must have an eye on fiscal management.

And so, we have worked on legislation in this Congress that would allow us to continue to have icebreaking presence, even after the decommissioning of the *Polar Sea* and *Polar Star*, by directing the Coast Guard to use private leases to supply these vessels. This isn't a foreign idea. I mean how many times has—you know, that is why we have—in this country have a long history of supporting our maritime industry, because we recognize that the Government could not always supply the needs on a constant basis. And so we supported our private maritime fleet.

And so, I look forward to trying to come up with a solution to increase our icebreaking capabilities. And I know, Admiral Papp, that with your guidance and some input from this Congress from both sides of the aisle, we can come up with a solution, even under the fiscal environment that we find ourselves in.

And so, I look forward to hearing the questions that the Members have, and answers that you will provide. And with that, Mr. Chairman, I yield back.

Mr. LOBIONDO. Thank you. Admiral Papp, thank you for joining us today. The floor is yours.

TESTIMONY OF ADMIRAL ROBERT PAPP, COMMANDANT, UNITED STATES COAST GUARD; AND HON. MEAD TREADWELL, LIEUTENANT GOVERNOR, STATE OF ALASKA

Admiral PAPP. Thank you, Chairman LoBiondo and Ranking Member Larsen, and all the other distinguished members of the subcommittee. Thanks for the opportunity to appear here today, and for your continued support of our Coast Guard, especially our hard-working Coast Guard men and women.

As you have noted, America is a maritime nation. The United States relies upon the sea for our prosperity, our trade, our transportation, and security. And, as also was noted, we are an Arctic nation. The Arctic region, including the Beaufort, Chukchi, and Bering Seas, and the Arctic Ocean, is truly an emerging maritime frontier.

Although the northern part of the Arctic has remained frozen much of our lifetimes, change is clearly occurring. Arctic ice is gradually diminishing. And in the summer months, an entire new ocean is emerging. This accessibility is spurring an increase in human activities such as natural resource exploration, shipping, and eco-tourism.

Similar to the rest of U.S. waters, the safety, security, and stewardship of the Arctic region impacts every American. Indeed, the Arctic contains an estimated 22 percent of the world's technically recoverable oil and natural gas. The Shell Exploration and Production Company plans to drill exploratory wells in the Chukchi Sea and Beaufort Sea beginning in 2012. Other companies will likely follow.

For more than 221 years, our Nation has relied upon the U.S. Coast Guard to protect those on the sea, to protect the country against threats delivered by the sea, and even to protect the sea, itself. Our challenge today is to ensure we are working to develop a Coast Guard capable of meeting our new and emerging responsibilities in the Arctic region as capably as we have performed our long-established missions in existing areas of operation.

As with any new endeavor, posturing our forces to do so presents challenges, risks, but perhaps a few opportunities, as well. Today, based upon what we have learned, I am pleased to offer you my best military advice on our Arctic operational needs. Before I do so, however, I must tell you that I am concerned by the recent authorization language passed by the House that ties my hands in some ways and limits my ability to move the Coast Guard forward on all mission fronts, including those emerging in the Arctic.

My first concern is the mandate to decommission *Polar Star*. This provision would eliminate the Nation's only existing heavy icebreaking capability as soon as 2 years after the *Polar Star*'s reactivation in 2013, and after Congress has invested over $60 million to extend the Cutter's service life. Admittedly, keeping this 30-plus-year-old ship running is a challenge for all of us, and it is not

a long-term solution for our Nation's heavy icebreaking needs. But while I can understand the desire to accelerate a solution, I don't see an alternative source of U.S. heavy icebreaking capability that could be made available within the next 3 years. Thus, this mandate puts us in a position of confronting expanding Arctic missions without a heavy icebreaker.

We have weathered the last couple of years without an active heavy icebreaker, but I strongly recommend against making this a permanent solution. And I urge reconsideration of this provision in conference.

My second concern is the authorization's bill mandates constraining our ability to procure the National Security Cutters, just as we have stabilize costs and matured their design. While I understand and share the committee's desire to deliver the most capable and effective replacement for the 12 High Endurance Cutters, I cannot see how technically challenging and disruptive performance milestones help us to achieve that.

The National Security Cutter is a stable and successful acquisition program now managed by some of the best acquisition professionals in the Federal Government. This legislation risks disrupting the production schedule, raising costs, and jeopardizing the entire national security project. And I will state here today that the National Security Cutter is more important to me, in terms of carrying out Coast Guard missions in Alaska, than an icebreaker. But we still need an icebreaker, as well.

In sum, it is my judgement and advice to you that the *Polar Star* must be kept as part of the heavy icebreaker bridging strategy for the next 5 to 10 years, and that the National Security Cutter shipbuilding program momentum must be maintained.

Now, the Coast Guard is no stranger to Arctic waters, and we have operated in the Arctic for most of our history. The majority of our Arctic operations are concentrated in the southern Arctic, or Bering Sea, where we protect the fish stocks and fisherman. Protecting one of our Nation's most richest biomasses, those who make their living harvesting it, and other shippers who transit through its often treacherous waters creates a persistent demand for Coast Guard services. We understand and we have the experience to meet these challenging maritime missions. Resourcing them will be another story.

But we have also been actively gathering information about operating above the Arctic Circle and the Chukchi and Beaufort Seas as we prepare for a gradual northerly expansion in demand for our services in ice-diminished Arctic waters. For the past 3 years we have conducted seasonal cutter, small-boat, and helicopter operations, along with biweekly Arctic Ocean flights.

This year we are organizing a major operation in the 17th Coast Guard District in anticipation of drilling in the Chukchi Sea. This operation will feature a mixture of flight deck-equipped cutters, sea-going buoy tenders, fixed-wing aircraft and helicopters, and communications support infrastructure. I have made it a priority to personally travel to Alaska the past two summers with DHS leaders and interagency leaders like the Department of Interior Secretary Salazar, Deputy Secretary David Hayes. And we have met with local and State partners, including Governor Parnell and

Lieutenant Governor Treadwell, who is here today. Also, with the Alaska native tribes and industry, to see the challenges that we are confronting firsthand.

In the Beaufort and Chukchi Seas we are now seeing a gradual transition from very limited episodic demand into a more sustained seasonal demand. At some point these demands may involve—evolve into a full-fledged seasonal operation. Therefore, our present operational concept is largely an extension of our current posture, mobilization of sea-based command and control forward operating bases from which we will conduct operations with gradually increasing support from our shore-based aircraft.

Should a national incident arise in the Arctic, we will mobilize the entire inventory of Coast Guard assets. We will accomplish the mission, just as we always have during our 200-century—our two centuries of service to the Nation. But to fulfill this promise to America, our heroic Coast Guard men and women need—and, frankly, they deserve—the modern assets to get the job done.

Thank you for this opportunity to testify, and I look forward to your questions, sir.

Mr. YOUNG. [presiding.] Thank you, Admiral. And you notice, in respect for your rank, I let you go over for a couple minutes.

Admiral PAPP. Thank you, sir.

Mr. YOUNG. You are quite welcome. And now, Mr. Treadwell. And I am going to watch you real close, but I will even let you go over 2 minutes, if you want to. Go ahead.

[Laughter.]

Mr. YOUNG. That was Lieutenant Governor, I am sorry.

Mr. TREADWELL. No problem.

Mr. TREADWELL. Mr. Chairman, members of the committee, for the record I am Mead Treadwell, Lieutenant Governor of Alaska. And thank you for having me here. Or, I should say, back here today. Admiral Papp and I sat next to each other in 2006 on this issue, and it is about time we get some action.

The purchase of Alaska in 1867 made America an Arctic nation. Yet after 150 years, the myth of Seward's Folly still lingers. It is time to quite arguing whether investment in the north is worth it, and recognize the valuable people, resources, and location we gained as a Nation.

We ask this committee—and, by extension, Congress and the executive branch—to look at the bigger picture in the global Arctic, and recognize three imminent needs. First, Alaskans have said it before, Governor Sean Parnell testified on this in 2009, we will say it again. It is time for Congress and the administration to act, and to act now, to add new Polar Class Icebreakers in the United States Coast Guard's fleet. The need is more urgent than ever. The changing Arctic will bring—it is bringing historic changes in global shipping patterns.

Secondly, Congress and the administration need to recognize that their own mandates and policies, including a significant mandate passed just last year, have directed that we maintain icebreaking operations, and neither the intent nor the letter of these mandates are being met.

And third, in addition to icebreakers, we need legal measures to protect our shores from the dangers of unregulated itinerant ves-

sels that are now carrying hazardous cargoes near our coast through the Bering Strait, which Admiral Papp's predecessor has described as the Bering Gate. And it is the only way in and out of the Arctic Ocean from the Pacific.

First, let me emphasize to you that changes in the Arctic are creating tremendous game-changing opportunities. We know ice covers at historic minimums, multiyear ice is decreasing. We know that icebreaking technology has made—has advanced, bringing significant new efficiencies. Northern sea routes sought for hundreds of years are now a reality.

What that means is that international shipping of oil and gas resources and other potentially hazardous cargoes through the Bering Strait is growing rapidly, as foreign shippers set their sites on Asian markets. Other Arctic and non-Arctic nations are seeing this potential, but America is missing the boat.

I was in Arctic forum in September in Arkhangelsk, Russia, in a room about this size with Vladimir Putin, where he announced Russia intends to make the northern sea route as important to global commerce as the Suez Canal. Russia is putting its money where its mouth is; they are building nine new icebreakers, discounting tariffs on their icebreaker escorts, so shippers can use the northern sea route for a savings of about 40 percent. Sweden, Finland, and Canada, even the European Union, China, Korea, and Japan are beefing up their icebreaker fleets and paying attention to the historic opportunities. The United States must plan for an Arctic shipping future that could be like a new Suez Canal.

My second point today is that we are failing to meet our own national mandates, goals, and policies. President Franklin Roosevelt's 1936 Executive Order 7521 to keep channels and harbors open to navigation by means of icebreaking operation has not been implemented in the West. This article from the Anchorage Daily News today shows that there is a fuel problem in Nome. They can't get the gasoline they need to Nome for the winter. The article reports that the shippers canvassed the Nation looking for icebreakers and ice class tugs and barges to get fuel there, but so far it has had no success. If this were the Great Lakes or New England, it is standard practice, has been since the Roosevelt Executive order, to have icebreakers there to support commerce.

The Arctic Research and Policy Act directs the Office of Management and Budget to build and deploy icebreakers, and allocate funds necessary to support icebreaking operations.

Last year's authorization act mandates the Coast Guard to promote safe maritime navigation by means of icebreaking where necessary, feasible, and effective, and that makes President Roosevelt's order the law of the land. The act also directed the committee on marine transportation system to develop an integrated shipping regime. I met with CMTS leaders on my last trip to Washington, and urged them to be far more ambitious about thinking about Alaska's—America's role in this shipping route.

Last May, Secretary of State Clinton joined seven Arctic nations on a search and rescue agreement. We had the first search and rescue exercise in October in Whitehorse, Mr. Chairman. That binding agreement to provide search and rescue operations in our sector of the Arctic is compromised by our lack of icebreakers in this region.

Perhaps the recent decision of the U.S. House to retire the Nation's only heavy icebreaking ships without replacements will force a legitimate conversation about the need for icebreakers. But we should, however, be cautious. It is a risky game of chicken. And if this game, if it fails it fails Americans, and Alaskans, most of all.

Under our current economic situation some question whether we can afford icebreakers. Mr. Chairman, I would argue we can't afford to go without them. It has been argued we should charge for icebreaker escort services, like the Russians. Or ship owners might pay for services like they do in the Panama and the Suez Canal. U.S. vessels pay for oil spill escort vessels' preparedness and insurance. A bill pending in this Congress would have the U.S. lease, rather than own, icebreakers it needs in the Arctic. And some have suggested perhaps instead of scrapping our current infrastructure entirely, you might consider selling the icebreakers to the private sector for refurbishment, creating jobs and lowering Government costs.

But how will we work out our finances America and its trading partners could reap, and we could miss the boat as others reap huge economic opportunities from these shipping routes?

And this brings me into my last point. Congress needs to understand there are two classes of ships operating the Bering Strait region right now, and in the Aleutians. There are those that are under contingency planning requirements for oil spills and those that are not. U.S. vessels are highly regulated. In fact, over 120 laws control the use of the coastal zone and offshore areas. But ships originating outside of the U.S. and passing though the Bering Strait are not required to have a contingency plan. My formal testimony has a list of about six potential options that we could use to bring these ships under regulation. But having an icebreaker is necessary to help enforce it.

The State of Alaska, I should report, is doing its part. The State actively supports the marine safety, life safety, and pending Arctic and marine aviation infrastructure work at the Arctic Council. We support and we have offered funds to help the U.S. Coast Guard's efforts to bring forward basing to Alaska's north coast. We participate extensively in research fostered by the U.S. Arctic Research Commission and the University of Alaska. Our legislature has the Northern Waters Task Force, making recommendations on mitigation strategies and infrastructure and regulatory needs. We have got a port study going on with the Army Corps of Engineers. We support the marine exchange of Alaska that has put a network of automatic identification system receivers to let us know what kind of ships are passing through.

Mr. Chairman, members of the committee, Alaska has and will continue to work hard on an Arctic policy, because we are America's Arctic. It is our home, our heritage, and our future. And we work hard with high hopes for outcomes. But first we need icebreakers. Without action on this, America is putting its national security on the line, and we are going to miss the historic game-changing opportunities of the Arctic, while watching other nations advance.

Second, Congress and this administration must fill its established mandates, goals, and policies for the Arctic.

And third, we need to take legal action to protect our coast and prevent spills in the Arctic and the Aleutians. We have been an Arctic nation for 150 years. It is time to set aside that myth of Stewards Folly, and realize, yes, the investment is worth it, and the payoffs for America are huge. Thank you.

Mr. YOUNG. Thank you, Governor—I mean Lieutenant Governor; I better not get the Governor excited.

[Laughter.]

Mr. YOUNG. I want to thank both the witnesses. And with this I will turn to the ranking member, Mr. Larsen, to ask some questions. I run this a little different than other chairmen; I always ask the alternating sides to ask questions first, and I will close out. So, Mr. Larsen?

Mr. LARSEN. Thank you, Mr. Chairman. I will start with Admiral Papp.

One of the debates we are having here is the lease versus own plans. And I am curious, first off, about the Coast Guard's assessment of the worldwide availability of leased heavy icebreakers. Second, what would be the—what is the difference, in your estimation, of heavy icebreakers versus non-heavy icebreakers, and their capability to operate in the Arctic? Can you start there?

Admiral PAPP. Yes, sir. Interestingly enough, last week I was in London at the International Maritime Organization. Given my concern and interest in the Arctic, I hosted a lunch for the other seven countries that comprise the Arctic, and of course, most importantly, the five of us that are interested in operating on the waters of the Arctic.

I took great interest in sitting next to the minister of the interior for Sweden. She was very apologetic to me that they had to call *Oden* home, because they need every icebreaker they can have, and her own government put pressure on her to break the commitment to send *Oden* to break out Antarctica this year.

Each one of the countries said that they are short on icebreakers. They are trying to build them as quickly as possible, but there is no surplus right now. So anything, in terms specifically for heavy icebreakers, in my estimation, has to be new construction.

As far as leasing, I don't believe there are any others that are available for lease, at least not readily. I think the National Science Foundation, in a solution to replacing the *Oden*, is getting an icebreaker from Russia, but I haven't confirmed that.

Mr. LARSEN. OK. But the—so the other part was the difference between a heavy icebreaker and one—and a medium icebreaker, or something that is not a heavy icebreaker.

Admiral PAPP. Well, the——

Mr. LARSEN. In terms of operating and capability and so on.

Admiral PAPP. Right. Are you looking for the specifics, in terms of how much ice——

Mr. LARSEN. I am looking for you to answer my question about where there are differences—can they operate in the Arctic or not?

Admiral PAPP. Oh, yes, sir. We have Polar Class one, two, and three, Polar Class one being the most heavy of the icebreakers. We consider *Healy*—what we call our medium icebreaker—to be somewhere in Polar Class two or Polar Class three. Shell is building two that are capable of Polar Class three, as well.

And I think generally they can operate. They could probably operate down in Antarctica, depending upon the conditions of any particular season. But there are seasons where the ice will be very heavy, and you need a heavy icebreaker. The reason we are pushing for a heavy icebreaker is because we also have a responsibility to break out—in the Antarctic to break into McMurdo for the resupply. So we have to have that versatility to both be able to operate in the Arctic and Antarctic.

Mr. LARSEN. So, the other question about ownership versus leasing—and I don't want to steal anyone's thunder, because we are having this debate, but the availability of leasing icebreakers that are here in the United States, so private leasing—leasing from private companies in the United States, as opposed to leasing from one of these other countries.

Admiral PAPP. As far as we can determine, there are no icebreakers available—no heavy icebreakers available for leasing right now. They would have to be constructed. If we were to lease an icebreaker, I am sure that a company building an icebreaker outside of the Government does not have to contend with the same Federal acquisition rules that we have to if we were to construct an icebreaker. It could probably be done quicker.

Personally, I am ambivalent, in terms of how we get an icebreaker for the Coast Guard. We have done the legal research. If we lease an icebreaker, we can put a Coast Guard crew on it and still have it as a U.S. vessel supporting U.S. sovereignty. But they aren't available right now.

And the other challenge that we face is Federal acquisition rules and A–11 requirements that score the money for leasing. We would have to put up a significant amount of upfront money, even with a lease, that we don't have room for within our budget, currently.

Mr. LARSEN. Yes. Regarding—am I on a clock, here? I don't want to take a lot of time, but——

Mr. YOUNG. I didn't put you on a clock, but I am about ready to do that. So you go ahead, about two more questions, and we will come back to you, OK?

Mr. LARSEN. I will make them multipart questions, then.

Mr. YOUNG. OK.

[Laughter.]

Mr. LARSEN. With regards to the infrastructure side of the Coast Guard's plan for high-latitude operations, you mentioned in your testimony as an example, if you had to respond to a disaster in the Arctic you would use onshore basing for fixed wing and operations. But where would you—where would that be? And what would be the response time?

Admiral PAPP. Well, I can tell you right now that we are already developing a plan—I have been briefed by the district commander preliminary, we are going to be briefing the deputy secretaries of Interior and Homeland Security next week. We will base in Barrow. We have actually been able to find a hangar where, from time to time, they will allow us to move our helicopters in to do maintenance. But we don't have a permanent hangar to put them in. But we have got a good, modern air strip there with proper instrumentation. And we are accustomed to flying in and out of Barrow, it

is just that there is not much infrastructure there, in terms of doing long-term support and maintenance.

Additionally, as I—I have had that visit up there since I last reported to you—we went in with a travel party of 12 and couldn't find enough rooms to take care of us. We ended up sleeping overnight in dorm rooms at the old DEW Line facility that is there in Barrow.

So, to sustain a large presence during this season, we would be up there. We are going to have to find some sort of lodging for those on shore. But in reality, most of our plan is based upon having ships up there. The ships have flight decks. They have long endurance. They have got enough fuel to stay up there. And most of our work will be done from afloat. That is also where we have superior command and control capabilities, communications, navigation, et cetera, on the cutters, both icebreakers and High Endurance Cutters.

Mr. LARSEN. And my final question would be with regards to ships. Where would those be home-ported? Where would those actually be?

Admiral PAPP. Well, one of the ships is coming out of Kodiak. That is its home port. The *Alex Haley* and—will deploy *Alex Haley* up there for most of the summer. The other ships that will go up there will probably come out of West Coast ports. *Bertholf*, one of the new National Security Cutters, is the other primary ship we will be using. That is in Alameda, but will deploy, refuel either in Kodiak or Dutch Harbor, and then deploy up there for probably a couple of months. We may put one of our High Endurance—older High Endurance Cutters up there from time to time, and we also will probably take a couple of our 225-foot sea-going buoy tenders, which have pretty good long-range sustainability, and have light icebreaking capability.

Mr. LARSEN. OK. Thank you, Mr. Chairman.

Mr. YOUNG. I thank the ranking member. Mr. Coble?

Mr. COBLE. Thank you, Mr. Chairman. Admiral, good to have you and the Lieutenant Governor with us this morning.

Over the last decade, the issue of icebreaking capability in the polar region has been studied, it seems, endlessly. There has been a naval operations concept, the National Research Council report, the U.S. Arctic Research Commission report, a DHS inspector general report, a Coast Guard report to the Congress, a high-altitude mission need analysis. And the list goes on. Each one has come to the same conclusion, and that is what is the—that the U.S. Coast Guard needs new Polar Icebreakers.

Admiral, if you know, does the administration and the Department support the need for new icebreakers?

Admiral PAPP. I believe right now that I am getting questions from the administration and from the Department which indicate that they recognize that the need is developing for us to have icebreaker capability up there. It hasn't gone much beyond that.

I would agree with you. We have studied it a lot. They all seem to come to the same conclusion. But I think because it is such a large investment, we just haven't proceeded beyond that.

Mr. COBLE. Thank you. Beyond the 2009 Presidential directive on the Arctic, it seems to me there has been little guidance from

the administration on what the United States should be doing in the Arctic. There have been several reports and plans that mention a need for a presence there, but they have all fallen short, it seems to me, of a concrete mission statement for the Arctic.

And I guess my question is twofold. What will the administration—when will the administration provide a plan for the proper role of our Nation in the Arctic, and what should the national presence be in the Arctic, and what should the Coast Guard's presence be in the Arctic?

Admiral PAPP. Sir, I have no timeline on an administration plan for the Arctic. In the absence of that, I feel a strong responsibility for Coast Guard equities that are involved up there. And, as I said, in the short term, with the drillings starting in the Chukchi Sea, we have had to come up with a plan for Coast Guard operations up there for next summer. But it is also coordinated with the Department of Interior, as well.

So, we are very hopeful that, between the Department of Homeland Security and the Department of Interior, that we will start with our short-term plans, in terms of how we are acting up there, which will gain momentum into developing those long-term plans.

And this has the support of Secretary Napolitano. I just came from a meeting with her on Tuesday, informed her of the progress we are making, and she is very interested in getting the briefing after we do it to both the deputy secretaries for Interior and Homeland Security.

Mr. COBLE. Thank you, Admiral. Gentlemen, let me ask you this. Does it concern you that other Arctic nations, and even some non-Arctic nations, such as China, are, I am told, years ahead of the United States in terms of Arctic planning?

How do we best protect our sovereignty and national interest in the Arctic?

Admiral PAPP. Well, I would say, sir, a persistent presence in the Arctic. First of all, another more strategic issue is accession to the Law of the Sea Treaty, which gives us a venue and standing with all the other Arctic countries that have already signed on to that. We can make plans, we can map, we can talk about what we think is our extended outer continental shelf claim, which expands our exclusive economic zone. But until we have the status or the standing of being part of that convention, we cannot make legitimate claims.

So, in the absence of that, we have been sending *Healy* up there to do mapping of the area. *Healy* provides a sovereign presence in those waters. And, of course, as we start drilling this next year, we will have an increased Coast Guard presence up there asserting our sovereignty.

Mr. COBLE. Thank you, Admiral. Lieutenant Governor, you want to weigh in on that, as well?

Mr. TREADWELL. I think what I would like to say is we do support Accession Law of the Sea. There is a provision in the law of the sea, article 234, that allows us to help protect against these itinerant vessels.

And besides the oil drilling that we fully support and we hope will happen this summer, we just have to pay attention to the fact that people are already shipping crude oil, iron ore, gas condensate,

aviation fuel, and other cargos right through the Bering Strait. And if there is a spill, we don't—that is not the American oil companies' responsibility. These are cargos going from Norway to Japan, from Russia to Thailand, from Russia to China. And this is happening right through this narrow spot in the ocean.

And it helps us to have that capability of icebreakers to protect our own interests. So there is the sovereign interest. I am not too worried that somebody is going to take our land. It is important that we do the mapping, but the sovereign interest of being able to protect our shore and our coast line is missed when we don't have that maritime capability.

Mr. COBLE. I thank you, sir. Mr. Chairman, I have got a judiciary hearing I have got to attend. I will try to come back.

Mr. YOUNG. I thank the gentleman for his questions. Mr. Landry?

Mr. LANDRY. Thank you, Mr. Chairman. You know, I find it just fascinating, the comment you made speaking to Mr. Larsen, in that—the comments that were made around that table from other countries saying that there is a shortage of icebreakers.

And so, as a business owner and someone, you know, who tries to live the American Dream, I recognize that we have an opportunity, of course, if we help and promote our private sector maritime industry, where we could be a leader in having a private icebreaking fleet. So, you know, again it is an interesting twist. Because it would be great to see those countries and say, "You know, Admiral, boy, I will tell you, Americans just are making first class icebreakers and we would like to lease from you all, as well."

Do you agree that 10 icebreakers, based upon the 2010 "High Latitude Study," is what you all need, 6 heavy and 4 medium icebreakers? Do you agree with that?

Admiral PAPP. Well, sir, we could certainly put those to use. You would need that many to do a persistent presence—in other words, keeping an icebreaker up in the Arctic at all times of the year, and also having the ability to be down at the Antarctic as well. The "High Latitude Study" looked at that, and you are really looking at both those areas.

Mr. LANDRY. So—and of course I think we can all agree that we probably, in the current fiscal condition we are in, would never be able to appropriate the money to build 10. So would you prefer to have 5 icebreakers you own, or 10 you lease?

Admiral PAPP. I would have to think about that. That sounds like an intriguing deal, but I am just not sure.

Mr. LANDRY. OK. I mean I think I know what the answer is, but I appreciate it. I mean because I certainly would like you to have what the study would recommend that we would have, and that would be the maximum amount of vessels that we could put up there.

I know that a recent Coast Guard study projected that the cost—a cost of $859 million to design and construct a new heavy icebreaker. Is that the total cost of the icebreaker?

Admiral PAPP. Yes, sir.

Mr. LANDRY. So that would include the cost for regularly scheduled overhauls?

Admiral PAPP. No, that is the price for constructing the icebreaker itself. And then you would have to put annual budgetary authority and our operating expenses to then maintain it and, of course, money for periodic overhaul.

Mr. LANDRY. And then, of course, eventual decommissioning costs as well, I would assume.

Well, let me ask you this. If it is going to cost us $859 million to build 1 new heavy icebreaker, would the Coast Guard be putting all of the cost of that build in the first year of the appropriation, or would it spread it out in multiple years?

Admiral PAPP. Sir, that is speculation. Because I would make the case that this is something that should not be a burden solely upon the Coast Guard budget. Icebreakers are used across—to support across the Government operations——

Mr. LANDRY. And I agree with you as well, Admiral. I am just trying to understand, from a budgetary perspective, how we would attack this in recognizing how CBO would score it.

In other words, when you would make the request, regardless of whether you would go to other agencies to put in their pot of money, would we take that $859 million and just add that into the first year, or would we try to spread it out, based upon the construction time of the vessel?

Admiral PAPP. No, you would start out with certain smaller amounts of money to take you through the acquisition process, in terms of design specifications and then down-select of designs from multiple companies. And then you would not put the bulk of that money in until you are ready—you have down-selected and ready to start construction.

We are going——

Mr. LANDRY. Mr. Chairman, I find this fascinating, because when we try to score the lease, the CBO puts it all up in the first year. And so we are not comparing—we are not able to compare apples to apples. It is like an apple to an orange. I mean the admiral just said—and I think he is right—in that if we would budget a new heavy icebreaker, they would spread the cost of that appropriation over a time period. But yet, when we try to score the leasing, CBO puts the entire lease for the 20 years in—and penalizes us in that first year——

Admiral PAPP. I need to clarify that, sir. Because, I mean, what we are required to do is there is certain money for design, but once you start construction—in fact, we are going through this now with the National Security Cutter—one of the challenges we find in terms of trying to fit the National Security Cutter in our budget is that OMB, under the requirements of A–11, requires us to put long lead materials, construction costs, and then post-construction costs all in the same budget year, whereas in the past we might be able to put long lead materials in a given year and then follow-on construction costs.

And following strict A–11 guidance has required us to put all that money in 1 year. Hence, the reason they do it with leases, in terms of scoring upfront, as well.

Mr. LANDRY. Right. But I still don't think it is an apples-to-apples example. I mean at the end of the day, the Federal Government is not going to outlay the entire cost of the lease in 1 year.

And the problem we have up here—and, look, Admiral, it is our problem, and it is not your fault—this Federal Government doesn't understand cash flow. You know, and that is my point, is that we are being penalized, and we are not able to truly assess a lease-versus-build option. Mr. Chairman.

Mr. YOUNG. I thank the gentleman. And, you know, Admiral, I don't know whether you should do it or whether we should do it, but somebody should be able to lay out a plan. Which is more economical, owning, maintaining, manning a ship by the Coast Guard after going through all the other Federal requirements, or leasing from a company that would build the appropriate vessel that you put the covenants in?

And I think there has to be a plan. Maybe we should do it. You know, I hear these different stories. I don't know whether leasing is cheaper. But I do know they don't have to go through the programs that you have to go through, under the Federal laws. It may be cheaper. Is maintenance cheaper? Maybe. Probably. So that is the answer we get. Because what we want are the vessels in the Arctic. And I hope that you would be working with us so we can come down with a program.

And, you know, I appreciate your support for the completion of the eight National Security Cutters. You know, the criteria included in the recently House-passed Coast Guard bill set by the Coast Guard when funds now more than $3 billion are requested to acquire the National Security Cutters. It is truly unfortunate the Coast Guard now feels meeting its own requirements are disruptive. Now that is sort of strange to me. I am not being hostile. I—we use those in that bill. Now they are disruptive? Why?

Admiral PAPP. Well, for instance, sir, one of the things is demonstrating 225 days underway. In order to do 225 days underway, we need to do a multiple crewing concept, which—we don't have the money right now to buy the additional crew, nor do we have the—all the ships online yet. I mean we just have three. The third has been delivered. And we are operating them and testing them. When you have the full build-out, and you have the additional crews to be able to do the crew rotation and swap, you can get to those extra days.

I think one of the other provisions was demonstrating UAV capability. We are continuing to do that, but the Coast Guard can't afford to do that all on our own, because what we need is the support of Navy, which is developing unmanned systems. And we are leveraging off them spending the money and doing the testing. And, in fact, this next summer we will be testing one of their smaller systems.

Mr. YOUNG. Well, Admiral, all I can say is those recommendations came from your department. They are not—we didn't make those up. And either they were given to us accidentally or inappropriately, but you know, I would like to see you follow through and if you tell us why—I guess you just did, to some degree—why you can't do it.

You mentioned another thing that interested me, where you would be staging—the areas. And you mentioned Kodiak. I believe that is where the *Healy* is, is that correct?

Admiral PAPP. That is where the *Alex Haley* is.

Mr. YOUNG. *Alex Haley*. I sponsored language in the last bill about your study and the look at locations that are ice free or nearly ice free that would serve as year-round bases for the vessels and aircraft to support operation in the Arctic region. While I recognize it is important to have base facilities in the far north, that is awful shallow water, as you know. That is going to be our biggest challenge.

But are you looking into any other bases, other than Kodiak? Are you looking at the—any of the islands, or Nome, or Platinum, or anything like that, or are you just settled now on Barrow?

Admiral PAPP. Well, Barrow is the place that we are looking at that has probably the most—the best infrastructure that is in existence for the shore side of what we are doing.

Mr. YOUNG. What I am leading up to, Admiral, is when you say there is going to be vessels stationed in the lower 48, that bothers me. And I am not being selfish about this, but this is an Arctic region, not Hawaii or not San Diego, or not San Francisco, or not Seattle.

Mr. LARSEN. Nothing in Seattle.

Mr. YOUNG. Nothing in Seattle.

[Laughter.]

Mr. YOUNG. But, you know, just—I mean have you—are you looking at other areas for basing?

Admiral PAPP. No, sir. As a matter of fact, we are going to have fewer ships to base, and we will need fewer ports.

But you know, the history of us going into Alaska, even in our days as the Revenue Cutter Service, when Alaska was a territory, we have always had bases primarily in Seattle, where we deployed the ships from.

Mr. YOUNG. Well, you know why that was. Be very careful. You know why that was. Because Alaska was a—you know, a foreign territory, and all the money was in Seattle. And that is where the pressure went.

Now, I am just suggesting respectfully, because we have the largest Coast Guard operation in the United States in Alaska. But if you are going to station vessels like the Gates and those things, they ought to be stationed in Alaska, not down in the lower 48. It saves fuel. Housing can be a problem, we can solve that problem. I want to talk to Mr. Treadwell about that a little later. But keep that in mind.

And if I can go back to the concept of the cutters again, we are talking about the cutters, all the time about the cutters. Are we planning enough other support, infrastructure? Is there a plan? Have you got a plan about what we need up there, other than the cutters?

Admiral PAPP. Well, yes, sir. We don't have a plan right now, but what we are doing is we have been evaluating the last 4 years, and going up there and testing our equipment that we currently have and looking at the locations. We have exercised out of Barrow, out of Kotzebue, and out of Nome, to look at those three locations.

Mr. YOUNG. Have you looked at St. George and St. Paul?

Admiral PAPP. Well, we operate out of there from time to time. As you probably know, when we get into the crabbing season and the fishing season, we forward deploy helicopters and C–130s first

of all to Cold Bay and then up to St. Paul. And what we are looking at is just actually an extension of what we have done in the past, except this year we will take those aircraft and move them further north, up to Barrow, to operate during the——

Mr. YOUNG. What about docking ships in either one of those areas? They are the only ice-free areas in the Arctic that I know of.

Admiral PAPP. Well, therein lies the challenge. And I am trying to answer your question on basing up there. Kodiak has limited capacity.

I started my career up there. I was stationed on a ship out at Adak. I lived at Adak for 2 years. And of course Adak is closed down now. You can go in there and occasionally get fuel.

If we go back to the Revenue Cutter Service days, we based out of Dutch Harbor. And I have been into Dutch Harbor many times. And there is, in fact, where Shell is going to muster all its forces before they start to proceed up to the Chukchi. We will be there. We will refuel in Dutch Harbor, as we have probably for over 100 years, and then proceed up north towards the Arctic.

Nome is the only one, in my estimation, that has potential right now. I know since my days of sailing around the Bering Sea they have finally built a pier there. But the pier—I think the depth of the pier was only about 22 feet of water, which doesn't accommodate a lot.

Mr. YOUNG. That is a problem. And looking at the—I believe it is Platinum, or down in that area, there is a deep harbor there, but it is quite a ways out. See, I am trying to get you closer to the Arctic.

Admiral PAPP. Right.

Mr. YOUNG. And, you know, that saves fuel and it saves response time which is, I think, crucial.

Admiral PAPP. Right.

Mr. YOUNG. And we will get back on this icebreaker thing, because I am not—I am trying to figure out a way that shows the tax payer which is the best way to put those icebreakers in the Arctic. You know, Russia has got, I think, five atomic-driven icebreakers. I know they have got one big one. And that is crucially important, to make sure that works.

But Mr. Treadwell, you mentioned what the State is doing, all the good things. Why don't you propose to the Governor that we buy those two decommissioned icebreakers and refurbish them, and then we will lease them back to the Coast Guard?

Mr. TREADWELL. As I said in my testimony, Mr. Chairman, that suggestion has been made. It was yesterday with Senator Lesil McGuire, who published an op ed piece on this, and is going to be sending the committee a letter suggesting the State get involved in financing the icebreakers, as well as the port efforts.

At this point we have told—and when the commandant and I last met and the Governor and he last met, we talked about ways the State can support forward basing. And we are putting money and lots of effort into this western Alaska port study, to understand where we have got deepwater capability, where we might focus on having ports.

And obviously a capability would be a harbor refuge for this international shipping coming by, as well as supporting oil field development and fisheries. Some of the fisheries, fleets are moving north from Seattle. And any Coast Guard vessels are all part of that calculus.

Mr. YOUNG. Well, instead of getting those decommissioned vessels, maybe we just ought to have the State contract to build two big new icebreakers. And Admiral Papp, you would be more than willing to lease from the only Arctic nation or only Arctic State, from the State of Alaska, to do the work for you up there, and then you would have your icebreakers. And the solution would be solved, we don't have to get it out of the Congress, and we would have a little control over our own destiny. I want you to start thinking about that. It is outside the box.

Mr. Larsen, you have some more questions?

Mr. LARSEN. My first one is for the chairman. What do you have against the Pacific Northwest?

Mr. YOUNG. I have nothing against it, but we were treated as a colony for so long, and we are finally getting control of our fisheries. Now we want to be in control of the Arctic. I think that is important.

Mr. LARSEN. Well, we can—one day—when we get this solved, we can actually have a debate about where things—let's be sure we get things built, then we can debate about where they go.

Actually, the chairman's questions about infrastructure and where things go and what kind of support infrastructure is necessary is important. But what I am gathering, Admiral, is that we are still notional. We are not in a position where the Coast Guard is ready to put anything into an 2013 or an 2014 request. Is that about right?

Admiral PAPP. That is right, because we already have a number of acquisition projects that we are working that we are having a lot of difficulty fitting within the limits of the budget right now. So adding new assets for emerging needs is a real challenge for us to accomplish.

Mr. LARSEN. Yes. Is there—I think from my perspective—and the chairman is sort of getting at this—but from my perspective, sort of getting an idea of what that looks like for—you know, what would a deployed—what would the footprint look like? What would the infrastructure look like? What would it be?

Not so much on the map, but to kind of—what is it that you need that would be specific to this set of missions in the Arctic? Having that in a more organized form would be helpful to me so that I can envision it better——

Admiral PAPP. Right.

Mr. LARSEN [continuing]. And then maybe be able to act on it.

Admiral PAPP. Well, we still have a winter season up there where it is iced in, and there will be little to no commercial activity going on.

Mr. LARSEN. Right.

Admiral PAPP. So I am reluctant to put a permanent footprint—I don't have the room within my budget to appropriate a permanent footprint up there. So, in the absence of that, we do what we have done in numerous areas for many years, is the strength of the

Coast Guard is having substantial ships with good command and control capabilities that can stay out there in a sustained basis, which we have been doing in the Alaska territory and in the State of Alaska, in the Bering Sea, in the Arctic for well over 100 years.

Yes, they deploy from down south. But that is because sometimes we need them to do other jobs, as well. And we have been now—for 45 years we have had 12 High Endurance Cutters that we could call upon to get this job done.

In the current limits of the budget and the projects that we have got going on, they are going to be replaced by eight ships. And operating in the Bering Sea isn't the only responsibility I have. I have worldwide responsibilities for those ships. And with fewer of them it becomes more difficult.

But those are what we need right now, because we are not going to be able to do a year-round presence up there. So what we need is icebreakers, which will get up there at the beginning of the season, when the ice starts breaking up, and then it can come back in there as the ice starts forming again.

But during the summer months, when there is going to be this increase of activity, either because of ships coming through the North Sea route or the drilling that is going on, we need substantial ships that have the command and control capabilities, that can do search and rescue, that can launch and recover helicopters, that have substantial fuel reserves so they can stay up there on a sustained basis. And that is what the National Security Cutter provides for us.

Mr. LARSEN. Yes. Lieutenant Governor Treadwell, I want to be careful about getting into Alaska's business.

Mr. TREADWELL. Sure, good idea.

Mr. LARSEN. As much as I don't appreciate folks getting into Washington State's business.

However, this gets at the chairman's questions. Has Alaska—have you all done—walked through sort of what your vision of that footprint might look like? You talk about the western Alaska port study and so on and kind of where you all would fit into this picture as a State and——

Mr. TREADWELL. Yes. To respond, a couple things. First off, we did push and we are working with the Corps of Engineers on the western Alaska port study right now. But as you heard in my testimony, we put a lot of stock in what you told the Committee on Marine Transportation Services——

Mr. LARSEN. Sure.

Mr. TREADWELL [continuing]. To do last year. And I went and met with the leadership of that group and said, "You have got to be much more ambitious."

And the disconnect here is that I will sit here, and we are wondering whether or not we can eke one icebreaker out of this——

Mr. LARSEN. Right.

Mr. TREADWELL [continuing]. When I have been in Russia, I have been in China, I sit down with the Arctic nations, as I did with Secretary Clinton in May, and you know, we brought all eight nations together to do this Arctic marine shipping report. This report said that there is an Arctic-wide infrastructure that needs to be done. There is a project pending at the Arctic Council on that now.

And, you know, 10 percent of Alaska's workforce services the airplanes that carry most of the air cargo between Asia and Europe, between Asia and North America. A ship landing with cargo from China in your district may have stopped for fuel in our district.

Mr. LARSEN. Right.

Mr. TREADWELL. And the point of it is we may be ending up playing that global role on global shipping, as we take a look at that. And that is where we have been hoping that the Federal Government would look at the whole picture.

And when the "High Latitude Study"—which I only learned this morning was fully available—says that you need 10 icebreakers, part of it is we need to think about our role in commerce. Last year you not only told CMTS to think about the big picture, but you also told him that he has a mandate to—you took Franklin Roosevelt's Executive order and you put it in the law.

And you hear from the Great Lakes folks all the time how important icebreaking is to commerce there. They shut down for the first 3 months of the year, usually. We have got a situation where from the middle of the summer through the first month of the year you are going to have Arctic commerce for the decades to come, at least. And we think it is important to have that presence.

I should say one other thing about Washington versus Alaska. A lot of these ships that are transiting the Bering Strait have been for many years—start in Seattle.

Mr. LARSEN. Yes.

Mr. TREADWELL. Bring goods to—there have been times when you've seen tugs and barges or heavy draft ships leaving ports in Washington State, going through the Bering Strait to serve markets in Russia, Alaska, or Canada.

Mr. LARSEN. I was just going to note. It is a lot more of Washington and Alaska, as opposed to Washington versus Alaska.

Mr. TREADWELL. Yes, sir——

Mr. YOUNG. No, you don't understand. It is not versus. We just want to be treated, you know, like part of the United States, not as a colony any more, you know.

Mr. TREADWELL. Well, you know, just to add one more thing, and it can—the discussions I have had with the chairman. You know, if you were trying to expand the Panama Canal $1 billion, the price of one of these icebreakers, $859 million, would barely move a mile of dirt. And yet you have got something happening here at the beginning of this century which is as significant for global commerce as what happened at the beginning of the last century, with this waterway opening up. And we have to think——

Mr. YOUNG. I am going to ask one question and go to Mr. Landry.

Admiral, you have been speaking about the Arctic. What is your feeling about the Shell activity, as far as in the Chukchi, and the Beaufort, as far as oil spill response, the availability of ships? What is going on up there, as far as you know, as a Coast Guard involver?

Admiral PAPP. Well, I was very interested in that. In fact, I went to Shell headquarters in Anchorage, while I was up there. And they gave me a very thorough briefing on their plans. And I have to tell you I was impressed. Last time I—we had the hearing on the Arc-

tic, I was concerned because I had not seen Shell's plans. I know what we had available. But I am feeling much more comfortable, now that we have come up with our operation plan for next summer. And I have had a chance to view Shell's plans, as well.

And once again, I have taken a superficial look at them, but the 17th District Commander, Admiral Ostebo, has reviewed it thorough with his staff. And we have been providing our input to the Department of Interior, who will approve their response plans.

But they truly did their homework, I believe. And I think they are going to be well prepared for next summer.

Mr. YOUNG. Now, they have purchased or leased vessels, or—what kind of vessel support are they going to have?

Admiral PAPP. Well, I know—in fact, I got an article yesterday about one of the—one of their icebreakers happens to be being built in Louisiana, surprisingly enough.

But it—I saw the plans for them when I was up in Anchorage, and so I was interested in seeing this article yesterday that popped up. It is actually probably about as capable for breaking ice as *Healy* is. Doesn't have the scientific capabilities that *Healy* does, because when we build an icebreaker it has got to serve multiple communities and departments and responsibilities, but——

Mr. YOUNG. Is that the *Nanuq*?

Admiral PAPP. Actually, this one they said is unnamed. They are going to use a competition of Alaska school children to come up with a name for the vessel.

Mr. YOUNG. OK. But are those anchor ships or are they drill ships or are they oil spill ships? What are they?

Admiral PAPP. They are oil spill response fleet and it is icebreaker capable, and also set so—it can set the anchors for the platform.

Mr. YOUNG. It is really an anchor ship is what I—sets the anchors for the drill rigs and——

Admiral PAPP. Yes, sir.

Mr. YOUNG [continuing]. Everything else. I was just curious what you thought of it, because that is very important to the State of Alaska and this Nation.

Admiral PAPP. Well, my expectations were low when I went to Anchorage, and I was very impressed, coming away from Anchorage, when I spoke to Shell.

Mr. YOUNG. Mr. Treadwell, you got any comments on that same line?

Mr. TREADWELL. I have reviewed what Shell is doing in a cursory manner. I have also looked at the Coast Guard's plans for next summer. I think we are well prepared for a drilling season next summer.

Mr. YOUNG. Good.

Mr. TREADWELL. The issue of the ships, the company that is building these ships for Shell has visited with me and other State officials, and that is why you heard us say in our testimony that we think the leasing option should be considered. We don't have a way to judge the relative cost. But if it—on the face of it, it seems like it may be a way to get us the capability that the admiral needs.

Mr. YOUNG. Mr. Landry, excuse me.

Mr. LANDRY. Thank you, Mr. Chairman. We would love to build you an icebreaker, but I would much rather you lease it—in Louisiana.

Admiral, what is it that—I mean other than—do you just believe that going on a leasing option is a slippery slope for you all?

Admiral PAPP. I don't know how to characterize it. We have looked at various business case scenarios, each and every time. Looking at—once again, from our normal perspective, Coast Guard perspective, which has been owning ships forever—and generally we keep ships 30 to 40 years or beyond—there is a point where leasing becomes more expensive. It is out at about the 20- to 25-year timeline. I just don't have the experience with leasing to be able to give you a good opinion on it.

And once again, I am ambivalent. We just need the icebreaking capability. I think it is for people who can do the analysis, the proper analysis. But they also have to take into account the capabilities required, and we need to get about the business of determining the exact capabilities that we need, which would take into account National Science Foundation requirements, Coast Guard requirements, the requirements to break into McMurdo, to come up with a capable-enough ship.

Mr. LANDRY. Well, are those the requirements that they are mandating on the vessels that they are leasing from foreign sources right now?

Admiral PAPP. I have not—the Coast Guard has not been involved with their leasing process for other countries. Presumably, and as I understand it, what they are doing is they are looking at a ship that is capable enough——

Mr. LANDRY. To break the ice.

Admiral PAPP [continuing]. Breaking in. But that was only because they were hiring it to break out for the resupply of McMurdo. Clearly, they—when they were doing science deployments in the Arctic, *Healy* has been perfect for them. In fact, I visited *Healy* while I was up in my Alaska visit, and National Science Foundation was aboard. They love that ship, in terms of its accommodations, its labs, et cetera, that were built pretty much to their specifications.

Mr. LANDRY. Now the U.S. Navy leases vessels that are not involved directly in combat activities. Do you envision these icebreakers playing a direct combat role in the missions that you all have up there?

Admiral PAPP. Oh, it could, potentially, depending—I mean I don't foresee a scenario right now where we are going to be warfighting in the Arctic. But who knows what—it is an uncertain future.

Mr. LANDRY. But would you be designing those vessels in a design that would implement them into that combat role?

Admiral PAPP. Well, we would prefer to have a design that would accommodate a combat role, and that would be up to our manning standards, fire-fighting damage control standards that we expect on all our Coast Guard cutters.

Mr. LANDRY. And so that is what I am trying to understand.

I mean I still think—you know, it is just—look. If Shell is leasing their icebreakers and their vessels, and all of the majors lease the

vessels that they utilize in their maritime offshore—in their offshore operations, and we certainly know that those majors are perfectly capable of owning and fleeting their own vessels—and they did at one time, actually, a long, long time ago they used to do that, and then they got away from it—I just think that when you look at—from a holistic standpoint, when you look at it and say, "OK, the cost of construction, the cost of design, the timeframe involved, the maintenance"—because if you blow a rod on a leased vessel, it is not—you don't have to come back to us to appropriate that amount. You don't have to decommission it.

In fact, the other thing is that if you lease it on a 20-year lease, or a 20-, 25-year lease span, that means you get a newer, up to dated, more sophisticated icebreaker after that timeframe, where before, here we are—example in case with the *Polar Star* and the *Polar Sea*—in that we have got to patch up a much older ship. And so, instead of looking at it in a 30- or 40-year lifespan, we could actually get you two icebreakers you could utilize over that lifespan, if we lease it.

So, again, I only say that just to—for food for thought.

Admiral PAPP. Well, as I said, sir, I am truly ambivalent to this, except from what experience I do have.

Now, two points. Yes, the Navy leases some ships, but we have got a Navy that has well over 300 ships. So if they lose a leased vessel or if something is pulled back or something happens, they have plenty of other ships they can fall back upon. Right now all I am falling back on is the Coast Guard cutter *Healy*. And it feels good to know that we own that and that is our ship for 30 or 40 years, and we can rely upon it.

In terms of leasing, my personal experience is I lease one of my two cars. And I pay a lot of money leasing my car, but at the end of the lease period I have no car and I have spent a lot of money. So I don't know if that is directly applicable to ships as well. But right now I have got—half my garage is empty, because I just turned one in. And I——

Mr. LANDRY. But you are getting ready to get a brand new one, I am sure. I don't think you are going to stay as a one-car garage.

Admiral PAPP. I was really considering buying the next car, sir.

Mr. YOUNG. Now we are going to ships and cars. It is time to cut this off.

[Laughter.]

Mr. YOUNG. Mr. Cravaack?

Mr. CRAVAACK. Can I change it to trains now?

[Laughter.]

Mr. CRAVAACK. Well, first off, Admiral, thank you for all the great men and women in the United States Coast Guard. I apologize for being late, I was in another committee meeting. But all the great things that the Coast Guard do on a daily basis that none of us know about. So thank you to the United States Coast Guard.

And as our strategic interests increase in the Arctic region, so must the responsibilities of the United States Coast Guard, as well. And I find it difficult to understand the wealthiest Nation in the world relying on one single vessel to do icebreaking up in the Arctic. Hopefully the *Polar Star* will be able to be reconditioned to a satisfactory point where we will be able to engage that as well.

But I truly believe in your mission. And being a Navy guy, I understand about maintaining our own vessels. And my—one of my questions I had when we were—my colleague here—when you are leasing a vessel, say for example an icebreaker, can you take that into a war zone?

Admiral PAPP. Yes, sir. We have looked through the legal considerations on this. As long as we have a Coast Guard crew—in fact, you can even make a mixed crew of civilians and Coast Guard people. But as long as it is commanded by a commissioned officer, you can assert sovereignty, you can take it into war zones. And, in fact, the Navy does that, as well.

Mr. CRAVAACK. OK. That is a—I wasn't aware of that.

But I am with you. I think it should be our vessel and manned by our crews, and with—flying a United States flag that is a Navy vessel, so—or a Coast Guard vessel. So I am with you on that point.

And I would just like to support—undying support for the United States Coast Guard and their mission and what they do, and I think we should give them the resources they need to complete their mission.

So, with that, I yield back.

Mr. YOUNG. I thank the gentleman. And I don't have a question, but I have been informed that *Nanuq* is a 4,500 gross ton vessel, and it stands offshore for 25 miles. The *Aiviq*—called "the Walrus"—is an anchor hammer, platform supply, search and rescue, ice management, and supplemental search and rescue unit, and weighs 8,500 gross tons, and it stays up there all season in the ice. So I just want to get that straight.

I want to thank the admiral and thank you, Lieutenant Governor. We are going to try to solve this problem with the help of everybody cooperating, and making sure the Arctic is recognized. And we might come up with a—I call it an Arctic policy for solving these problems.

I happen to agree with both the ranking member and Mr. Landry on the necessity of this. Because if we are just sitting still, all the rest of the countries are all actively involved, it is not good for us. And I think we ought to see the big picture. This is equal to sending a man to the moon, probably more important. That was more exciting, but this is more important to the future of the Nation.

Thanks to both of you for being before the committee. You are dismissed.

Next panel. Dr. Kelly Falkner, deputy director, office of polar programs, National Science Foundation; Mr. Stephen Caldwell, director of homeland security and justice, Government Accountability Office; Mr. Dave Whitcomb, chief operating officer of Vigor Industrial on behalf of the Shipbuilders Council of America; and Rear Admiral Jeffrey Garrett, United States Coast Guard (retired).

And we will go down the line as we were introduced. Dr. Falkner, as soon as you take your seat, we will get busy. That is a good idea. Doctor?

TESTIMONY OF DR. KELLY FALKNER, DEPUTY DIRECTOR, OFFICE OF POLAR PROGRAMS, NATIONAL SCIENCE FOUNDATION; STEPHEN L. CALDWELL, DIRECTOR, HOMELAND SECURITY AND JUSTICE, GOVERNMENT ACCOUNTABILITY OFFICE; DAVE WHITCOMB, CHIEF OPERATING OFFICER, VIGOR INDUSTRIAL, ON BEHALF OF THE SHIPBUILDERS COUNCIL OF AMERICA; AND REAR ADMIRAL JEFFREY M. GARRETT, UNITED STATES COAST GUARD (RETIRED)

Dr. FALKNER. Chairman, Ranking Member Larsen, and distinguished members of the subcommittee, I appreciate this opportunity to discuss how the National Science Foundation is meeting its icebreaking needs for research in the Arctic, as well as for research and operations in the U.S. Antarctic program that NSF coordinates on behalf of the U.S. Government.

To promote scientific progress, NSF bears a critical responsibility for providing scientists with access to the oceans. And, in particular, to the polar oceans. These waters comprise only 10 percent of the global ocean area, but have a disproportionate influence on our climate. In recent decades, the polar oceans have undergone wide-ranging physical, chemical, and biological changes, which scientists are eager to study. Moreover, they are among the least-explored parts of our planet and are ripe for new discoveries.

My oral testimony will focus on the needs of the U.S. research community for polar ocean access from NSF's perspective. I will then offer brief comments on the recently passed House version of the U.S. Coast Guard's authorization bill, H.R. 2838.

Mr. Chairman, ice capable research platforms are essential to keeping the U.S. at the forefront of polar research. A number of nations have recently constructed—as you have heard this morning already—or are in the process of constructing new ice capable ships. Absent the U.S. Polar Class Icebreakers, only Russia currently has the heavy icebreaking capability to access the Arctic Ocean in winter. Only Russia and Sweden currently have proven capability to provide access for resupply of two of our Nation's three year-round Antarctic research stations.

NSF is providing funding for the *Sikuliaq*, a light-duty icebreaker that will launch in 2014. This vessel will be used to study the vital ecosystems and ocean processes in the resource-rich waters of the Gulf of Alaska and Bering Sea. The only other U.S. Government-owned research icebreaker is the U.S. Coast Guard Cutter *Healy*, a 12-year-old vessel that can routinely operate in ice up to about 5 feet thick, and on which we sponsor Arctic marine research.

For ice capable platforms in the southern ocean, NSF-supported scientists rely on two leased vessels, *Nathaniel B. Palmer*, and the *Lawrence M. Gould*, both owned by Edison Chouest Offshore. These U.S. research ships cannot reach some scientifically important areas in the ice on their own. Joint expeditions with the Swedish heavy icebreaker *Oden* allowed this access in recent times. However, earlier this year Sweden concluded that it needed *Oden* at home. Our only domestic alternative would require the Coast Guard to redeploy *Healy* from the Arctic, where it is in heavy demand by scientists. My Coast Guard colleagues can speak more

knowledgeably about how an Antarctic redeployment of *Healy* would affect their missions.

So, as you can see, NSF relies on icebreakers to keep us active at the frontiers of polar marine research. NSF also relies on heavy icebreakers to maintain a viable Antarctic research program for the Nation. As articulated in Presidential Memorandum 664, and subsequently reaffirmed in a series of Presidential decision directives, U.S. policy calls for year-round U.S. presence at three research stations in Antarctica. Maintaining this presence is essential to U.S. geopolitical, diplomatic, and scientific interests. Our presence also ensures the U.S. a leading role in governance through the Antarctic Treaty. NSF support is relied upon by other Federal science agencies to carry out Antarctic research.

For many years, the U.S. Coast Guard annually opened a vital supply channel in the sea ice to McMurdo Station, which serves as NSF's logistics hub. Without resupply, both McMurdo and South Pole Station would have to close. When the *Polar Star* and *Polar Sea* approached the end of their design lives, NSF began contracting for support from other countries. Our current contract with Russia's Murmansk shipping company will continue for 3 years. But as you might imagine, Mr. Chairman, NSF would prefer to rely on U.S. assets for such a vital mission.

Thus, NSF was disappointed to learn that the House-passed Coast Guard and Maritime Transportation Act of 2011 called for decommissioning of *Polar Star* within 3 years. We have been hoping that *Polar Star* would be available for 7 to 10 years for icebreaking services, once the ongoing renovations were completed.

So, Mr. Chairman, committee members, U.S. researchers have led the world in polar science. I refer you to my written statement that highlights polar marine science objectives of global relevance.

U.S. scientific preeminence can only continue with appropriate research and logistical support. NSF will continue to work with the Coast Guard and other Government agencies to develop a longer term solution to the Nation's icebreaker needs.

Thank you for your time.

Mr. YOUNG. Thank you, Doctor. Stephen Caldwell.

Mr. CALDWELL. Mr. Chairman and Ranking Member Larsen, other members of the committee, thank you for having GAO up here to talk about Coast Guard Arctic operations.

My statement today is based on a report we did in September 2010 with recent updates. There will be three areas of focus. First will be Coast Guard efforts to determine the requirements, second about icebreakers, and then third about interagency coordination.

Our 2010 report described a lot of activities the Coast Guard had to identify its requirements. These included deploying assets up to the Arctic. It also included seasonal forward operating locations, which we have already talked about. Then, after the publication of our report, the "High Latitude Study" was released. The "High Latitude Study" had much more details, in terms of Coast Guard's options and plans for the future. This study is contractor-written, the Coast Guard has not necessarily made decisions on which options are best.

In my written statement, in appendix two and three, we summarize some of the key points of the "High Latitude Study." The

"High Latitude Study" identified some of the most important missions in the Arctic, and which ones were most impacted by some of the deficiencies and gaps in Coast Guard capabilities.

The study then looked at a variety of force mixes. It looked at a current baseline, as well as six different force mixes, and looked at the ability of those force mixes to actually reduce risk in the Arctic. And it also looked at some of the costs associated with those different force mixes.

Regarding icebreakers, there has been three recent studies to look at the icebreakers, including the "High Latitude Study." There was also a recent Coast Guard icebreaker recapitalization report, again done by a contractor. And it has already been mentioned there was a DHS IG report last year on icebreakers.

All three of these reports discuss the current state of Polar Icebreakers. Only one of our three Polar Icebreakers is currently operational. The two contractor studies, both the recapitalization report and the "High Latitude Study," called for new icebreakers to be built, with options ranging from 2 new icebreakers, heavy class, up to 10 new icebreakers, with 6 of those being heavy class, and 4 of those being the medium class, which would be needed to meet the complete suite of U.S. Government requirements, including those of the Department of Defense.

Obviously, new icebreakers will cost a lot of money. Even a single icebreaker currently doesn't fit within the Coast Guard budget framework, as we have talked about. The estimated cost of some of the options I have talked about from the 2 to 10 icebreakers, range from $2 billion to $7 billion.

For a number of years, GAO has been helping this committee and other committees look at Coast Guard's funding for acquisitions, including the Deepwater Program, and talked about how those programs are really crowding out some of the other important acquisition needs, as well as polar and domestic icebreaking.

The recapitalization report that was recently done came to the same conclusion, that the funding was not available within Coast Guard's budget, and made some other suggestions, such as having DOD fund the new icebreakers. That is how the most recent icebreaker, the *Healy*, was funded, out of the Department of Defense's U.S. Navy shipbuilding budget.

Regarding interagency coordination, our 2010 report had quite a lot of detail on Coast Guard efforts to coordinate with not only other Federal agencies, but the State, local, private sector, native groups, as well as the international organizations. Our assessment was generally pretty positive on the level of that coordination.

Since publication of that report, Coast Guard is in a new coordination effort with the Navy. This is called the Capabilities Assessment Working Group. And this group is looking at for both the Navy and the Coast Guard together, what are some of their short-term investment priorities. That group is planning to put a white paper out later this year.

As part of other work we are doing for the Armed Services Committee, we are looking more at that group, and we will report on that early next year.

And, in closing, I will be happy to respond to any questions. Thank you.

Mr. YOUNG. Thank you, Mr. Caldwell. Mr. Whitcomb.

Mr. WHITCOMB. Chairman Young, Ranking Member Larsen, distinguished members of the subcommittee, my name is Dave Whitcomb, I am the chief operating officer at Vigor Industrial, the largest private sector construction, repair, and maintenance company in the Pacific Northwest.

Through top Pacific shipyards in Seattle which Vigor acquired earlier this year, our shipyards have been closely involved with the maintenance and repair of the Coast Guard icebreakers *Polar Star* and *Polar Sea*, since they were commissioned in the late 1970s. We have also maintained the medium Coast Guard cutter icebreaker, The *Healy*. In my testimony today I want to describe the condition of the existing ships, what can be done economically to ensure that those assets continue to perform their missions, and what the alternative of constructing new heavy Polar Icebreakers would entail and cost.

Let me begin with the single most important point of my testimony: the hulls and frames of the *Polar Star* and the *Polar Sea* are perfectly sound and capable of continuing to perform icebreaking for the foreseeable future.

To fully appreciate why this matters, and what the unique value of these ships truly is, it helps to understand what goes into building them. The internal frames of the ships are comparable to the studs or the girders on a building. On the *Polar Sea* and the *Polar Star* the frames of the vessel are about 16 inches apart. On a National Security Cutter—let me back up.

Those are—they are 30 inches deep, they have a 4-inch face frame at the top of the frame, and that leaves an effective space between them of 12 inches. By comparison, a National Security Cutter spacing of the frames is 27 inches in the extreme bow of the vessel, and 49 inches in the rest of the ship. It gives you an idea of the difference in the build of the two vessels.

On the *Polar Sea* and the *Polar Star*, the steel plating in the ice belt of the hull is 1¾ inches thick, compared to 5/16 and ⅜ inches thick on a National Security Cutter. I have two pieces of steel that I would like to pass forward to the committee afterwards, to give you an idea of the difference of those two vessels.

Consider what it takes to fabricate and bend steel that is 1¾ inches thick. Also consider that to weld the framing to the hull plating, the steel plating has to be heated to high temperatures, then highly skilled welders have to go in to those heated and confined spaces and weld that steel together. It is arduous, difficult, and expensive work. Indeed, on the initial build at Lockheed, some of the most experienced workers simply walked off the job because the conditions were so challenging.

What all this means is that it is extremely expensive and demanding to build heavy Polar Icebreakers, something our Nation has not done now for more than 30 years. That is why the existing ships are unique and hard to replace.

I want to emphasize that we do believe there is a need to build new heavy icebreakers, and we urge the Congress and the administration to work together to quickly authorize and fund such a project. This position is also held by the Shipbuilders Council of

America, which represents more than 50 companies and 120 shipyards across America.

But as members of this committee can appreciate, if even the Congress immediately began the process of authorizing and funding new heavy icebreakers, fully functioning replacements would not likely be mission ready for 10 years or longer. What is more, realistic estimates indicate that the cost of a new heavy icebreaker would likely be at least $1 billion.

Until Congress and the administration provide for such funding, and the replacements are actually in the water, we must have the capability to complete the vital missions of our Polar Icebreakers—that our Polar Icebreakers have performed for decades.

The good news is that the Coast Guard cutter, *Polar Star*, is now nearing completion of its reactivation, which will prepare it to function effectively for at least a decade or more, assuming regular maintenance. The other good news is that the *Polar Sea* also can be restored to full mission readiness with a comparable longevity at relatively modest cost, and in a reasonably short period of time.

Vigor Industrial estimates that bringing the *Polar Sea* up to an operationally capable condition would require approximately $11 million. We base this on the fact that we have done comparable work on the *Polar Star* already, and are well aware of what is required. My written statement also includes details of that estimate. This work would require approximately 2 years to complete, and might well be finished sooner, dependent upon the availability of key components.

The take-home message is that for just over 1 percent of the cost of a new vessel, and at a 2-year versus 10-year minimum time horizon, the United States of America would have a second fully functioning heavy icebreaker able to complete vital missions under our own flag for at least a decade.

Others today have spoken of the dangers inherent in relinquishing our icebreaking capacity to former adversaries or economic competitors. Our message today, from a shipbuilding and repair perspective, is simple: there is an affordable, proven, prompt, and practical alternative that should not be squandered.

Thank you for the opportunity to speak with you today. I have provided additional information in my written testimony, and would be glad to answer your questions.

Mr. YOUNG. Rear Admiral Garrett.

Admiral GARRETT. Good afternoon, Mr. Chairman, Ranking Member Larsen, and distinguished members of the committee. Thank you for the opportunity to participate in today's hearing.

As a Coast Guard officer, I spent much of my career serving in the Nation's multimission Polar Icebreaker fleet, operating in both polar regions, as well as supporting these operations in staff assignments ashore. For most of my career, polar operations were usually conducted for defense support and science programs sponsored by other agencies. But transformational changes occurring in the Arctic now extensively affect most of the Coast Guard's statutory responsibilities.

The Coast Guard has made a valiant effort, as Admiral Papp described, to project an Arctic presence deploying cutters, boats, aircraft, and specialized teams to Arctic Alaska to test equipment ca-

pabilities and procedures, and enhance Arctic operational experience. Unfortunately, the most critical and effective capability that the Coast Guard could apply to its increasing Arctic responsibilities is largely missing from the scene. At a time of growing need, our Polar Icebreaker capabilities are steadily drifting into obsolescence.

With only the icebreaker *Healy* in operational condition during the upcoming year, consequences of icebreaker disinvestment are beginning to emerge. The Coast Guard has been unable to deploy an icebreaker for Arctic multimission purposes for over 2 years, and planned science missions for *Polar Sea* have had to be canceled. Perhaps most ominously, a Coast Guard icebreaker will not be available for critical U.S. Antarctic program support 2 months from now.

When *Healy* is engaged in dedicated science support or undergoing maintenance, the Coast Guard has no Polar Icebreakers for other Arctic or Antarctic contingencies or missions. These mission gaps will be somewhat mitigated in 2013, at least for the short term, when *Polar Star* is scheduled to return to service.

Although I was privileged to serve in both Polar Class ships, and am very proud of the 70 years they have collectively served the Nation, the Coast Guard will nevertheless be depending on 1960s technology that is expensive to operate and subject to the risk of additional failure.

During the "High Latitude Study," as we considered present and future Arctic demands on the Coast Guard, it became evident to me that the Coast Guard's lower 48 footprint—that is geographically distributed logistics bases, boat stations, air stations, and sector offices—would be an extremely expensive and inappropriate blueprint for needs in Arctic Alaska.

Moving sea ice, shallow coastal waters, and permafrost make vessel mooring facilities, as one example, very difficult to engineer. Moreover, the seasonality of operational demand and long distances would also make fixed installations less efficient. Instead, again, as Admiral Papp mentioned, a Polar Icebreaker patrolling offshore provides an ideal arctic mobile base. With helicopters, boats, cargo space, heavy lift cranes, extra berthing, configurable mission spaces, and command control and communications facilities, an icebreaker can respond to contingencies and be augmented with special teams and equipment, as needed.

This is not to deny that some shore infrastructure would be needed, but an icebreaker can move to where the action is, carry out Coast Guard missions, engage with local communities and other Federal, State, and local agencies, exercise response plans, and simultaneously provide a visible national presence.

What is clearly called for is a continued level of icebreaker capability to accommodate the developing Arctic demand for Coast Guard services, as well as to fulfill the need for broader national sovereignty and presence. We must maintain near-term capabilities, keeping *Polar Star* and *Polar Sea* available for polar operations, and move forward to build two new icebreakers that can meet future needs more effectively and more efficiently.

These are among the recommendations of the National Research Council's 2007 report on icebreaker capability. The subsequent "High Latitude Study" and icebreaker recapitalization analysis fur-

ther inform the issue and provide a sound basis for an icebreaker acquisition effort.

A review of U.S. requirements would not be complete without examining how other nations are confronting developments in the Arctic. Our declining polar capabilities place us distinctly in the minority, as has been mentioned earlier. The other Arctic nations are actively acquiring new ice capable assets, most notably the multivessel building programs of Russia and our Canadian allies.

Non-Arctic nations, most notably China, are building icebreaking ships and have announced plans for increased Arctic involvement. Even smaller nations, such as South Korea, South Africa, and Chile have recently acquired or are planning new polar ships.

In summary, I believe that if the United States is to protect its Arctic interests and retain its leadership role in both polar regions, the Coast Guard must have the ability to be present in those places today and in the future.

Thank you, Mr. Chairman and members of the committee, for considering these important issues, and for the opportunity to be here today.

Mr. YOUNG. I thank the panel. Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman. Admiral Garrett, can you talk a little bit about your assessment of the pros and cons of leasing versus owning?

Admiral GARRETT. Yes, sir. The perspective I could offer was when I was a member of the Commandant's staff back in the late 1980s here in Washington. We were directed to pursue exactly the same sort of lease versus buy analysis. And, in fact, the Coast Guard had a two-track procurement strategy to compare leasing a new Polar Icebreaker or buying it.

After over a year of analysis, studies, discussion with other agencies, looking around, what became clear was: number one, there was no off-the-shelf asset readily available; and secondly, that in the long run when you cost it all out and calculate the value of the stream of payments—leasing would actually cost more.

And when we did the recapitalization analysis recently we also reviewed leasing again. I think the findings in that report indicate leasing is more expensive, over the life of the vessel, by about 12 percent.

Mr. LARSEN. Why is that? Or why did you find that?

Admiral GARRETT. A couple of technical things. First of all, whoever builds the ship—and again, this would have to be a ship built for the Coast Guard, since there is not something off the shelf out there that you could lease—whoever builds it has to raise capital. And nobody can raise capital more inexpensively than the Federal Government.

Secondly, whoever leases the ship is obviously going to want to make a profit on that lease. As Admiral Papp referred to leasing a car, you know, there is going to be a profit involved. And so, if you take the net present value of all those payments, you come out with a more expensive package if you are comparing the same vessel.

The other issue I think is more intangible, and that is just the fact that we are really not talking about an auxiliary, like the Navy leases, a supply ship or something like that. We are talking about

a frontline Coast Guard capital asset, if you will, a capital ship that is going to be doing frontline Government missions, projecting U.S. sovereignty. And, as you know, the Navy doesn't lease those kind of ships for its frontline fleet, and the Coast Guard doesn't lease those kind of ships for its basic mission capabilities, and that is what we are really talking about, in terms of the ship we need here.

So, while a lease may look attractive, I think there are several things that indicate it may not be the right way to go. And I think that is what we came down to in the recent analysis. And again, this was all documented in the past. That late 1980s analysis was resummarized in the President's 1990 report to Congress, which basically says leasing is more expensive and is not the way to go for a new ship. And that report cleared the way for the ship that actually became the *Healy*.

Mr. LARSEN. OK. One final question for you, and then Mr. Caldwell, I want you to answer it as well. But it has—I think in your testimony or in the report that you are associated with you did conclude—I don't know if it is a conclusion, but you did note that it is expensive to have basing in the lower 48, relative to Arctic Alaska, and that is a cost of operation for us thinking about how to think about a footprint up there. Is that about right?

Admiral GARRETT. Yes, sir. As we did the "High Latitude Study" and looked at how can the Coast Guard carry out its responsibilities and provide the services to the people that live in Arctic Alaska, that lower 48 footprint where we build lots of little stations and air stations and have lots of physical infrastructure, is going to be very hard to reproduce up there. Very shallow coastal waters, ice that moves in and out seasonally, permafrost, all those kind of things, and then just expensive building costs make some kind of a permanent footprint very expensive.

As Admiral Papp mentioned, having a mobile way of coming in and carrying out those seasonal missions as you need to do them may be a more cost-effective way of doing it, over the long term. This is not to say you don't need some infrastructure like communications and perhaps some aircraft support, things like that.

Mr. LARSEN. Mr. Caldwell, did you all look at that in this GAO study? I don't recall——

Mr. CALDWELL. We haven't done an independent look at the different footprint options. We did look pretty closely at the "High Latitude Study" and what they laid out. I think that the Corps of Engineers or people with that kind of expertise would be the ones to look at it, in terms of the actual cost of a deepwater port that you could use year-round. You have very shallow waters once you get up to the Arctic Circle and the northern slope of Alaska. Because of the very shallow draft there, building a deepwater port is a challenge.

The "High Latitude Study" did provide some options. Some of those are seasonal. As Admiral Papp said, there is a seasonal nature to the risks up there, and the activity up there, and we don't foresee that as changing for some time. The oil exploration is the one aspect, once you get into the production phase, which would presumably go year-round.

Finally, you need to think about what kind of Coast Guard presence is needed. You can provide a search and rescue presence with some kind of aircraft assets. But for more serious or prolonged operations up there, you are going to need surface assets. And there would be some advantages to those being mobile. The "High Latitude Study" actually looked at where you would post those assets. Some would be in the Beaufort Sea, some would be toward Barrow and the opening of the Bering Sea. Some would be in the Chukchi Sea.

Mr. LARSEN. Yes. One final question right now—I am sure the chairman has a few questions and I will defer to him after this last question.

But for Mr. Whitcomb, this $11 million number caught us—you know, it is a very surprising number that you are making the point, that for $11 million you can get the ship out and running. But does that only include making it operational to be on the water and functioning? Because it has to be outfitted with the systems to, you know, be integrated in communications systems with the Coast Guard, its—are you just looking at it from a strictly shipbuilding perspective, a ship that can get out in the water and go from point A to point B? Because there is more cost to—for a cutter, there is more cost to that, from our perspective.

Mr. WHITCOMB. The $11 million number is based on the work that we are currently doing on the *Polar Star*. So, as it relates to the communications or electronics of the vessel, it is not specific to those items. But the numbers are—the similar numbers that we are using currently to put the *Polar Star* back into service.

Mr. LARSEN. So——

Mr. WHITCOMB. So it is the—it is mechanical-type systems.

Mr. LARSEN. OK. Right, OK. That is clear. I note that you have an estimate as part of your written testimony. Probably want to get a little more flesh on that for us to consider.

Mr. WHITCOMB. I can get you that and forward it to you.

Mr. LARSEN. Yes, that would be great. And I probably have some more questions, but I will defer to the chairman.

Mr. YOUNG. Mr. Whitcomb, I am anxious to see that, too, because what I have been told, $11 million basically gets the ship re-engined, and that is all it does. You don't put in new air conditioning or—that is an old ship. And it might be floatable, it might be able to do the duty, but I am not sure I would want to put the crew back on it.

That is something we might want to consider, because if we can do that, we have to look at that aspect. Because we are not going to build any new ships very soon in this Congress, and we should do it. But we do need that capability. Heating breaks down, what have we got?

So my question to you is that $11 million is—you may be doing it to *Polar Star*, but are you upgrading anything? The galley, or anything else?

Mr. WHITCOMB. Sir, the $11 million, if you want me—would you like me to go through the highlights of that $11 million?

Mr. YOUNG. Yes, yes.

Mr. WHITCOMB. It is $5 million for the engine overall, it is—there is a chunk of it in there for replacing the obsolete cranes that are

on there. And there is $3 million for completing the modifications to the controllable pitch propellers. A prototype was already done on the *Polar Sea*, and that modification is currently being done on the *Polar Star*. And those are the key components.

The *Polar Sea* went through a refit in 2006, or finished a refit in 2006. So some—I don't know the overall condition of things like heating and air conditioning and some of the inhabitability pieces. We could look at that, if you would like further information on it.

Mr. YOUNG. I think we ought to, because I wasn't excited about decommissioning that ship. I think it probably came from the Department of Homeland Security, which is not one of my favorite agencies, I have to say that. And to take and have a backup is crucially important. We are going to have the *Polar Star* and the *Healy*, and we should have the other one, because things do happen.

Admiral, do you want to——

Admiral GARRETT. Yes, Mr. Chairman, could I comment on that?

Mr. YOUNG. Yes.

Admiral GARRETT. The *Polar Sea*, when it came up with the engine cylinder problems a year-and-a-half ago or so, was fully operational. And, in fact, it had undergone, as Mr. Whitcomb said, $35 million to $40 million worth of upgrades. So it was a substantially upgraded ship at the time the engine problems laid it up. And it was fully operational and actually doing Arctic missions while the *Polar Star* was in a layup condition at the pier.

Just before the *Polar Sea*'s engine problems were discovered, the *Polar Star* had gone into the yard to begin this full refurbishment work. But the *Polar Sea* has already had a substantial amount of that. And the items that Mr. Whitcomb identifies are the last remaining increments of those upgrades.

So it is not like you have an old ship that you have got to start from scratch with. You basically have a fully operational ship that is lacking some engine overhauls and a couple of other items that the Star is getting in her refit.

Mr. YOUNG. Well, I am happy to hear that. I mean we may relook at this issue, because like I say, if we have to have that backup and all it takes is $11 million, that is not even a spit drop. And make an operational vessel, as long as it has got refitting to take place to do it. I mean that—this is new to me, and I do thank both of you for that, because that is something that can be done, you know.

Mr. Larsen, I am about ready to get out of here. You got any more questions?

Mr. LARSEN. For Mr. Caldwell, in your testimony, in the last part of it, you consider the interagency cooperation and you mention some studies or—not even studies, white papers—that might come up in the next year, early next year. Could you review those for the subcommittee, and what we should expect to see?

Mr. CALDWELL. The Capabilities Assessment Working Group white paper is not done yet, so we have——

Mr. LARSEN. Yes.

Mr. CALDWELL [continuing]. Not reviewed it. We expect, since it was supposed to be out late this year, that by the time myself and

my colleagues on GAO's defense team do that report in January, we will have a better picture of what that might be.

Mr. LARSEN. Yes, could you just review what that is, again, for us?

Mr. CALDWELL. It is called the Capabilities Assessment Working Group, and it is a group of the Department of Defense and Coast Guard, trying to identify what are the most critical short-term investment needs. I don't know whether they will make recommendations as specific as which budget year, and which agency's budget will pay for such investments.

But obviously, those are the key questions. I think we know what needs to be done, in the short term—or in the longer term. It is just, at this point, a question of figuring out how we are going to pay for it, and under what mode of ownership.

Mr. LARSEN. All right. Thank you.

Mr. YOUNG. I want to thank the panel. You have been informative, and we have got a problem; we will try to solve it.

This meeting is adjourned.

[Whereupon, at 12:53 p.m., the subcommittee was adjourned.]

United States Government Accountability Office

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Testimony Before the Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, House of Representatives

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COAST GUARD

Observations on Arctic Requirements, Icebreakers, and Coordination with Stakeholders

Statement of Stephen L. Caldwell, Director
Homeland Security and Justice

U.S. Government Accountability Office
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Highlights

Highlights of GAO-12-254T, a testimony before the Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

The gradual retreat of polar sea ice, combined with an expected increase in human activity—shipping traffic, oil and gas exploration, and tourism in the Arctic region—has increased the strategic interest that the United States and other nations have in the Arctic. As a result, the U.S. Coast Guard, within the Department of Homeland Security (DHS), has responsibilities in the Arctic, which are expected to increase. This testimony provides an update of: (1) the extent to which the Coast Guard has taken actions to identify requirements for future Arctic operations; (2) issues related to the U.S. icebreaking fleet; and (3) the extent to which the Coast Guard is coordinating with stakeholders on Arctic issues.

This statement is based on GAO-10-870, issued in September 2010, and includes selected updates. For the selected updates, GAO analyzed Coast Guard, Department of Defense (DOD,) and other related documents on Arctic operations and capabilities. GAO also interviewed Coast Guard and DOD officials about efforts to identify Arctic requirements and coordinate with stakeholders.

What GAO Recommends

GAO is not making new recommendations in this statement. GAO previously recommended that the Coast Guard communicate with key stakeholders on the process and progress of its Arctic planning efforts. DHS concurred with this recommendation and is in the process of taking corrective action.

View GAO-12-254T. For more information, contact Stephen L. Caldwell, (202) 512-9610, or caldwells@gao.gov.

December 1, 2011

COAST GUARD

Observations on Arctic Requirements, Icebreakers, and Coordination with Stakeholders

What GAO Found

The Coast Guard has taken a variety of actions—from routine operations to a major analysis of mission needs in the polar regions—to identify its Arctic requirements. The routine operations have helped the Coast Guard to collect useful information on the capability of its existing assets to operate in cold climates and strategies for overcoming logistical challenges presented by long-distance responses to incidents, among other things. Other operational actions intended to help identify Arctic requirements include the establishment of temporary, seasonal operating locations in the Arctic and seasonal biweekly Arctic overflights, which have helped the Coast Guard to identify performance requirements and test personnel and equipment capabilities in the Arctic. The Coast Guard's primary analytical effort to identify Arctic requirements is the High Latitude Study, a multivolume analysis that is intended to, in part, identify the Coast Guard's current Arctic capability gaps and assess the degree to which these gaps will impact future missions. This study also identifies potential solutions to these gaps and compares six different options—identified as Arctic force mixes—to a baseline representing the Coast Guard's current Arctic assets. However, given current budget uncertainty and the Coast Guard's recent acquisition priorities, it may be a significant challenge for the agency to acquire the assets that the High Latitude Study recommends.

The most significant issue facing the Coast Guard's icebreaker fleet is the growing obsolescence of these vessels and the resulting capability gap caused by their increasingly limited operations. In 2010, Coast Guard officials reported challenges fulfilling the agency's statutory icebreaking mission. Since then, at least three reports—by the DHS Inspector General and Coast Guard contractors—have further identified the Coast Guard's challenges to meeting its current and future icebreaking mission requirements in the Arctic with its existing polar icebreaker fleet. Prior GAO work and these reports also identify budgetary challenges the agency faces in acquiring new icebreakers. Given these issues and the current budgetary climate, it is unlikely that the Coast Guard will be able to fund the acquisition of new icebreakers through its own budget, or through alternative financing options. Thus, it is unlikely that the Coast Guard will be able to expand the U.S. icebreaker fleet to meet its statutory requirements, and it may be a significant challenge for it to just maintain its existing level of icebreaking capabilities due to its aging fleet.

In 2010, GAO reported the Coast Guard coordinates with various stakeholders on Arctic operations and policy, including foreign, state, and local governments, Alaskan Native governments and interest groups, and the private sector. GAO also reported that the Coast Guard coordinates with federal agencies, such as the National Science Foundation, National Oceanic and Atmospheric Administration, and DOD. More recently, the Coast Guard has partnered with DOD through the Capabilities Assessment Working Group—an interagency coordination group established in May 2011—to identify shared Arctic capability gaps as well as opportunities and approaches to overcome them, to include making recommendations for near-term investments. The establishment of this group helps to ensure collaboration between the Coast Guard and DOD addresses near-term capabilities in support of current planning and operations.

Chairman LoBiondo, Ranking Member Larsen, and Members of the Subcommittee:

I am pleased to be here today to discuss the Coast Guard's efforts to identify Arctic requirements and to coordinate with stakeholders on Arctic issues and operations. The retreat of sea ice, combined with an expected increase in human activity—shipping traffic and oil and gas exploration—has increased the strategic interest that the United States and other nations have in the Arctic region. For example, in 2011, northern shipping routes opened during the summer months, which permitted more than 40 vessels to transit between June and October 2011. As a result of these and other anticipated changes in the Arctic, the Coast Guard is expected to face increasing responsibilities in the waters off of Alaska's 44,000 miles of coast. In addition, the United States has developed national-level policies that guide the actions of the Coast Guard and other stakeholders. These policies indicate that the United States has an enduring interest in working collaboratively with other nations to address the emerging challenges arising from the effects of climate change and globalization in the Arctic, and they identify Arctic national security needs including protecting the environment, managing resources, and supporting scientific research.[1]

Since the Arctic is primarily a maritime domain, the Coast Guard plays a significant role in Arctic policy implementation and enforcement. The Coast Guard is a multimission, maritime military service within the Department of Homeland Security (DHS) that has responsibilities including maritime safety, security, environmental protection, and national defense, among other missions.[2] As more navigable ocean water emerges in the Arctic and human activity increases, 9 of the Coast Guard's 11 statutory missions will take on additional importance, including Defense Readiness, Ice Operations, and Marine Environmental Protection.

[1]National Security Presidential Directive 66 / Homeland Security Presidential Directive 25, *Arctic Region Policy* (Jan. 9, 2009); *National Security Strategy* (Washington, D.C.: May 2010).

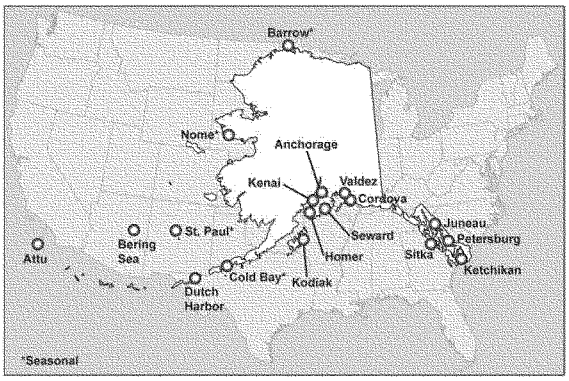
[2]The Coast Guard's 11 statutory mission areas include: Aids to Navigation; Defense Readiness; Drug Interdiction; Ice Operations; Living Marine Resources; Marine Environmental Protection; Marine Safety; Migrant Interdiction; Other Law Enforcement; Ports, Waterways, and Coastal Security; and Search and Rescue.

The Coast Guard currently has limited capacity to operate in the waters immediately below the Arctic Circle, such as the Bering Sea. Increasing responsibilities in an even larger geographic area, especially in the harsh and remote conditions of the northern Arctic, will further stretch the agency's capacity. See appendix I for a map of the Arctic boundary and the Arctic Circle line of latitude.[3]

Presently, all of the Coast Guard's assets are based well below the Arctic Circle, so Coast Guard operations above the Arctic Circle are constrained by several factors, including long transit times for surface vessels and aircraft to cover vast distances to reach the Arctic Circle. When the Coast Guard is able to respond to an incident, its surface and air assets are also limited by fuel capacity and the distance to fuel sources. Figure 1 compares the State of Alaska to the lower 48 states to illustrate the large distances between Coast Guard assets and Point Barrow (the northernmost point of land in Alaska).

[3]Arctic stakeholders do not define the Arctic geographical area the same way. The Arctic Research and Policy Act of 1984 for example, defines the Arctic as all U.S. and foreign territory north of the Arctic Circle, all U.S. territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers, and all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi Seas; and the Aleutian chain. Pub. L. No. 98-373, 98 Stat. 1242, 1248 (1984). For the purposes of this statement, we are limiting our analysis to a more specific definition of the Arctic—the more remote region above the Arctic circle.

Figure 1: Coast Guard Facilities and Assets in the State of Alaska Superimposed on the Lower 48 States



Source: Coast Guard.

My statement today discusses (1) the extent to which the Coast Guard has taken actions to identify and report on requirements for future Arctic operations; (2) issues related to the U.S. icebreaking fleet; and (3) the extent to which the Coast Guard is coordinating with stakeholders on Arctic issues.

This statement is based on our September 2010 report on the Coast Guard's coordination with stakeholders on Arctic policy and efforts to identify Arctic requirements and capability gaps, along with selected updates we obtained in November 2011.[4] For our September 2010 report, we interviewed officials from the Coast Guard, other federal entities, and the International Maritime Organization, as well as state, local, and Alaska Native stakeholders. We also reviewed Coast Guard documents related to coordination with stakeholders on Arctic issues, efforts to plan

[4]GAO, *Coast Guard: Efforts to Identify Arctic Requirements Are Ongoing, but More Communication about Agency Planning Efforts Would Be Beneficial*, GAO-10-870 (Washington, D.C.: Sept. 15, 2010).

for increased Arctic activity, and challenges and factors affecting the Coast Guard's Arctic operations. More detailed information on the scope and methodology for our September 2010 report can be found in that report. For the selected updates, we analyzed Coast Guard, Department of Defense (DOD,) and other related documents on Arctic operations and capabilities. We interviewed Coast Guard and DOD officials about efforts to identify Arctic requirements and coordinate with stakeholders. We also reviewed how a recent effort aligns with key practices we have identified for enhancing and sustaining interagency coordination.[5] For new information that was based on work not previously reported, we obtained Coast Guard views on our findings and incorporated technical comments where appropriate. We conducted the performance audit work that supports this statement in accordance with generally accepted government auditing standards.

Background

Diminishing Ice Opens Potential for Increased Human Activity in the Arctic

Scientific research and projections of the changes taking place in the Arctic vary, but there is a general consensus that Arctic sea ice is diminishing and some scientists have projected that the Arctic will be ice-diminished for periods of time in the summer by as soon as 2040.[6] As recently as September 2011, scientists at the U.S. National Snow and Ice Data Center reported that the annual Arctic minimum sea ice extent for 2011 was the second lowest in the satellite record, and 938,000 square miles less than the 1979 to 2000 average annual minimum. These environmental changes in the Arctic are making maritime transit more feasible and are increasing the likelihood of human activity including tourism, oil and gas extraction, commercial shipping, and fishing in the

[5]See GAO, *Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies*, GAO-06-15 (Washington, D.C.: Oct. 21, 2005).

[6]A Joint Coast Guard / U.S. Navy Statement on Arctic ice terminology supports usage of the term "ice diminished" rather than "ice free" because both agencies recognize that the region will continue to remain ice-covered during the wintertime through the end of this century and the current and projected decline in Arctic sea ice is highly variable from year to year. The term "ice-diminished" refers to sea ice concentrations of up to 15 percent ice in the area.

region.[7] Despite these changes, however, several enduring characteristics still provide challenges to surface navigation in the Arctic, including large amounts of winter ice and increased movement of ice from spring to fall. Increased movement of sea ice makes its location less predictable, which is likely to increase the risk for ships to become trapped or damaged by ice impacts.

Coast Guard Faces Challenges to Arctic Operations

As we reported in September 2010, the Coast Guard faces challenges to Arctic operations including limited maritime domain awareness, assets, and infrastructure.[8] In a 2008 report to Congress, the Coast Guard stated that maritime domain awareness in the Arctic is critical to effective engagement in the Arctic as activity increases.[9] However, several factors—including (1) inadequate Arctic Ocean and weather data, (2) lack of communication infrastructure, (3) limited intelligence information, and (4) lack of a physical presence in the Arctic—create challenges for the Coast Guard in achieving maritime domain awareness in the Arctic. The Coast Guard also faces limitations in assets and infrastructure in the Arctic. These include (1) an inadequate portfolio of small boats for Arctic operations, (2) the environmental impact of Arctic conditions on helicopters and airplanes, and (3) a lack of cutter resources for Arctic patrols.[10]

[7]In August 2011, the Department of the Interior approved preliminary plans for one operator to drill for oil and gas in the Arctic pending receipt of the operator's well containment plan and other requirements.

[8]GAO-10-870.

[9]According to the Coast Guard, maritime domain awareness is an effort to achieve an understanding of anything in the maritime environment that can affect the security, safety, economy, or environment of the United States. The process of achieving maritime domain awareness includes: (1) collection of information, (2) fusion of information from different sources, (3) analysis through the evaluation and interpretation of information, and (4) dissemination of information to decision makers, with the goal of identifying risks and threats before they turn into catastrophic events.

[10]See GAO-10-870 for a detailed discussion of these challenges to the Coast Guard's Arctic operations.

Coast Guard Is Identifying Arctic Requirements, but Funding Is Uncertain

Coast Guard's Efforts to Identify Arctic Requirements

The Coast Guard has taken a variety of actions to identify its Arctic requirements. As we reported in September 2010, these encompass a range of efforts including both routine mission operations and other actions specifically intended to help identify Arctic requirements. Through routine mission operations, the Coast Guard has been able to collect useful information on the capability of its existing assets to operate in cold climates, strategies for overcoming logistical challenges presented by long-distance responses to incidents, and the resources needed to respond to an oil spill in a remote and cold location, among other things.[11] We also reported that the Coast Guard had efforts underway specifically designed to inform its Arctic requirements, including the establishment of seasonal, temporary operating locations in the Arctic and biweekly Arctic overflights. The temporary operating locations were established during the summers of 2008 through 2010, and have helped the Coast Guard identify performance requirements and obstacles associated with the deployment of small boats, aircraft, and support staff above the Arctic Circle. The seasonal (March-November) biweekly Arctic overflights were initiated in October 2007 to increase the agency's maritime domain awareness, test personnel and equipment capabilities in the Arctic, and inform the Coast Guard's Arctic requirements, among other things.[12] As we reported in September 2010,[13] these efforts addressed elements of three key practices for agencies to better define mission requirements

[11]For more details on these efforts, see GAO-10-870, app. V.

[12]For example, the Coast Guard has also partnered with the National Oceanic and Atmospheric Administration (NOAA) to track methane and carbon dioxide emissions over Alaska during Arctic domain awareness flights.

[13]GAO-10-870.

and desired outcomes: (1) assessing the environment; (2) involving stakeholders; and (3) aligning activities, core processes, and resources.[14]

High Latitude Study Identifies Arctic Requirements

The Coast Guard's primary analytical effort to identify and report on Arctic requirements, the High Latitude Study (the Study), identifies the Coast Guard's responsibilities in the Polar regions, discusses the nature of the activities it must perform over the next 30 years, and concludes with a high-level summary of the Coast Guard's material and nonmaterial needs to meet the requirements.[15] Specifically, the Study identifies the Coast Guard's current capability gaps in the Arctic and assesses the degree to which these gaps will impact future missions. Of the Coast Guard's 11 mission areas, 9 are expected to experience future demand in the Arctic region. The Study identifies several current capability gaps that affect the majority of these mission areas. Specifically, gaps in communications capabilities affect all 9 mission areas, while deficiencies in the information available about sea ice coverage in the Arctic affects 8 mission areas.[16] The other major gaps that affect the majority of mission areas are related to the lack of polar icebreaking capacity, which will be discussed later in this statement.

Of the 9 mission areas that the Coast Guard will need to carry out in the Arctic, the Study identifies 7 mission areas expected to be significantly or moderately impacted by current capability gaps. In general, these missions all address the protection of important national interests in the Arctic or the safety of mariners and the environment. See appendix II for more detail

[14]GAO, *Executive Guide: Effectively Implementing the Government Performance and Results Act*, GAO/GGD-96-118 (Washington D.C.: June 1996). For more information on how the Coast Guard's efforts addressed the three key practices, see GAO-10-870.

[15]ABS Consulting, *High Latitude Study Mission Analysis Report,* prepared for the United States Coast Guard, (July 2010). The Coast Guard provided this study to Congress in July 2011. The High Latitude Study comprises three volumes: (1) Polar Icebreaking Needs (in both the Arctic and Antarctic regions); (2) Arctic Mission Area Needs; and (3) Antarctic Mission Area Needs. Volumes 1 and 2 are intended, in part, to provide decision-makers with options for meeting the Coast Guard's mission requirements in the Arctic. According to Coast Guard officials, the High Latitude Study was not a part of the formal acquisitions process, and would instead be used to inform a more detailed future analysis that will serve as the first step in the icebreaker acquisition process.

[16]The National Ice Center provides information about sea ice coverage to the Coast Guard, but the High Latitude Study notes that the products that the National Ice Center provides are not well-suited for Coast Guard use.

about the degree of impact that current capability and capacity gaps are expected to have on future Coast Guard mission performance.

The Study then identifies potential solutions to specifically address gaps in communications and electronic navigation capabilities, recommending that the Coast Guard acquire more than 25 additional communication or navigation facilities for Arctic operations. In addition to these capabilities, the Study compares six different options—identified as Arctic force mixes—to a baseline representing the Coast Guard's current Arctic assets. These force mixes add assets to the existing baseline force mix, and contain different combinations of cutters (including icebreakers), aircraft, and forward operating locations and are designed to mitigate the mission impacts caused by current capability gaps. See appendix III for a description of the assets included in each Arctic force mix.

The High Latitude Study also includes a risk analysis that compares the six Arctic force mixes in terms of the ability of each force mix to reduce the risk that is expected to exist in the future Arctic environment. Risk reduction is determined in part by (1) identifying a list of potential Arctic maritime incidents requiring Coast Guard support, such as maritime accidents resulting in multiple casualties or a major oil spill, or both; (2) quantifying the likelihood that these search and rescue and maritime environmental protection incidents could occur and the resulting impact should they occur; and (3) assessing the relative effectiveness, or risk reduction, of force packages the Coast Guard may employ to respond to those incidents.[17] The intent of the analysis is to provide information on risk-reduction alternatives to inform the acquisition process. According to the Study, the baseline Arctic force mix reduces less than 1 percent of risk in the Arctic because this patrol capability cannot reasonably respond to northern area incidents, while the six other Arctic force mixes reduce between 25 and 92 percent of risk annually, though the amount of risk reduced varies by season. See appendix III for the amount of annual risk in the Arctic reduced by each force mix.

[17]The types of risk addressed by the analysis are those to public safety and property that are addressed by Coast Guard Search and Rescue and Marine Environmental Protection missions. Requirements under the Coast Guard's Defense Readiness mission area were excluded from the risk analysis, because identifying and assessing potential defense incidents was beyond the scope of the study.

Funding for Identified Arctic Requirements Is Challenging and Uncertain

As we reported in September 2010, administration budget projections indicated that DHS's annual budget was expected to remain constant or decrease over the next 10 years. Moreover, senior Coast Guard officials, based in Alaska, reported that resources for Arctic operations had already been reduced and were inadequate to meet existing mission requirements in Alaska, let alone expanded Arctic operations. These officials also reported a more than 50 percent year-to-year reduction between 2005 and 2009 in the number of large cutters available for operations in their region. Officials also expressed concern that the replacement of the 12 older high-endurance cutters with 8 new cutters may exacerbate this challenge. Given the reductions that have already taken place, as well as the anticipated decrease in DHS's annual budget, the long-term budget outlook for Coast Guard Arctic operations is uncertain. The challenge of addressing Arctic resource requirements in a flat or declining budget environment is further underscored by recent budget requests that have identified the Coast Guard's top priority as the recapitalization of cutters, aircraft, communications, and infrastructure—particularly with regard to its Deepwater program.[18] Recent budget requests also have not included funding for Arctic priorities, aside from the annual operating costs associated with existing icebreakers.

This budget challenge is exacerbated when the costs of the High Latitude Study's proposed resource requirements are taken into account. Specifically, the Study estimates that the cost of acquiring the assets associated with each of the six Arctic force mixes would range from $1.01 billion to $6.08 billion, and their corresponding annual operating costs would range from $72.3 million to $411.3 million. See appendix III for the estimated acquisition cost of each Arctic force mix. Additionally, the estimated cost for the recommended communications and electronic navigation capabilities for Arctic operations is about $23.4 million. Given current budget uncertainty and the Coast Guard's recent acquisition priorities, it may be a significant challenge for the Coast Guard to acquire the assets that the Study recommends.

[18]The Deepwater program is a long-term, multibillion-dollar acquisition program intended to replace or modernize the Coast Guard's aging vessels, aircraft, and some communications systems.

Coast Guard Continues to Face Challenges Related to Icebreakers

The most significant issue facing the Coast Guard's icebreaker fleet is the growing obsolescence of these vessels and the resulting capability gap caused by their increasingly limited operations. As we noted in our 2010 report, Coast Guard officials reported challenges fulfilling the agency's statutory icebreaking mission, let alone its standing commitment to use the icebreakers to support the Navy as needed.[19] Since then, at least three reports have further identified the Coast Guard's challenges to meeting its current and future icebreaking mission requirements in the Arctic with its existing polar icebreaker fleet, as well as the challenges it faces to acquire new icebreakers. The Coast Guard's existing fleet includes three icebreakers that are capable of operating in the Arctic:

- *Polar Sea* (inoperative since 2010): The *Polar Sea* is a heavy icebreaker[20] commissioned in 1978 with an expected 30-year lifespan. A major service life extension[21] project, completed in 2006, was expected to extend the *Polar Sea's* service life through 2014. However, in 2010, the *Polar Sea* experienced major engine problems and is now expected to be decommissioned in 2011. According to a Coast Guard budget official, this will allow its resources to be redirected toward the ongoing service life extension of the *Polar Star*. Fig. 2 below shows the *Polar Sea* in dry dock.
- *Polar Star* (inoperative since 2006): The *Polar Star* is a heavy icebreaker commissioned in 1976 with an expected 30-year lifespan. The *Polar Star* is currently undergoing a $62.8 million service life

[19]The Coast Guard and the Navy have a long-standing memorandum of agreement regarding the use of the nation's icebreakers—the Coast Guard operates the nation's icebreakers and uses them, when needed, to support the Navy. The 1965 U.S. Navy-U.S. Treasury Memorandum of Agreement was executed to permit consolidation of the icebreaker fleet under one agency. That rationale was reinforced by a 1982 Roles and Missions Study which stated that polar icebreakers should be centrally managed by one agency and that the Coast Guard was the appropriate one due to the multimission nature of polar ice operations. This memorandum of agreement was updated in 2008. The signatories were DOD and DHS and the agreement included an update on responsibilities for coastal security.

[20]Icebreakers receive different classifications from the International Maritime Organization based on their icebreaking capabilities. A heavy icebreaker is classified as a Polar Class 1 vessel, and is capable of conducting year-round operations in the Arctic and Antarctic. A medium icebreaker is classified as a Polar Class 3 vessel, and is capable of operating in the Arctic region in the spring, summer, and fall.

[21]A service life extension is a rehabilitation effort involving extensive maintenance and repair conducted to extend the service life of an asset.

extension, and is expected to return to service in 2013. The ongoing service life extension is expected to extend the Polar Star's service life through at least 2020.

- *Healy* (operative): The *Healy* is a medium icebreaker, commissioned in 2000, with an expected 30-year lifespan. The *Healy* is less capable than the heavy icebreakers and is primarily used for scientific missions in the Arctic. As a medium icebreaker, the *Healy* does not have the same icebreaking capabilities as the *Polar Sea* and *Polar Star*. Because of this, it cannot operate independently in the ice conditions in the Antarctic or ensure timely access to some Arctic areas in the winter.

Figure 2: *Polar Sea* in Dry Dock

Source: GAO.

Three Studies Detail Icebreaking Issues

Since we reported on Coast Guard's Arctic operations in September 2010, at least three reports have further identified the Coast Guard's challenges to meeting its current and future icebreaking mission requirements in the Arctic with its existing polar icebreaker fleet, as well as the challenges it faces to acquire new icebreakers.

- *DHS-OIG Report on the Coast Guard's Polar Icebreakers.*[22] The DHS Office of the Inspector General (OIG) reported that the Coast Guard and other U.S. agencies are unable to meet their current Arctic mission requirements with existing icebreaking resources. This January 2011 report noted that the Coast Guard's icebreaking resources are unlikely to meet future demands as well, in part because the agency has not followed its life cycle replacement plan, which requires replacement of icebreaking ships after 30 years of service. Further, between fiscal year 2006 and fiscal year 2009, the National Science Foundation (NSF) had budgetary authority over the Coast Guard's icebreaker fleet. Among other things, the Inspector General reported that this funding arrangement resulted in deferred maintenance on the icebreakers, which has affected their long-term operability. The report concludes that without funding for new icebreakers or major service life extensions of existing ones, the U.S. will lose all polar icebreaking capabilities by 2029.[23] The OIG report included four recommendations related to the Arctic.[24]

- *U.S. Polar Icebreaker Recapitalization Report.*[25] The Coast Guard provided a report to Congress[26] on the recapitalization of the U.S. Polar

[22]DHS Office of the Inspector General, *The Coast Guard's Polar Icebreaker Maintenance, Upgrade, and Acquisition Program,* OIG-11-31 (Washington, D.C.: January 2011).

[23]To determine the Healy's lifespan, the DHS-OIG report uses the date that the Healy was placed "In Commission, Special" status, whereas we report on the "In Commission, Active" date.

[24]The OIG recommended that the Assistant Commandant for Marine Safety, Security, and Stewardship: (1) Request budgetary authority for the operation, maintenance, and upgrade of its icebreakers; (2) in coordination with DHS, request clarification from Congress to determine whether Arctic missions should be performed by Coast Guard assets or contracted vessels; (3) 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 (4) request appropriations necessary to meet mission requirements in the Arctic and Antarctic.

[25]ABS Consulting, *U.S. Polar Icebreaker Recapitalization: A Comprehensive Analysis and Its Impacts on U.S. Coast Guard Activities*, prepared for the United States Coast Guard, (October 2011).

icebreakers (Recapitalization report), which assessed options for recapitalizing its existing icebreaker fleet, including building new icebreakers, or reconstructing the *Polar Sea* and *Polar Star* to meet mission requirements, among other options.[27] This October 2011 report found that the most cost-effective option would be to build two new heavy icebreakers, while performing minimal maintenance to keep the existing icebreakers operational while construction is taking place. In addition to having the lowest acquisition cost of any option—at $2.12 billion—this option also has the lowest risk due to the complexity (and therefore risk) associated with the other options of performing major service life extensions or reconstructing the *Polar Sea* and *Polar Star*. The risk associated with these options is driven by high levels of uncertainty in terms of cost, scheduling, and technical feasibility for reconstructing the existing fleet. Given the time frames associated with building new icebreakers, the Recapitalization report concluded that the Coast Guard must begin planning and budgeting immediately.

- *High Latitude Study.*[28] This report included a separate and broader analysis of the Coast Guard's icebreaker needs, while the findings of the first two reports were limited to an analysis of the existing Coast Guard polar class icebreakers. The Coast Guard provided the Study to Congress in July 2011. It found that the common and dominant contributor to the significant mission impacts in the Arctic discussed above is the gap in polar icebreaking capability, and that the existing icebreaker fleet is insufficient to meet the Coast Guard's statutory mission requirements in both the Arctic and Antarctic, even if two new icebreakers are built. To fulfill these mission requirements, the study found that the Coast Guard needs a minimum of six icebreakers (three heavy and three medium icebreakers). Further, if Navy presence requirements are taken into account, the Coast Guard would require three additional heavy icebreakers and one additional medium icebreaker for a total of ten icebreakers (six heavy and four

[26]This report was developed pursuant to a provision in the Coast Guard Authorization Act of 2010 (Pub. L. No. 111-281, 124 Stat. 2905, 2928-29 (2010)) mandating, in general, that the Coast Guard require a non-governmental, independent third party to conduct a comparative cost-benefit analysis of the recapitalization of the existing fleet of polar icebreakers.

[27]These options include performing major service life extensions on the *Polar Sea* and *Polar Star*, allowing the Coast Guard to defer new construction by five years, as well as long-term leasing options. All options include a major service life extension for the *Healy*.

[28]ABS Consulting, *High Latitude Study Mission Analysis Report.*

medium icebreakers).[29] The Study does provide cost estimates for acquiring the recommended icebreakers, but it does not directly assess the feasibility of its recommendations.[30]

Funding Limitations Remain the Main Challenge Related to Icebreakers

As mentioned above, the Coast Guard faces budget uncertainty and it may be a significant challenge for the Coast Guard to obtain Arctic capabilities, including icebreakers. Given our analysis of the challenges that the Coast Guard already faces in funding its existing acquisition programs, it is unlikely that the agency's budget could accommodate the level of additional funding (estimated by the High Latitude Study to range from $4.14 billion to $6.9 billion) needed to acquire new icebreakers or reconstruct existing ones. The Recapitalization report similarly concludes that the recapitalization of the polar icebreaker fleet cannot be funded within the existing or projected Coast Guard budget.[31] All three reports reviewed alternative financing options, including the potential for leasing icebreakers, or funding icebreakers through the NSF or DOD. The Recapitalization report noted that a funding approach similar to the approach used for the *Healy*, which was funded through the fiscal year 1990 DOD appropriations, should be considered.[32] However, the Coast Guard has a more immediate need than DOD to acquire Arctic capabilities, including icebreakers, making it unlikely that a similar funding approach would be feasible at this time. For more details on Coast Guard funding challenges and options specific to icebreakers, see appendix IV.

[29]The High Latitude Study does not detail the icebreaking capability specifically required to meet statutory mission requirements in the Arctic. However, the Study does find that providing year-round icebreaking capability in the Arctic would require two heavy, two medium, and two light icebreakers. This capability would be necessary to meet at least one statutory mission requirement under the Coast Guard's Defense Readiness mission—assured access to ice-impacted waters through a persistent icebreaker presence in the Arctic.

[30]For example, the High Latitude Study includes "Rough Order of Magnitude" estimates that it would cost $4.14 billion to acquire the three heavy and three medium icebreakers required to meet the Coast Guard's mission requirements. When the Navy's presence requirements are taken into account, the estimated cost increases to $6.9 billion.

[31]The report based its assessment on the Coast Guard's Capital Investment Plan through fiscal year 2016, and longer-term budget projections through fiscal year 2020 that assumed an increase of no greater than inflation. However, since the analysis took place, the Capital Investment Plan has been subject to downward revision.

[32]Pub. L. No 101-165, 103 Stat. 1112, 1121 (1989).

Coast Guard Coordinates with Numerous Stakeholders on Arctic Operations

The Coast Guard continues to coordinate with various stakeholders on Arctic operations and policy, including foreign, state, and local governments, Alaskan Native governments and interest groups, and the private sector. In September 2010, we reported that the Coast Guard has been actively involved in both bilateral and multilateral coordination efforts such as the Arctic Council.[33] The Coast Guard also coordinates with state, local, and Alaskan Native governments and interest groups; however, some of these stakeholders reported that they lack information on both the Coast Guard's ongoing planning efforts and future approach in the Arctic. In response to these concerns, in 2010 we recommended that the Commandant of the Coast Guard ensure that the agency communicates with these stakeholders on the process and progress of its Arctic planning efforts.[34] The Coast Guard agreed with our recommendation and is in the process of taking corrective action. For example, in April 2011, the Coast Guard issued a Commandant Instruction that emphasizes the need to enhance partnerships with Arctic stakeholders. Additionally, in August 2011, the Commandant participated in a field hearing in Alaska which included discussion about the Coast Guard's Arctic capability requirements.

The Coast Guard also coordinates with federal agencies, such as the NSF, National Oceanic and Atmospheric Administration (NOAA), and DOD, and is involved with several interagency coordination efforts that address aspects of key practices we have previously identified to help

[33]The Arctic Council is a high-level intergovernmental forum for promoting cooperation, coordination, and interaction among the Arctic States, with the involvement of the Arctic Indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic. The eight permanent member states include Canada, Denmark (representing also Greenland and Faroe Islands), Finland, Iceland, Norway, Russia, Sweden, and the United States.

[34]For more information about the Coast Guard's coordination with these stakeholders, please see GAO-10-870.

enhance and sustain collaboration among federal agencies.[35] For example, as discussed above, the Coast Guard collaborates with the NSF to manage the nation's icebreaker fleet, including scheduling icebreaker time for research activities,[36] while NOAA provides the Coast Guard with weather forecasts and warnings, as well as information about ice concentration and type. Additionally, the Coast Guard is involved with interagency efforts such as the Interagency Policy Committee on the Arctic, created in March 2010 to coordinate governmentwide implementation of National Security Presidential Directive 66 / Homeland Security Presidential Directive 25.[37]

Since our September 2010 report, the Coast Guard has partnered with DOD on another interagency coordination effort, the Capabilities Assessment Working Group. DHS and DOD established the working group in May 2011 to identify shared Arctic capability gaps as well as opportunities and approaches to overcome them, to include making recommendations for near-term investments. DHS assigned the Coast Guard lead responsibility for the working group, which was directed to focus on four primary capability areas when identifying potential collaborative efforts to enhance Arctic capabilities, including near-term investments. Those capability areas include maritime domain awareness,

[35]GAO-06-15 identifies eight key practices that federal agencies can engage in to enhance and sustain collaborative efforts. These key practices are: (1) define and articulate a common outcome; (2) establish mutually reinforcing or joint strategies; (3) identify and address needs by leveraging resources; (4) agree on roles and responsibilities; (5) establish means of operating across agency boundaries; (6) develop mechanisms to monitor, evaluate, and report on results; (7) reinforce agency accountability for collaborative efforts through agency plans and reports; and (8) reinforce individual accountability for collaborative efforts through performance management systems.

[36]Between fiscal years 2006 and 2009, the operation and maintenance of Coast Guard icebreakers was funded through the NSF's budget, which according to Coast Guard officials and a 2011 report from the OIG, presented challenges to maintaining the polar icebreaker fleet and ensuring Coast Guard crews are properly trained. Fiscal years 2010 and 2011 appropriations however, directed the transfer of the $54 million icebreaker budget from the NSF to the Coast Guard. See, Consolidated Appropriations Act, 2010 (Pub. L. No. 111-117, 123 Stat. 3034, 3145 (2009)) and Full-Year Continuing Appropriations Act, 2011 (Pub. L. No. 112-10, 125 Stat. 38 (2011)). Additionally, the Coast Guard's fiscal year 2012 budget request included a request for $39 million to fund the operational costs of the icebreakers.

[37]See GAO-10-870, app. IV for descriptions of other select interagency coordination efforts and how they address key practices.

communications, infrastructure, and presence. The working group was also directed to identify overlaps and redundancies in established and emerging DOD and DHS Arctic requirements. This working group will address several of the key practices we have identified—articulating a common outcome; identifying and addressing needs by leveraging resources; and reinforcing agency accountability for the effort through a jointly developed report containing near-term investment recommendations. The establishment of the working group helps to ensure that collaboration between the Coast Guard and DOD is taking place to address near-term capabilities in support of current planning and operations; however, upon the completion of the report in January 2012, the working group is expected to be dissolved.

GAO is also conducting an ongoing review of DOD's May 2011 *Report to Congress on Arctic Operations and the Northwest Passage* that was directed by the House Committee on Armed Services[38] and will report on our results in January of next year. That report will assess the extent to which DOD's *Arctic Report* addressed congressional requirements and DOD's efforts to identify and prioritize the capabilities needed to meet national security objectives in the Arctic, including through collaboration with the Coast Guard.

Chairman LoBiondo, Ranking Member Larsen, and Members of the Subcommittee, this completes my prepared statement. I would be happy to respond to any questions you may have at this time.

GAO Contacts and Staff Acknowledgments

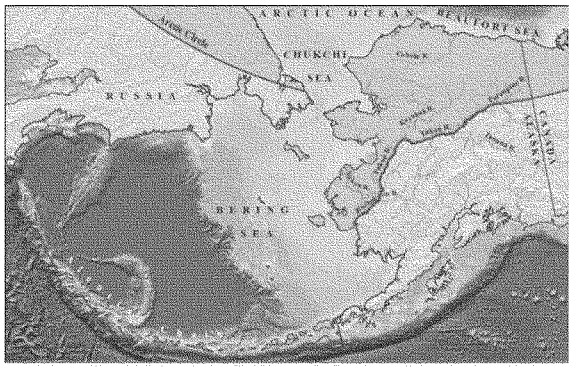
For information about this statement please contact Stephen L. Caldwell, Director, Homeland Security and Justice, at (202) 512-9610, or caldwells@gao.gov. Contact points for our Office of Congressional Relations and Public Affairs may be found on the last page of this statement. Other individuals making key contributions to this testimony include Dawn Hoff (Assistant Director), Elizabeth Kowalewski (Analyst-In-Charge), Christopher Currie, Katherine Davis, Geoffrey Hamilton, Adam Hoffman, John Pendleton, Timothy Persons, Steven Putansu, Jodie Sandel, David Schmitt, Amie Steele, Esther Toledo, and Suzanne Wren.

[38]H. Rep. No. 112-78, at 291 (2011).

Appendix I: Map of the Arctic Boundary

This appendix provides a map of the Arctic boundary, as defined by the Arctic Research and Policy Act. As discussed in the report, the Coast Guard currently has limited capacity to operate in the waters immediately below the Arctic Circle, such as the Bering Sea. Increasing responsibilities in an even larger geographic area, especially in the harsh and remote conditions of the northern Arctic, will further stretch the agency's capacity.

Figure 3: Map of the Arctic Boundary as Defined by the Arctic Research and Policy Act



Source: Created by the National Science Foundation for the U.S. Arctic Research Commission.

Appendix II: Impact of Capability Gaps on Coast Guard Mission Performance

This appendix provides information on the degree to which the Coast Guard's existing capability gaps in the Arctic are expected to impact future mission performance. Of the Coast Guard's 11 mission areas, 9 are expected to experience future demand in the Arctic, and the degree to which existing capability gaps are expected to impact these missions has been classified as Significant, Moderate, or Low. Examples of how these gaps are expected to impact each mission are also included below.

Figure 4: Impact of Existing Capability Gaps on Future Coast Guard Mission Performance in the Arctic

Degree of impact on mission performance	Coast Guard mission area	Example of mission impact
Significant	Defense readiness	Arctic capability gaps limit the Coast Guard's ability to provide a surface presence and project sovereign power in the Arctic.
	Ice operations	The lack of icebreaker capability will limit the Coast Guard's ability to provide assistance to commercial oil and gas activities in extreme or unpredicted ice conditions.
	Marine environmental protection	The lack of Arctic assets will limit the Coast Guard's environmental inspection and compliance activities, as well as their ability to respond to a major environmental incident, such as an oil spill.
	Ports, waterways, and coastal security	The lack of a vessel tracking system hinders the Coast Guard's ability to identify ships in U.S. Arctic waters.
Moderate	Aids to navigation	Gaps in navigation capacity and the presence of ice, fog, wind, and high sea states in shallow water will threaten the safety of an increasing number of mariners.
	Search and rescue	The lack of icebreaker capability will limit the Coast Guard's ability to respond to an increasing need for emergency maritime search and rescue due to greater human activity.
	Other law enforcement	The lack of assets in the Arctic limits the Coast Guard's ability to close illegal fishing areas.
Low	Living marine resources	Gaps in Arctic capabilities limit the Coast Guard's ability to enforce fishing regulations and deter potential illegal fishing.
	Marine safety	The lack of assets in the Arctic limits the Coast Guard's ability to enforce the restriction or closure of waterways.

Source: Coast Guard, *High Latitude Study*.

Note: Two Coast Guard missions – Drug Interdiction and Migrant Interdiction – are not expected to be impacted by capability gaps in the Arctic.

Appendix III: Arctic Force Mixes

This appendix provides information on potential solutions to the Coast Guard's existing capability gaps in the Arctic. The High Latitude Study compares six Arctic force mixes in terms of the ability of each force mix to reduce the risk that is expected to exist in the future Arctic environment. The force mixes add assets to the baseline force mix (which represents the Coast Guard's current Arctic assets) and include different combinations of cutters (including icebreakers), aircraft, and forward operating locations. The specific asset combinations for each force mix are described below. The estimated acquisition cost for each Arctic force mix and the percent of risk the force mix is expected to reduce in the Arctic is also shown below.

Figure 5: Arctic Force Mixes

Arctic Force Mix (estimated acquisition cost)	Percent of risk reduced in the Arctic	Icebreakers and cutters	Forward Operating Locations (FOL) with medium range helicopters
Baseline	1%	• One high-endurance cutter deployed in the Bering Sea, carrying a short range helicopter	• Two medium range helicopters located at Kodiak in the Gulf of Alaska • Seasonal medium range helicopters at Cold Bay and St. Paul, Alaska
Each force mix below contains the baseline assets			
Force Mix 1 $3.1 billion	58%	• One icebreaker deployed North of Alaska, carrying two medium range helicopters	• One forward operating location on the North Slope
Force Mix 2 $3.1 billion	65%	• One icebreaker deployed North of Alaska, carrying two medium range helicopters	• One forward operating location in Northwest Alaska
Force Mix 3 $3.17 billion	66%	• One icebreaker deployed North of Alaska, carrying two medium range helicopters	• One forward operating location on the North Slope • One forward operating location in Northwest Alaska
Force Mix 4 $3.1 billion	50%	• One icebreaker deployed North of the Bering Strait, carrying two medium range helicopters	• One forward operating location on the North Slope
Force Mix 5 $1.01 billion	25%	—	• One forward operating location on the North Slope • One forward operating location in Northwest Alaska
Force Mix 6 $6.08 billion	92%	• One icebreaker deployed North of the Bering Strait, carrying two medium range helicopters • One icebreaker deployed in the Chukchi Sea, carrying two medium range helicopters • One icebreaker deployed North of Alaska (in the Beaufort Sea), carrying two medium range helicopters	—

Source: Coast Guard, *High Latitude Study*.

Note: Risk and risk reduction vary by season, because winter ice coverage affects accessibility. For example, the cruise industry is responsible for most of the risk present in the Arctic in the spring, summer, and fall, but does not contribute any risk during the winter.

Appendix IV: Funding Limitations Related to Icebreakers

This appendix provides an overview of the funding challenges the Coast Guard faces related to icebreakers. These include limitations in the Coast Guard's existing and projected budget, as well as alternative financing options.

Coast Guard Budget Limitations

The Coast Guard faces overall budget uncertainty, and it may be a significant challenge for the Coast Guard to obtain Arctic capable resources, including icebreakers. For more than 10 years, we have noted Coast Guard difficulties in funding major acquisitions, particularly when acquiring multiple assets at the same time. For example, in our 1998 report on the Deepwater program, we noted that the agency could face major obstacles in proceeding with that program because it would consume virtually all of the Coast Guard's projected capital spending.[1] In our 2008 testimony on the Coast Guard budget, we again noted that affordability of the Deepwater acquisitions would continue to be a major challenge to the Coast Guard given the other demands upon the agency for both capital and operations spending.[2] In our 2010 testimony on the Coast Guard budget, we noted that maintaining the Deepwater acquisition program was the Coast Guard's top budget priority, but would come at a cost to operational capabilities.[3] This situation, of the Deepwater program crowding out other demands, continued, and in our report of July this year we noted that the Deepwater program of record was not achievable given projected Coast Guard budgets.[4] Given the challenges that the Coast Guard already faces in funding its Deepwater acquisition program, it unlikely that the agency's budget could accommodate the level of additional funding (estimated by the High Latitude Study to range from $4.14 billion to $6.9 billion) needed to acquire new icebreakers or reconstruct existing ones.

[1]GAO, *Coast Guard Acquisition Management: Deepwater Project's Justification and Affordability Need to be Addressed More Thoroughly*, GAO/RCED-99-6 (Washington, D.C.: Oct. 26, 1998).

[2]GAO, *Coast Guard: Observations on the Fiscal Year 2009 Budget, Recent Performance, and Related Challenges*, GAO-08-494T (Washington, D.C.: March 6, 2008).

[3]GAO, *Coast Guard: Observations on the Fiscal Year 2011 Budget, Recent Performance, and Related Challenges*, GAO-10-411T (Washington, D.C.: February 25, 2010).

[4]GAO, *Coast Guard: Action Needed As Approved Deepwater Program Remains Unachievable*, GAO-11-743 (Washington, D.C.: July 2011).

The *U.S. Polar Icebreaker Recapitalization Report* contains an analysis of the Coast Guard's budget which also concludes that the recapitalization of the polar icebreaker fleet cannot be funded within the existing or projected Coast Guard budget.[5] This analysis examined the impact that financing a new polar icebreaker would have on Coast Guard operations and maintenance activities, among others. The report found that given the Coast Guard's current and projected budgets, as well as its mandatory budget line items, there are insufficient funds in any one year to fully fund one new polar icebreaker. Additionally, though major acquisitions are usually funded over several years, the incremental funding obtained from reducing or delaying existing acquisition projects would have significant adverse impact on all Coast Guard activities.

This means that it is unlikely that the Coast Guard will be able to expand the U.S. icebreaker fleet to meet its statutory requirements as identified by the High Latitude Study. As we reported in 2010,[6] the Commandant of the Coast Guard has recognized these budgetary challenges, noting that the Coast Guard would need to prioritize resource allocations, while accepting risk in areas where resources would be lacking. Given that it takes 8-10 years to build an icebreaker, and the Coast Guard has not yet begun the formal acquisition process, the Coast Guard has already accepted some level of risk that its statutory mission requirements related to icebreakers will continue to go unmet.

Limitations on Alternative Financing Options

The three reports discussed earlier in this statement all identify funding as a central issue in addressing the existing and anticipated challenges related to icebreakers. In addition to the Coast Guard budget analysis included in the Recapitalization report, all three reports reviewed alternative financing options, including the potential for leasing icebreakers, or funding icebreakers through the National Science Foundation (NSF) or the Department of Defense (DOD). Although DOD has used leases and charters in the past when procurement funding levels were insufficient to address mission requirements and capabilities,

[5]The report based its assessment on the Coast Guard's Capital Investment Plan through fiscal year 2016, and longer-term budget projections through fiscal year 2020 that assumed an increase of no greater than inflation. However since the analysis took place, the Capital Investment Plan has been subject to downward revision.

[6]GAO-10-870.

both the Recapitalization report and the High Latitude Study determined that the lack of existing domestic commercial vessels capable of meeting the Coast Guard's mission requirements reduces the availability of leasing options for the Coast Guard. Additionally, an initial cost-benefit analysis of one type of available leasing option included in the Recapitalization report and the High Latitude Study suggests that it may ultimately be more costly to the Coast Guard over the 30-year icebreaker lifespan. Another alternative option addressed by the Recapitalization report would be to fund new icebreakers through the NSF. However, the analysis of this option concluded that funding a new icebreaker through the existing NSF budget would have significant adverse impacts on NSF operations and that the capability needed for Coast Guard requirements would exceed that needed by the NSF.

The Recapitalization report noted that a funding approach similar to the approach used for the *Healy*, which was funded through the fiscal year 1990 DOD appropriations, should be considered.[7] However, the report did not analyze the feasibility of this option. We have previously reported that because of the Coast Guard's statutory role as both a federal maritime agency and a branch of the military, it can receive funding through both the Department of Homeland Security (DHS) and DOD.[8] For example, as we previously reported, although the U.S. Navy is not expressly required to provide funding to the Coast Guard, the Coast Guard receives funding from the Navy to purchase and maintain equipment, such as self-defense systems or communication systems, because it is in the Navy's interest for the Coast Guard systems to be compatible with the Navy's systems when the Coast Guard is performing national defense missions in support of the Navy. However, according to a Coast Guard budget official, the Coast Guard receives the majority of its funding through the DHS appropriation, with the exception of reimbursements for specific activities.[9] Also, as the Recapitalization plan acknowledges, there is considerable strain on the DOD budget. A recent

[7]Pub.L.No 101-165, 103 Stat. 1112, 1121 (1989).

[8]GAO, *Homeland Security: Enhanced National Guard Readiness for Civil Support Missions May Depend on DOD's Implementation of the 2008 National Defense Authorization Act,* GAO-08-311 (Washington, D.C.: Apr. 16, 2008).

[9]For example, NSF reimbursed the Coast Guard for polar icebreaker maintenance from 2006 to 2011, and the Coast Guard receives reimbursements for certain U.S. Navy related security operations.

DOD report on the Arctic[10] also notes budgetary challenges, stating that the near-term fiscal and political environment will make it difficult to support significant new U.S. investments in the Arctic. Furthermore, DOD and the Coast Guard face different mission requirements and timelines. For example, DOD's recent report states that the current level of human activity in the Arctic is already of concern to DHS, whereas the Arctic is expected to remain a peripheral interest to much of the national security community for the next decade or more. As a result, the Coast Guard has a more immediate need than DOD to acquire Arctic capabilities, such as icebreakers. For example, with preliminary plans for drilling activity approved in 2011, the Coast Guard must be prepared to provide environmental response in the event of an oil spill. Similarly, as cruise ship traffic continues to increase, the Coast Guard must be prepared to conduct search and rescue operations should an incident occur. For these reasons, it is unlikely that an approach similar to the one that was used to build the *Healy* would be feasible at this time.

[10]DOD, *Report to Congress on Arctic Operations and the Northwest Passage*, (Washington, D.C.; May 2011).

Related GAO Products

Coast Guard: Action Needed As Approved Deepwater Program Remains Unachievable, GAO-11-743, Washington, D.C.: July 28, 2011.

Coast Guard: Efforts to Identify Arctic Requirements Are Ongoing, but More Communication about Agency Planning Efforts Would Be Beneficial, GAO-10-870, Washington, D.C.: September 15, 2010.

Coast Guard: Observations on the Requested Fiscal Year 2011 Budget, Past Performance, and Current Challenges, GAO-10-411T, Washington, D.C.: February 25, 2010.

Coast Guard: Observations on the Fiscal Year 2010 Budget and Related Performance and Management Challenges, GAO-09-810T, Washington, D.C.: July 7, 2009.

Homeland Security: Enhanced National Guard Readiness for Civil Support Missions May Depend on DOD's Implementation of the 2008 National Defense Authorization Act, GAO-08-311, Washington, D.C.: April 16, 2008.

Coast Guard: Observations on the Fiscal Year 2009 Budget, Recent Performance, and Related Challenges, GAO-08-494T, Washington, D.C.: March 6, 2008.

Results-Oriented Government: Practices That Can Help Enhance and Sustain Collaboration among Federal Agencies, GAO-06-15. Washington, D.C.: October 21, 2005.

Coast Guard Acquisition Management: Deepwater Project's Justification and Affordability Need to Be Addressed More Thoroughly, GAO/RCED-99-6, Washington, D.C.: October 26, 1998.

Executive Guide: Effectively Implementing the Government Performance and Results Act, GAO/GGD-96-118, Washington D.C.: June 1996.

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January 24, 2012

The Honorable Rick Larsen
Ranking Member
Subcommittee on Coast Guard
and Maritime Transportation
Committee on Transportation
and Infrastructure
House of Representatives

Subject: *Coast Guard: Responses to Post-Hearing Questions for the Record Related to Coast Guard Operations in the Arctic*

Dear Ranking Member Larsen,

It was a pleasure to appear before your subcommittee on December 1, 2011, to discuss Coast Guard operations in the Arctic.[1] This letter responds to your request that I provide answers to questions for the record from the hearing. The responses are based on work associated with our previously issued products. If you have any questions about this letter, or need additional information, please contact me at (202) 512-9610 or caldwells@gao.gov.

Stephen L. Caldwell
Director
Homeland Security and Justice

Enclosure

[1]GAO, *Coast Guard: Observations on Arctic Requirements, Icebreakers, and Coordination with Stakeholders*, GAO-12-254T (Washington, D.C.: December 1, 2011).

Enclosure

SUBCOMMITTEE ON COAST GUARD & MARITIME TRANSPORTATION

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

December 1, 2011

Questions

High Latitude Study Baseline Budgets

1. **Mr. Caldwell, you recognize that the Coast Guard has made modest, seasonal efforts in recent years to begin an internal needs assessment process for future infrastructure, communications and information technologies, demands for modified or new "Arctic hardened" air and surface assets, and to support force deployment. I do not believe that anyone is underestimating the scope or scale of this undertaking.**

   - **In your opinion, has the GAO analyzed other comparable situations where the Federal Government has had to stand-up new operations in environments as hostile as those above the Arctic Circle? Can the Coast Guard be expected to do this alone?**

Although we have not analyzed a comparable situation, international organizations such as the Arctic Council, and other federal agencies, including the National Science Foundation (NSF) and Department of Defense (DOD) have conducted research on the requirements and challenges of operating in polar regions. For example, in 2009, the Arctic Council released the *Arctic Marine Shipping Assessment*, which contains an analysis of existing Arctic infrastructure and notes the challenges associated with strengthening it. In addition, both NSF and DOD have operational experience with designing, constructing, and operating remote polar sites. Specifically, NSF has a contract with CH2M HILL Polar Services (CPS) to provide Arctic logistics to NSF funded researchers, including communications, temporary and permanent facilities, and engineering support. Similarly, DOD's U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory has designated Cold Regions Infrastructure (CRI) as one of its technical areas. The CRI mission provides logistics, operations, and infrastructure planning for remote polar sites and reviews designs for DOD and polar facilities, among other things. For example, the CRI mission provides design, value engineering, and construction support for missile defense facilities in Alaska, as well as route planning and

engineering for the 3,300-km overland logistics convoy from McMurdo Station to the South Pole, Antarctica.

As demonstrated by the Coast Guard's existing activities in the Arctic, the agency should not be expected to independently stand up new operations in the region. As we reported in September 2010, the Coast Guard does not act alone in the Arctic, but coordinates with various stakeholders on Arctic operations and policy, including foreign, state, and local governments, Alaskan Native governments and interest groups, and the private sector.[2] At the national level, National Security Presidential Directive 66 / Homeland Security Presidential Directive 25 reflects current U.S. Arctic policy, which applies to all federal agencies. For example, the Coast Guard coordinates with DOD in the Arctic, in part through Joint Task Force-Alaska which supports of a unified approach to the security and defense of Alaska. Additionally, as discussed below, the Coast Guard shares responsibility with the Department of the Interior for oil spill planning, preparedness, and response in the Arctic. The Coast Guard also participates in several interagency coordination efforts related to Arctic policy, such as the Interagency Arctic Research Policy Committee, the U.S. Extended Continental Shelf Task Force, the Committee on the Marine Transportation System, and the Arctic Policy Group. Further, the Coast Guard collaborates with the State of Alaska, local governments, and tribal groups on issues related to commerce, security, climate change, and search and rescue. The Coast Guard has also coordinated with the private sector in the Arctic, particularly with regard to the oil, gas, fishing, shipping, and cruise line industries. Internationally, the Coast Guard participates as the U.S. representative in multilateral forums such as the International Maritime Organization and the Arctic Council's Search and Rescue Task Force. The Coast Guard also works with Canada on joint extended continental shelf surveys and standard oil spill response planning and with Russia on border and illegal fishing issues. All of the above stakeholders have Arctic responsibilities, demonstrating that the full burden of increased operations will not fall solely on the Coast Guard.[3]

- **Is it practical for the Coast Guard to even contemplate Arctic operations in the absence of new heavy icebreakers?**

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[2]GAO, *Coast Guard: Efforts to Identify Arctic Requirements are Ongoing, but More Communication about Agency Planning Would Be Beneficial*, GAO-10-870 (Washington, D.C.: Sept. 15, 2010).
[3]See GAO-10-870, app. III and IV for more detailed descriptions of these and other coordination efforts.

With its existing icebreaking capabilities, the Coast Guard conducts seasonal deployments in the Arctic. To expand operations to include year round deployments in the Arctic, new heavy icebreakers would be required. One part of the Coast Guard's High Latitude Study analyzes the Coast Guard's mission requirements in the polar regions, in part to determine whether year round deployments are necessary to meet the requirements. These requirements inform the types of capabilities that the Coast Guard will need in the future, and the High Latitude Study does find that icebreaking capabilities are required to fulfill the Coast Guard's mission requirements. However, the Study also analyzes the ability of the Coast Guard to carry out operations in the Arctic without icebreakers through the Arctic force mix risk analysis. One mix does not contain icebreakers, but does provide additional capabilities that allow it to mitigate 25 percent of the risk in the Arctic, as compared to the less than 1 percent mitigated by the Coast Guard's current assets. In contrast, a force mix that provides three icebreakers in addition to the Coast Guard's current assets allows it to mitigate 92 percent of the risk in the Arctic.

High Latitude Study Arctic Force Mix Analyses

1. **I appreciate the analysis you provided regarding the Force Mix analyses that were contained in the Coast Guard's High Latitude Study. In addition to icebreaker capabilities, you noted that the High Latitude Study also emphasized that gaps in communications capabilities and deficiencies in the information available about sea ice coverage will have broad-reaching affects across several Coast Guard missions.**

    - **In your opinion, do the analyses contained in the High Latitude Study provide the Coast Guard with enough information to initiate its capital planning process to request new investments? Does this study provide a sound basis for the Coast Guard to move forward? Are the assumptions underpinning the cost estimates valid and reasonable?**

According to Coast Guard officials we spoke with, the High Latitude Study was not a part of the formal acquisitions process, and would instead be used to inform a more detailed future analysis that will serve as the first step in the icebreaker acquisition process. As we have previously reported, major Coast Guard acquisitions are to follow the Department of Homeland Security's four-phase acquisition process.[4] The four phases include identifying the need for a new acquisition; identifying alternatives and selecting the best option; developing, testing, and

[4]GAO, Coast Guard: Opportunities Exist to Further Improve Acquisition Management Capabilities, GAO-11-480 (Washington, D.C.: April 13, 2011).

evaluating the option to determine whether to approve production; and producing, deploying, and supporting the asset throughout the operational life cycle. During these phases, the Coast Guard is to develop key acquisition documents such as a mission needs statement, acquisition plan, project life cycle cost estimate, and an acquisition program baseline to help manage the acquisition.

Although we have not directly analyzed the cost estimates and the assumptions underpinning them, the cost estimates included in High Latitude Study for Arctic assets other than icebreakers are based on comparable acquisition or operating costs for recent DOD or Coast Guard assets, or from *DOD's Historical Air Force Construction Cost Handbook*, adjusted for location. However, comparable information for icebreakers is not as readily available. Estimates for acquiring a heavy icebreaker are based on the National Research Council's 2007 report, *Polar Icebreakers in a Changing World: An Assessment of U.S. Needs*. For a medium icebreaker, the Study did not use the acquisition cost for the Healy (the existing U.S. medium icebreaker), and instead adjusted the acquisition cost for the Alaska Region Research Vessel - an ice-capable vessel which is 40 percent smaller than the Healy.[5] Similarly, for the cost estimates for a light icebreaker, the Study relied on Wikipedia's account of the 2002 cost of the Norwegian Coast Guard icebreaker KV Svalbard.

- **Does the High Latitude Study contain enough detail on the scope, scale and type of infrastructure, other than icebreakers, that the Coast Guard will need to develop or obtain in order to address the future demands that will emerge in the Arctic?**

The High Latitude Study provides a high level of detail for decision makers tasked with determining the Coast Guard's future infrastructure investments, but according to Coast Guard officials, it was not part of the formal acquisitions process and additional analysis will take place in the future. As the Coast Guard's primary effort to identify and report on Arctic requirements, the High Latitude Study provides a comprehensive analysis of the Coast Guard's mission responsibilities in the polar regions, the activities it must perform over the next 30 years, and the capabilities needed to fulfill the requirements. While the Study concludes that the common and dominant contributor to the significant mission impacts it identifies in the Arctic is the gap in polar icebreaking capability, it also identifies several other capability gaps that will affect the

[5]The High Latitude Study reported that, at the time of their study, the acquisition costs for the Healy were not available.

Coast Guard's ability to carry out future mission requirements, as well as potential solutions for addressing these gaps. For example, the High Latitude Study recommends that the Coast Guard acquire more than 25 additional communication or navigation facilities. Further, while five of the Arctic force mixes contain icebreakers, all six options also contain other assets, including forward operating locations[6] and medium range helicopters. The High Latitude Study provides suggested locations for these recommended infrastructure acquisitions, and also provides detailed cost estimates for acquiring and operating each type of asset, including potential factors that may contribute to adjustments to the estimates.

Arctic Energy Development and Federal Oversight and Emergency Response

1. **Mr. Caldwell, in GAO's assessment of the 2011 High Latitude Study, GAO notes that 9 of the Coast Guard's 11 missions will be impacted by future demands in the Arctic. You also note that at present the Coast Guard's assets in Alaska are based well below the Arctic Circle, and that these assets are constrained by several factors, especially long transit times for surface vessels and aircraft and limited fuel capacity.**

   - **I realize that this is not a hearing on new proposals to drill for oil and gas in the Arctic, but considering the stated lack of infrastructure and operational posture, does the Coast Guard presently have the capability in place to effectively oversee new oil and gas development in the Arctic and respond to any emergency that might arise?**

Our recent work[7] has noted that the Coast Guard shares responsibility for overseeing new oil and gas development in the Arctic with the Department of the Interior.[8] The owners and operators of offshore oil and gas development facilities also share responsibility for ensuring the safety and security of their operations through facility security plans and other efforts. The Department of the Interior approved preliminary plans in August and December 2011 for one operator to drill for oil and gas in two locations in the Arctic—the Beaufort and Chukchi seas. Final approval of these plans is pending receipt of the operator's well containment plan and other requirements. However, despite the operator's intention to maintain the capabilities needed to respond to an incident,[9] these capabilities may not completely mitigate some of the

[6]The infrastructure associated with Forward Operating Locations includes maintenance hangars for the medium range helicopters and dormitory/mission support facilities.
[7]GAO, *Deepwater Horizon: Coast Guard and Interior Could Improve Their Offshore Energy Inspection Programs*, GAO-12-203T (Washington, D.C.: Nov. 2, 2011); GAO-10-870.
[8]Coast Guard is the lead federal agency responsible for maritime security, including the security of offshore oil and gas facilities. The Department of Interior, through its component agencies, is the lead federal agency responsible for enforcing safety, environmental oversight, and conservation compliance regarding the development of offshore oil and gas resources.
[9]These include an icebreaking vessel and self sufficient well containment capabilities, among other things.

environmental and logistical challenges associated with the remoteness and environment of the region. As a result, it is likely that additional personnel, vessels, and equipment would be required to respond in the event of an incident. Specifically, there is currently a lack of industry infrastructure in the Arctic region, in the form of ships, personnel, and drilling equipment that could be brought to bear in the event of an underwater blowout or major spill. This lack of industry infrastructure is of particular note in light of the fact that the response to the 2010 Deepwater Horizon oil spill in the Gulf of Mexico utilized equipment and expertise from many companies operating nearby.

Further, as of the date we issued our September 2010 report,[10] the Coast Guard has not had to respond to any oil or hazmat spills in waters above the Arctic Circle. However, according to officials, the Coast Guard's experience responding to incidents in more southern Arctic waters highlighted logistical challenges and officials stressed that responding to an incident above the Arctic Circle would be even more difficult due to the limited infrastructure and minimal Coast Guard assets operating in the remote Arctic regions. We also reported that the Coast Guard and others have limited scientific information on how oil behaves in icy environments which is important for conducting injury assessments and developing response and restoration strategies. Further, the Coast Guard's lack of icebreaking capability limits the agency's ability to respond to incidents occurring in unpredicted ice situations.

Icebreaker Lease/Charters

1. **Mr. Caldwell, you note that the three most recent reports have reviewed alternative financing options, including the potential for leasing icebreakers, or funding icebreakers through the National Science Foundation or Department of Defense budgets. You also noted that the Recapitalization report recommended using a funding approach similar to the approach used for the construction of the Healy.**

   - **Can you please expand on these thoughts? Do you agree that military stature of the Coast Guard makes the leasing of icebreakers impractical?**

For the past 20 years, we have reported on the use of leasing as an approach to finance federal capital, including federal real property and capital assets.[11] In general, we have found that the

[10]GAO-10-870.
[11]This work has largely focused on the use of leasing for federal real property, as opposed to the leasing of capital assets, such as vessels. In terms of our reporting on leasing for federal real property, we have reported that the

challenges associated with using leases to finance federal capital are related to the cost effectiveness of the lease arrangement, as opposed to the intended function of the leased asset. However, the characteristics of various types of leasing options, coupled with the limited availability of these vessels, may reduce the viability of leasing as an option for maintaining the U.S. icebreaking fleet. For example, our prior work has identified four types of leasing arrangements that could be applicable to icebreakers. Two of these options, a lease-purchase option or a capital lease option, would require the Coast Guard to incur the full cost of the new icebreakers in a single year, making these options as prohibitive as directly financing the construction of new icebreakers. As we discussed in our statement, the Coast Guard already faces significant challenges in funding its Deepwater acquisition program, and it is unlikely that the agency's budget could accommodate the level of additional funding needed to acquire new icebreakers. Another option, an operating lease, allows government agencies to request incremental funding on an annual basis for the cost of a single year. To qualify, this type of lease must meet six criteria,[12] and it is unlikely that a lease for a heavy icebreaker would be able to do so because, (1) most of the world's icebreakers are government owned and operated, and (2) due to the lack of commercially available heavy icebreakers and the Coast Guard's diverse mission requirements, the icebreaker would have to be built to the Coast Guard's specifications. Finally, a sale-leaseback option, which is most often used for buildings in need of renovation, could be applicable to funding for heavy icebreakers.[13] However, in our prior work, we determined that sale-leasebacks may be more expensive, because renovations financed by the private sector will always cost more than those financed by Treasury borrowing.

The analyses of the leasing options that are included in the High Latitude Study and the Recapitalization Report also reach similar conclusions regarding the feasibility of leasing for icebreakers. Both reports determined that the lack of existing domestic commercial vessels

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federal government leases more property than is cost-efficient, resulting in millions of dollars of additional costs to the federal government. Because of this, we designated the management of federal real property as a high-risk area. See GAO, *High-Risk Series: An Update*, GAO-11-278 (Washington, D.C.: Feb. 16, 2011). See also, GAO, *Federal Real Property: Overreliance on Leasing Contributed to High-Risk Designation*, GAO-11-879T (Washington, D.C.: Aug. 4, 2011); *Military Aircraft: Observations on DOD's Aerial Refueling Aircraft Acquisition Options*, GAO-04-169R (Washington, D.C.: Oct. 14, 2003); *Budget Issues: Alternative Approaches to Finance Federal Capital*, GAO-03-1011; (Washington, D.C.: Aug. 21, 2003) and; *Defense Acquisitions: Historical Analyses of Navy Ship Leases*, GAO/NSIAD-99-125 (Washington, D.C.: Jun. 25, 1999).

[12]The six criteria include: (1) ownership of the asset remains with the lessor and is not transferred to the government at or shortly after the lease; (2) lease does not contain a bargain-price purchase option; (3) the lease term does not exceed 75 percent of the estimated economic life of the asset; (4) the asset is a general-purpose asset and is not built to unique specifications of the government lessee; (5) there is a private sector market for the asset; and (6) the present value of the lease payments does not exceed 90 percent of the fair market value.

[13]For this option, the federal government sells an asset and then leases back some or all of the asset from the purchaser, following renovation.

capable of meeting the Coast Guard's mission requirements reduces the availability of leasing options for the Coast Guard. Specifically, the Recapitalization Report finds that the Coast Guard is limited to a "Build-to-Lease" option. The build-to-lease option includes two phases: (1) the construction phase includes a ship built by a shipbuilder using a government line of credit. When construction is completed, the ship is purchased by the lessor; (2) the owner then leases the ship to the government for an agreed upon period of time. A preliminary cost-benefit analysis in the Recapitalization Report concludes that the build-to-lease option may be more costly than the purchase option over the expected 30-year life of the asset.[14]

Both the Recapitalization Report and the High Latitude Study also acknowledge that it is important for decision makers to consider the ability of a leased Coast Guard icebreaker to perform required missions, including law enforcement and defense of U.S. sovereignty, which is part of the Coast Guard's Defense Readiness mission. The Recapitalization Report notes that a civilian crewed vessel would not possess the legal, regulatory, and use-of-force authorities of a U.S. Coast Guard-crewed vessel and could not provide sovereign presence in the polar regions. Similarly, the High Latitude Study identifies several government studies that find that the inherently governmental missions of the Coast Guard are best served using government owned and operated vessels.[15] However, there is not consensus that this issue would negatively affect the ability of the Coast Guard to lease icebreakers. As Commandant Papp noted in his testimony before the Committee, the Coast Guard has looked at various scenarios and determined that a leased vessel under some circumstances would be legally capable of carrying out all required Coast Guard missions.

- **Can you better explain the appropriations process that was used to fund the Healy and why that strategy might not yield the same result today?**

Because of the Coast Guard's statutory role as both a federal maritime agency and a branch of the military, it can receive funding through both the Department of Homeland Security (DHS) and DOD. As a result, the Coast Guard was able to receive funding to acquire the Healy through DOD's appropriation. Further, in the years preceding Congress's decision to fund the

[14]The breakeven point, or the point at which the cost of the lease option equals the cost of the purchase option, is 25 years, however, the calculated lease costs assume a 30-year lease. Shorter lease terms may translate to higher rates, potentially causing the breakeven year to change.
[15]Office of Management and Budget. *Report on Polar Icebreaker Requirements* (Washington D.C., October 1990).; Booz Allen Hamilton. *Mission Analysis Report: Polar Ice Operations, Final Report.* (McLean, VA., June 10, 2005).; National Research Council. *Polar Icebreakers in a Changing World: An Assessment of U.S. Needs.* (2007).

Healy through DOD's appropriation, the Coast Guard had been receiving funding through DOD appropriations to offset funding shortfalls due to what was characterized as the Coast Guard being underappropriated within Department of Transportation appropriations. However, as we discuss in our statement, it is unlikely that an approach similar to the one that was used to build the Healy would be feasible at this time. A recent DOD report stated that current levels of human activity in the Arctic are already of concern to DHS, while the Arctic is expected to remain a peripheral interest to much of the national security community for the next decade or more. At this time, the Coast Guard has a more immediate need to acquire icebreakers than DOD to perform civilian missions such as Search and Rescue. Further, DOD has also noted budgetary challenges that will make it difficult for DOD support significant U.S. investments in the Arctic.

Vigor Industrial Polar Sea Repair Estimates

1. **Mr. Caldwell, you heard Mr. Whitcomb testimony that his shipyard could put the Polar Sea back in service within 2 years for a cost of roughly $11 million, a fraction of the estimated $1 billion to construct a new heavy icebreaker. You have been engaged with the Coast Guard for years on the status of the Service's icebreakers.**

    - **Can you recall this proposal ever coming up in any discussion? Does it have merit? Would it provide a relatively low cost bridging strategy to buy time before new icebreakers can be built and launched?**

Prior to Mr. Whitcomb's testimony, we were not aware of Vigor Industrial's estimate for returning the Polar Sea to service. However, according to a Coast Guard budget official we spoke with, the agency had previously estimated that the Polar Sea could be returned to service for a cost of $15 million. Because this would only return the Polar Sea to service through its original estimated end-of-service-life date of 2014, the Coast Guard determined that it would be more cost-effective to redirect the annual operating expenses of the Polar Sea to the ongoing service life extension of the Polar Star. Further, the Recapitalization report found that the most cost effective option for recapitalizing the Coast Guard's icebreaker fleet was to begin constructing two new heavy icebreakers, while performing minimal maintenance to keep the existing icebreakers operational while construction is taking place. In this sense, the proposal put forth by Vigor Industries could potentially serve as a bridging strategy, but as the Recapitalization report concludes, due to the time frames associated with building new icebreakers, the Coast

Guard must begin planning and budgeting for the new icebreakers immediately. Further, as noted by the Recapitalization report, performing service life extensions or major reconstruction of the existing icebreakers involves a high level of risk due to high levels of uncertainty with respect to cost, scheduling, and technical feasibility. Additionally, based on Mr. Whitcomb's testimony, it is not clear how long the Polar Sea can be expected to operate following the $11 million rehabilitation project.

Testimony of
Dr. Kelly Falkner
Deputy Director, Office of Polar Programs
National Science Foundation

Before the
House Committee on Transportation and Infrastructure
Subcommittee on Coast Guard
and
Maritime Transportation

December 1, 2011

Chairman LoBiondo, Ranking Member Larsen and distinguished members of the Subcommittee, I am pleased to appear before the Subcommittee to speak in my capacity as Deputy Director of the Office of Polar Programs. Let me first note for context that the Director of the National Science Foundation (NSF) is privileged to chair the Interagency Arctic Research Policy Committee under the President's National Science and Technology Council that coordinates key research activities in the Arctic. We appreciate this opportunity to discuss how the Foundation is meeting its icebreaking needs for research in the Arctic as well as for research and operations in Antarctic waters that NSF coordinates on behalf of the U.S. government.

As NSF executes its mission to promote the progress of science, it must continuously anticipate logistical requirements that enable frontier science and engineering research. With respect to advancing the scientific frontiers to understand our planet, NSF bears a critical responsibility for providing scientists with access to the oceans, which not only dominate the surface area of the earth and but are vital to life as we know it.

I focus today on the polar oceans. While they comprise only about ten percent of global ocean area, the polar seas exert a disproportionate influence on our climate and global carbon cycling. Scientists have documented recent changes in the polar oceans that have significant global implications and demand more research and analysis to understand.

The science community accordingly places a premium on improving knowledge of the polar oceans – the Arctic and Southern oceans – in order to better project future climate, the rate of sea level rise and the fate of important marine ecosystems upon which we depend for food and biodiversity.

I will first outline the important needs of the U.S. research community for polar ocean access from NSF's perspective as the predominant source of funding for fundamental research in these regions. I will then offer some brief comments on Section 307 of HR 2838, the authorization bill for U.S. Coast Guard appropriations for FY 2012 through 2015. I will conclude my testimony by highlighting some of the globally relevant research areas for which the U.S. polar marine research community requires icebreaker capabilities.

As an indication of the strong international interest in research on the polar oceans I point out that a substantial number of countries – Australia, Canada, China, Germany, Korea, Japan, Norway, Russia and South Africa – have, through their own research enterprises, recently constructed or are in the process of bringing into being new ice-capable research ships. Absent the U.S. polar class icebreakers, only Russia currently has the heavy icebreaker capability needed to access the Arctic Ocean in winter; only Russia and Sweden currently have the proven capability to provide resupply access for two of our nation's three year-round research stations on the Antarctic continent.

Heightened international interest in polar regions is driven in part by changes underway in the Arctic; increased human activity in the Arctic has important implications for the environment, commerce and security that you have heard about in testimony today. Underpinning an appropriate national response to these changes is an urgent need for coordinated and enhanced research efforts. NSF has been a strong supporter and partner in the ongoing interagency process of coordinating Arctic Region policy. It is of course important for NSF to coordinate and leverage its Arctic research program investments in this regard.

NSF is providing funding for an important new ship, the SIKULIAQ, [si KU lee ak], which will begin supporting scientific research in 2014. As a light-duty icebreaker, SIKULIAQ is designed for open water and is able to operate in ice up to about three-feet-thick. It will be extremely important for studying ecosystems in the Gulf of Alaska and southern Bering Sea, and in summer as far north as the Chukchi Sea, some of which, in addition to being scientifically interesting, are among the most productive fisheries in the world.

Through Memoranda of Agreement with the U.S. Coast Guard, NSF has made use of Coast Guard icebreakers to meet NSF's needs. The only U.S.-owned research icebreaker currently capable of operating in the Arctic and Southern oceans is the 12-year-old medium-duty USCG Cutter HEALY, which was designed some 20 years ago. HEALY can operate routinely in ice up to 4.5 feet continuously at 3 knots and 8 feet back-and-ram. HEALY has been and will continue to be a primary support research icebreaker for NSF-supported researchers in the years to come, working alone and also in company with other nation's research icebreakers; by working together the ships effectively expand each other's capability to provide access for research in multi-year ice. While focused on science support, HEALY is a commissioned military vessel, capable of executing all Coast Guard missions.

HEALY has not been deployed to the Southern ocean in support of marine research; however, HEALY has supported POLAR SEA on logistic resupply of McMurdo. NSF-supported researchers in that ocean rely on two leased vessels, the NATHANIEL B. PALMER and the LAWRENCE M. GOULD, both owned by Edison Chouest Offshore. Both of these

ships were designed and built to the specifications of the U.S. science community nearly 20 years ago. The NATHANIEL B. PALMER's capability in ice is somewhat greater than that of SIKULIAQ while the LAWRENCE M. GOULD is designed to operate in the more benign one-foot ice regimes typical of the Antarctic Peninsula. Thus, U.S. research ships cannot provide access to some of the more scientifically important portions of the Southern Ocean, particularly those within the sea ice pack and extending up to the ice sheet edge around the perimeter of Antarctica. We were able to provide access to our research community for several years (2007-2010) through a partnership with Sweden that supported joint research expeditions aboard the Swedish icebreaker ODEN. However, this year Sweden concluded that it needed ODEN at home to support marine transportation in northern ice-covered waters. As a result, the U.S. no longer has access to that capability. Our only domestic alternative to ODEN would require the Coast Guard to re-deploy HEALY from current operations in the Arctic, where it is in heavy demand by researchers. Because HEALY can only offer 185 at-sea science days annually under its current arrangements, any attempt to use HEALY in the Southern Ocean would severely impact our ability to support U.S. scientists working in the Arctic Ocean. My Coast Guard colleagues can speak better than I to the impact that deployment of HEALY to the south would have on their missions.

Ice-strengthened research platforms such as the HEALY are essential to keep the U.S. at the forefront of polar research. But I should also emphasize another aspect of NSF's reliance on icebreakers. As articulated in Presidential Memorandum 6646 and reaffirmed in a series of Presidential Decision Directives over the years, U.S. Policy calls for year-round U.S. presence at three research stations in Antarctica, including one at the geographic South Pole. The Memorandum assigns NSF the responsibility for managing the U.S. Antarctic Program, including support for those stations. These stations support forefront research while simultaneously maintaining a presence deemed essential to U.S. geopolitical and diplomatic interests on this continent. In particular, maintaining an active and influential scientific presence in Antarctica enables the U.S. to assume a leading role in governance of the continent under the Antarctic Treaty.

For many years, the U.S. Coast Guard provided the icebreakers to open a seasonal channel in the ice to McMurdo Station for a tanker and a cargo vessel to bring fuel and supplies to McMurdo Station. Without heavy icebreaker support, both McMurdo and South Pole Station would have to close for lack of supplies. When the Coast Guard's heavy icebreakers – the POLAR STAR and POLAR SEA – approached the end of their design lifetimes without funding for maintenance and renovations, NSF began contracting for icebreaker support from other countries, first in 2005 with Russia (KRASIN as a back up to POLAR STAR at USCG suggestion), then in 2006 (again KRASIN with POLAR STAR as back up), then with Sweden (with ODEN as back up to POLAR SEA in 2007 and then ODEN alone in 2008-2011 but with POLAR SEA on standby in 2008-2010), and now once again with a Russian company. Our current contract with the Murmansk Shipping Company will continue for three years. As you might imagine Mr. Chairman, NSF would prefer to rely on U.S. assets and we will continue to work with our sister agencies to develop a robust, long-term solution.

It is for that reason that NSF was disappointed to learn that the House-passed HR 2838 Coast Guard and Maritime Transportation Act of 2011 called for the decommissioning of POLAR

STAR within three years. We had been hoping that the POLAR STAR would be available to provide U.S. sourced icebreaking services once the ongoing renovations to POLAR STAR are completed. Earlier congressional action to provide funding for that renovation gave us hope that the POLAR STAR would be available for use by the U.S. Antarctic program for 7-10 years. NSF will continue to work with the Coast Guard and other ocean science agencies to develop a longer-term solution to the nation's icebreaking needs.

The U.S. research community has led discovery in polar marine science and has led the world in developing understanding of polar marine science and identifying key issues of importance extending well beyond the poles. I think it is fitting to conclude by highlighting some of the globally relevant research areas for which the U.S. polar marine research community uses icebreaker support:

- *Understanding the role of the polar regions in driving global climate* – The high latitude regions are the places where the deep water of the world's oceans is renewed. Year-round access to the dynamic Arctic Ocean, Southern Ocean, and surrounding seas, where sea-ice, atmosphere and ocean exchange freshwater and heat, will enable researchers to better understand the fundamental drivers of deeper water formation. Both modeling and observations point to causal relationships between the cycling of freshwater in high latitudes, ice dynamics, and global ocean circulation patterns all of which drive our weather patterns and condition global climate.

- *Understanding polar ice sheet contributions to the trajectory of future sea level rise* – Data that is largely satellite based suggest that loss of ice from the polar ice sheets accounts for about one third of the current rate of sea level rise; that contribution is increasing and may well accelerate the rate of sea level rise in the coming decades and century. Access to dynamic areas of the Antarctic and Greenland continental ice sheet margins and grounding zones, where heat provided by the oceans is causing substantial melting, is needed to determine the nature of the processes influencing melting rates. Only with direct observations can conceptual models be developed that will allow projections of future sea level rise.

- *Paleoclimatic evolution of Antarctica and the Arctic* – The ability to acquire seafloor rock and sediment samples from high latitude areas adjacent to, and below, perennial ice provides researchers with the samples needed to better understand the paleoclimatic history of the polar regions. Polar conditions are proving to be more essential for depicting Earth's past climate state as their role in driving climate change has become better appreciated. Well-described configurations of global conditions at key junctures in the past are needed to test and develop better confidence the capabilities of coupled climate models, which can then be used to improve predictions of future climate change.

- *Ecosystem dynamics in a changing polar environment* – The polar oceans are displaying dramatic changes in heat, freshwater and sea ice regimes. In the Arctic, this is evident as decreasing sea ice cover and the warming of certain seawater layers to temperatures unprecedented in 100 years of observations. In the Southern Ocean, these changes are manifest around the Antarctic Peninsula as the areal extent and seasonal duration of sea

ice cover has been decreasing while the region has witnessed among the largest increases in annual average atmospheric temperatures on the planet over the past 50 years (up to 5 deg F). In addition, warm circumpolar deep waters are making their way further up on to the narrow shelves all around the Antarctic continent. Ocean acidification and fishing pressures are also on the rise in higher latitudes. At the same time, significant changes in species compositions are being documented both north and south. Interdisciplinary ocean going studies on a modern vessel are needed to achieve a process-based understanding of the effects of multiple stressors on the valuable and unique polar ecosystems. Such fundamental understanding is urgently needed to devise and inform ecosystem-based management objectives.

- *Ocean acidification and its impacts* – The need for understanding the potential adverse impacts of a slowly acidifying sea upon marine ecosystems is widely recognized and included as a priority objective in the new National Ocean Policy. In fact, acidification in polar oceans, where it is expected to occur first and foremost, appears to be ahead of model predictions. The effects of ocean acidification could significantly affect strategies for developing practices towards the sustainability of ocean resources. Basic research concerning the nature, extent and impact of ocean acidification on polar oceanic environments in the past, present and future is particularly urgent with the changes upon us.

Mr. Chairman, I appreciate the opportunity to appear before the Subcommittee on this important issue on behalf of the National Science Foundation. I would be pleased to answer any questions that you may have.

TESTIMONY OF REAR ADMIRAL JEFFREY M. GARRETT,
U.S. COAST GUARD (RETIRED)

PROTECTING U.S. SOVEREIGNTY:
COAST GUARD OPERATIONS IN THE ARCTIC

BEFORE THE HOUSE SUBCOMMITTEE ON COAST GUARD
AND MARITIME TRANSPORTATION

DECEMBER 1, 2011

Good morning Mr. Chairman and distinguished members of the Committee. Thank you for the opportunity to participate in today's hearing.

As a Coast Guard officer, I spent much of my career serving in the nation's multi-mission polar icebreaker fleet, operating in both polar regions as well as supporting these operations in staff assignments ashore. For most of my career, polar operations only occasionally involved the Coast Guard's better-known "bread and butter" missions—an infrequent icebreaker search and rescue case, or building navigational aids on Alaska's North Slope, for example. Instead, most icebreaker operations in the past 30 years have supported defense logistics and an increasing demand for scientific research from a variety of governmental agencies.

As the Subcommittee is aware, transformational changes in the Arctic are significantly challenging our national interests and eliciting the need to support them. Energy development activities, increasing maritime transportation, continuing research needs, expanding tourism, environmental concerns, services for communities in Arctic Alaska and intensifying geopolitical issues are driving an Arctic "awakening" that we can't ignore. As the Commandant has repeatedly emphasized, these trends all affect the statutory responsibilities of the U.S. Coast Guard.

I believe the Coast Guard has, within its resources, struggled valiantly to stay abreast of new Arctic challenges. Seasonal deployment of Coast Guard cutters, boats, aircraft and specialized teams to Arctic Alaska have tested equipment capabilities and procedures and enhanced Arctic operational experience. But the most critical—and effective—capability that the Coast Guard could apply to its expanding Arctic responsibilities is largely missing from the scene. At a time of growing need, our polar icebreaker capabilities are steadily drifting into obsolescence.

With only *USCGC Healy* in operational condition during the upcoming year, consequences of icebreaker disinvestment are beginning to emerge. The Coast Guard has been unable to deploy an icebreaker for Arctic multi-mission purposes for over two years, and planned science missions for *USCGC Polar Sea* have had to be cancelled. Perhaps most ominously, a Coast Guard icebreaker will not be available for critical U.S. Antarctic Program support two months from now, after the unexpected withdrawal of foreign contracted icebreaking services. When *Healy* is engaged in dedicated science support, or undergoing maintenance, the Coast Guard has no polar icebreakers for other Arctic or Antarctic missions or contingencies.

These mission gaps will be somewhat mitigated in 2013, at least for the short term, when *USCGC Polar Star* is scheduled to return to service. Although I was privileged to serve in both of the *Polar*-class ships, and am very proud of the 70 years they have collectively served the nation, the Coast Guard will nevertheless be depending on 1960's technology that is expensive to operate and subject to the risk of additional failure.

During the High Latitude Study, as we considered present and future Arctic demands on the Coast Guard, it became evident to me is that the Coast Guard's lower-48 "footprint"—geographically distributed logistics bases, boat stations, air stations and sector offices—would be an extremely expensive and inappropriate blueprint for needs in Arctic Alaska. Moving sea ice, shallow coastal waters and permafrost make vessel mooring facilities, for example, very difficult to engineer. Moreover, the seasonality of operational demand and long distances would also make fixed installations less efficient.

Instead, a polar icebreaker patrolling offshore provides an ideal Arctic mobile base. With helicopters, boats, cargo space, heavy-lift cranes, extra berthing, configurable mission spaces, and command, control and communications facilities, an icebreaker can respond to contingencies and be augmented with special teams and equipment as needed. This is not to deny that some shore infrastructure would be needed. But an icebreaker can move to where the action is, carry out Coast Guard missions, engage with local communities and other federal, state and local agencies, exercise response plans, and simultaneously provide a visible national presence.

What is clearly called for is a continued level of icebreaker capability to accommodate the developing Arctic demand for Coast Guard services as well as fulfill the need for broader national sovereignty and presence. We must maintain near-term capabilities, keeping *Polar Star* and *Polar Sea* available for polar operations, and move forward to build two new icebreakers that can meet future needs more effectively and more efficiently. These are among the recommendations of the National Research Council's 2007 report on icebreaker capability. The subsequent High Latitude Study and Polar Icebreaker Recapitalization Analysis further inform the issue, and provide a sound basis for an icebreaker acquisition effort.

A review of U.S. requirements would not be complete without examining how other nations are confronting developments in the Arctic. Our declining polar capabilities place us distinctly in the minority. The other four Arctic nations are actively acquiring new ice-capable assets, most notably the multi-vessel building programs of Russia and our Canadian allies. Non-Arctic nations, most notably China, are building icebreaking ships and have announced plans for increased Arctic involvement. Even smaller nations, such as South Korea, South Africa and Chile, have recently acquired or are planning new polar ships.

In summary, I believe that if the United States is to protect its Arctic interests and retain its leadership role in both polar regions, we must have the ability to be present in those places, today and in the future. Thank you, Mr. Chairman, for considering these important issues and for the opportunity to be here today.

U. S. Department of Homeland Security

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TESTIMONY OF
ADMIRAL ROBERT PAPP
COMMANDANT, U.S. COAST GUARD
ON COAST GUARD OPERATIONS IN THE ARCTIC
BEFORE THE HOUSE TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION

DECEMBER 1, 2011

Good morning, Chairman LoBiondo, Ranking Member Larsen and distinguished Members of the Subcommittee. I am honored to have the opportunity to discuss the Coast Guard's Arctic operational presence, capabilities and emerging challenges in our role as the Nation's principal maritime safety, security, environmental protection and law enforcement entity.

AN EVOLVING ARCTIC

The United States is an Arctic Nation, and the Coast Guard has been operating in the Arctic Ocean since Alaska was a territory to assist scientific exploration, chart the waters, provide humanitarian assistance to native tribes, conduct search and rescue, and law enforcement. Today our mission remains remarkably similar to what it was in 1867; however, as open water continues to replace ice, human activity is increasing. With increasingly navigable waters, comes increased Coast Guard responsibility.

The Arctic domain has been gaining national attention. Gradually increasing accessibility to waters previously covered by ice has increased the significance of maritime issues including freedom of navigation, offshore resource exploration and exploitation, and environmental preservation. Observations and trends relevant to USCG operations include:

- *Offshore Resource Development*: The Arctic contains an estimated 22% of the world's technically recoverable oil and natural gas reserves. Shell is seeking approval to drill exploratory wells in the Chukchi and Beaufort Seas beginning in 2012. Other oil companies, including ConocoPhillips and Statoil, have also leased tracts on the Arctic outer continental shelf and announced their interest in exploratory drilling as early as 2013.

- *Fish Stock Migration:* The Bering Sea remains one of the world's richest biomasses. As the ice edge recedes and water temperatures change, there have been reports that fish stocks are moving northwest. The North Pacific Fishery Management Council is currently conducting a study to gather more reliable data on fish stock migrations. Preliminary information indicates there is a "cool pool" of water below the surface that is discouraging a further shift north. If fish stocks begin to migrate north, fisherman will follow, which could lead to increased foreign incursions into the U.S. Exclusive Economic Zone.

- *Dynamic Changes in Ice Conditions*: The recession of the ice edge continues to open new water in the summer months. While there is less ice and more water, the unpredictable movement of existing ice flows and uncharted waters beneath a previously frozen sea could present risks to ships that venture into these waters.

- *Persistent Challenging Environmental Conditions*: While much of the focus is on Arctic ice, ice is not the only threat. Normal weather conditions in Alaska and the Arctic would be considered heavy-weather conditions in most other maritime areas. Hurricane force winds, driving snows, winter darkness and high seas pose persistent challenges to both professional mariners and the increasing number of recreational mariners drawn to these waters. The massive hurricane-force storm last month once again reminded us that the Arctic remains a dangerous maritime environment where we must remain always ready to respond, regardless of the season.

- *Extended Continental Shelf:* This past summer marks the fourth year the U.S. Coast Guard Cutter (CGC) HEALY and the Canadian icebreaker LOUIS S. ST. LAURENT worked together to collect seismic and bathymetric data in the Arctic Ocean. This data is necessary to delineate the outer limits of the continental shelf beyond 200 nautical miles according to the criteria set forth in the Law of the Sea Convention.

- *Law of the Sea Treaty:* All other Arctic nations and most other nations worldwide have acceded to the Law of the Sea Treaty. The United States has not yet done so. Arctic nations are using the treaty's provisions in Article 76 to file extended continental shelf claims with the U.N. Commission on the Limits of the Continental Shelf (CLCS) in order to expand the territory over which they have exclusive rights to resources on and beneath the Arctic seabed. If the U.S. made an extended continental shelf claim, we could potentially assert sovereignty over 240 miles of additional seabed territory out to 440 miles from our land base line, far beyond the existing 200 nautical mile Exclusive Economic Zone. This area reportedly contains some of the richest, undiscovered deposits of oil and natural gas in the Arctic. However, until the U.S. accedes to the Law of the Sea Treaty, it is unlikely CLCS will entertain any U.S. submission of an extended continental shelf claim. Acceding to the Law of the Sea Treaty also provides us with standing to work within the Law of the Sea Convention framework with other Arctic Nations on issues such as environmental stewardship. As such, I join with a number of other senior Administration, military, industry, and academic leaders in supporting favorable action on the part of the U.S. Senate to accede to the Law of the Sea Treaty.

NATIONAL ARCTIC POLICY OBJECTIVES

U.S. Arctic policy is set forth in the 2009 National Security Presidential Directive (NSPD) 66/Homeland Security Presidential Directive (HSPD) 25. The Arctic Region Policy directive identifies objectives for the Arctic while acknowledging the effects of climate change and increased human activity. Importantly for the Coast Guard, NSPD 66 specifically directs relevant agencies, including the Department of Homeland Security, to work with other nations and through the International Maritime Organization (IMO) to provide for safe and secure Maritime Transportation in the Arctic. NSPD-66 also directs the Secretaries of State, Defense, and Homeland Security, in coordination with heads of other relevant executive departments and agencies, to carry out the policy as it relates to national security and Arctic homeland security interests. Executive Order 13547 (Stewardship of the Ocean, Our Coasts, and the Great Lakes) adopts and directs Federal agencies to implement the recommendations of the Interagency Ocean Policy Task Force. These recommendations include, as one priority objective, identifying and implementing actions to address changing conditions in the Arctic through better stewardship. The Coast Guard is moving forward to execute its responsibilities under these directives.

COAST GUARD'S ROLE IN EXECUTING NATIONAL ARCTIC POLICY OBJECTIVES

The Coast Guard is the Nation's principal maritime safety, security, environmental protection and law enforcement entity. We have the lead role in ensuring Arctic maritime safety, security, and stewardship. Arctic operations are not new to the Coast Guard. We have been operating in the Arctic Ocean since as early as 1867 when Alaska was just a territory. Then, as now, our mission is to assist scientific exploration, chart the waters, provide humanitarian assistance to native tribes, conduct search and rescue, and enforce U.S. laws and regulations.
To meet NSPD 66's and EO 13547's direction, the Coast Guard is working closely with its many inter-agency partners, and Alaska State, local and tribal governments, as well as with industry and academia. For the past four years, we have been conducting limited Arctic operations during open water periods. However, we face many challenges. Some Arctic operations demand specialized vessels, aircraft and crews trained to operate in extreme climates. Operationally, in order to meet the NSPD 66's and EO 13547's requirements, we need to determine our Nation's vessel requirements for transiting in ice-laden waters, consider establishing seasonal bases for air and boat operations, and develop a force structure that can operate in extreme cold and ice.

Given the scope of these challenges, we have adopted a "Whole of Government" approach and are leveraging international partnerships, such as the recent Search and Rescue agreement, to meet current mission requirements. The Coast Guard's strategic approach is to ensure we pursue the capability to perform our statutory missions so we can ensure the Arctic is safe, secure, and environmentally sustainable. This strategy is consistent with our Service's approach to performing its *Maritime Safety, Security and Stewardship* functions. In accordance with our risk reduction framework, we will do our part to build legal regimes, domain awareness, and a force structure that can operate in extreme cold and ice. Our approach also accounts for seasonal changes and conditions in the environment. While the Arctic is increasingly open in warmer months, its waters remain mostly ice-covered.

Meeting Homeland Security Needs in the Arctic

As part of a multi-agency effort to implement the Arctic Region Policy, we continue to push forward and assess our Arctic operational limits. Since 2008, we set up small, temporary Forward Operating Locations on the North Slope in Prudhoe Bay, Nome, Barrow and Kotzebue to test our capabilities with boats, helicopters, and Maritime Safety and Security Teams. We also deployed our light-ice capable 225-foot ocean-going buoy tenders to test our equipment, train our crews and increase our awareness of activity. Additionally, each year from April to November we have flown two sorties a month to evaluate private, commercial and governmental activities. These initial missions have provided valuable information that we have used to develop our infrastructure and force structure requirements to make the transition from testing capabilities to conducting pulse operations this coming summer and beyond.

Protecting the Maritime Environment

To protect the Arctic environment, we are engaging industry and the private sector to address their significant responsibilities for pollution prevention, preparedness and response capability. Recognizing that pollution response is significantly more difficult in cold, ice, and darkness, enhancing preventative measures is critical. Those engaging in offshore commercial activity in the Arctic must also plan and prepare for emergency response in the face of a harsh environment, long transit distances for air and surface assets and limited response resources. We continue to work to

facilitate awareness, contingency planning and communications. We are also actively participating in the Department of Interior led interagency working group on Coordination of Domestic Energy Development and Permitting in Alaska, (established by Executive Order 13580), to coordinate the efforts of Federal agencies responsible for overseeing the safe and responsible development of Alaska's onshore and offshore energy.

While prevention is critical, the Coast Guard must be able to respond to pollution incidents where responsible parties are not known or fail to adequately respond. In 2010, we deployed an emergency vessel towing system north of the Arctic Circle. We have also exercised the Vessel of Opportunity Skimming System (VOSS) and the Spilled Oil Recovery System (SORS) in Alaskan waters, but we have yet to conduct exercises north of the Arctic Circle. Both of these systems enable vessels to collect oil in the event of a discharge. The VOSS is deployable and capable of being used on a variety of ships. The SORS is permanently stored and deployed from the Coast Guard's 225-foot ocean-going buoy tenders. However, these systems have limited capacity and are only effective in ice-free conditions. We need to test and evaluate them in icy waters. Notably, the President's Fiscal Year 2012 Budget supports research and development work, including research on oil detection and recovery in icy water conditions.

Fisheries are also a major concern. The National Marine Fisheries Service, based on a recommendation from the North Pacific Fisheries Management Council, has imposed a moratorium on fishing within the U.S. exclusive economic zone north of the Bering Strait until an assessment of the practicality of sustained commercial fishing is completed. Regardless of the outcome of this assessment the Coast Guard will continue to carry out its mission to enforce and protect living marine resources in the high latitudes.

Facilitating Safe, Secure, and Reliable Navigation

We continue to update our Waterways Analysis and Management System to determine navigational requirements, vessel traffic density and appropriate ship routing measures. We are also moving forward with a Bering Strait Port Access Route Study, which is a preliminary analysis to determine navigational, vessel traffic and other safety requirements. Because the Bering Strait is an international Strait, we require coordination with the Russian Federation and other stakeholders to develop the safest and most efficient waterway prior to forwarding the analysis to the IMO for consideration.

Supporting Multi-Agency Arctic Region Policy Implementation

The Coast Guard continues to support international and multilateral organizations, studies, projects and initiatives. We are actively working with the Arctic Council, IMO and their respective working groups. We are heading the U.S. delegation to the Arctic Council Oil Spill Task Force that is developing an International Instrument on Arctic Marine Oil Pollution Preparedness and Response. We are also conducting joint contingency response exercises with Canada and we maintain communications and working relationships with Canadian and Russian agencies responsible for regional operations including Search and Rescue (SAR), law enforcement and oil spill response. We maintain bilateral response relationships with Canada and Russia, and last month we hosted representatives from the Russian State Marine Pollution Control Salvage and Rescue Administration (SMPCSRA) to sign an expanded Memorandum of Understanding and Joint Contingency Plan to foster closer cooperation in oil spill response. Additionally, Secretary of State Clinton recently signed an Arctic SAR agreement, which memorialized the intent of all Arctic nations to cooperate in

SAR operations. We will continue to engage Arctic nations, international organizations, industry, academia and Alaskan state, local and tribal governments to strengthen our partnerships and inter-operability.

In particular, our engagement with Alaska Native Tribes continues to be highly beneficial. Our efforts to learn from their centuries of traditional knowledge—and their willingness to share it with us—have made our operations safer and more successful. This year, we again conducted small-scale visits to tribes in remote villages on the North Slope and along northwestern Alaska to conduct boating safety exchanges and provide medical, dental, and veterinary care. We are working hard to ensure tribal equities are recognized, considered and indigenous peoples and their way of life are protected to the greatest extent possible. We look forward to continuing to strengthen our partnerships with our Alaskan Native friends.

CURRENT ARCTIC CAPACITIES AND LIMITATIONS

The U.S. Coast Guard's extensive history of Arctic service provides both experience and an expansive network of governmental, non-governmental and private partnerships to draw upon. However, while our summer operations continue to provide valuable lessons and help us gain insights regarding the Arctic, we must acknowledge the seasonal limitation of these efforts and the fact that we still have much to learn about Arctic operations. As new capabilities are developed, the Coast Guard will work to ensure its force structure is appropriately sized, trained, equipped and postured to meet its Arctic mission requirements.

The Coast Guard's most immediate operational requirement is infrastructure. Energy exploration is underway on the North Slope of Alaska, but the existing infrastructure is extremely limited. We need a seasonal facility to base our crews, hangar our aircraft and protect our vessels in order to mount a response.

We also need to take stock of our current assets that are capable of year-round Arctic operations. Currently, there are few national assets capable of doing so. The Coast Guard has one operational ice breaker, the 11 year old Coast Guard Cutter HEALY, a medium icebreaker built with specialized scientific research capabilities.

Cutter HEALY is currently underway in the Arctic, completing the last of four missions for Calendar Year 2011. Currently, scientists from the Woods Hole Oceanographic Institute are aboard collecting micro organism samples to evaluate biomass health, migration patterns and general analysis of the ocean's food chain. Previous missions this year have supported research by the National Aeronautics and Space Administration (NASA), Naval Research Lab, National Science Foundation, Office of Naval Research and the Department of State. As mentioned previously, HEALY also conducted joint operations with the Canadian Coast Guard Icebreaker LOUIS S. ST. LAURANT collecting seismic and bathymetric data to map the Arctic seafloor in anticipation of an Extended Continental Shelf submission in accordance with the Law of the Sea Convention.

However, our two heavy polar ice breakers are not operational. The 34-year-old POLAR SEA is now in the process of being decommissioned due to a major engineering casualty and is reaching its' end of service life. The 35-year-old POLAR STAR, which has been in a caretaker status since 2006, is currently undergoing a major reactivation project, funded by 2009 and 2010 appropriations, and is expected to be ready for operations in 2013.

Surface capability is vital to meet our responsibilities in the region. Although the risk of an incident in ice-covered U.S. waters is currently low, our Nation must plan for ice capable assets in the future that can effectively carry out year-round search and rescue, environmental response and other Arctic operations. In the near term, the Coast Guard can utilize the HEALY, and starting in 2013, POLAR STAR, to manage the response or rely on our foreign Arctic partners that have icebreakers operating in the area.

CONCLUSION

With an emerging Arctic Ocean come increased national operational responsibilities. National Security Presidential Directive (NSPD) 66/Homeland Security Presidential Directive (HSPD) 25 and Executive Order 13547 direct the Coast Guard to develop mission objectives. We also must meet our ongoing statutory responsibilities. To meet these objectives and responsibilities, we have much work to do.

We must build toward a level of mission performance and preparedness commensurate with the relative risks posed by Arctic activity; we must continue working amongst the interagency to refine future mission requirements, identify the precise mix of national assets, capabilities and infrastructure needed to meet these requirements and look for collocation opportunities. We must continue to seek out opportunities with our Arctic neighbors and the global community to address the critical issues of governance, sovereignty, environmental protection and international security.

While there are many challenges, the increasingly open Arctic Ocean also presents unique opportunities. The relatively undeveloped infrastructure, current low commercial maritime activity levels and developing governance structure provide an opening to engage in proactive, integrated, coordinated and sustainable U.S. and international initiatives. We look forward to working with the Congress on how our Coast Guard can continue to support our national Arctic objectives, protect its fragile environment and remain Semper Paratus – Always Ready in this new ocean.

Thank you for the opportunity to testify today. I look forward to your questions.

Statement for the Record
The Honorable Mead Treadwell
Lieutenant Governor
State of Alaska
Before the
United States House of Representatives
Committee Transportation on Transportation and Infrastructure
Subcommittee on Coast Guard and Maritime Transportation

"America is Missing the Boat"
December 1, 2011
Washington, D.C.

Introduction

Mr. Chairman, members of the Committee, Congressman Young, for the record, I am Mead Treadwell, the lieutenant governor of the State of Alaska. Thank you for inviting me to offer some views from Alaska about the future of Arctic shipping and maritime activities, and the need to ensure we are prepared to embrace those challenges and opportunities safely.

We've said it before – in my appearance before this Subcommittee in 2006 and in Governor Sean Parnell's Senate testimony in 2009,[1] and we'll say it again, because not much has changed: it is time for the nation to act – and act now – to add new polar class icebreakers to the United States Coast Guard's fleet. With so much happening in the North today, the need is more urgent and apparent than ever. We would like to ask this Committee, and by extension Congress and the Executive Branch, to look with us at the bigger picture – the historic changes happening in the Arctic and what they portend for world commerce and Alaska's shores – and recognize three imminent needs:

First, the United States must commission new heavy icebreakers to operate in the Arctic.

Second, we need legal measures in addition to icebreakers to protect our shores from the dangers of unregulated itinerant vessels carrying hazardous cargoes near our coasts.

And third, Congress and the Administration must fulfill the legal mandates that are already in place regarding icebreakers. These mandates reflect needs in commerce, science, and protection of Americans' sovereignty, safety, and security. The State of Alaska is responding to opportunities and risks associated with the historic changes in global shipping patterns resulting from changes in the Arctic Ocean. We are eager to continue in cooperation with the nation.

I. Congress needs to act now on icebreakers.
A. Other nations have already seen the big picture.

[1] Governor Sean Parnell made the case for icebreakers in the Arctic in his 2009 testimony before the Senate Subcommittee on Homeland Security Appropriations, stating, "The Coast Guard needs to move north and improve its capability – our heavy class icebreakers are on their last legs."

The purchase of Alaska in 1867 made America an Arctic nation, yet after 150 years, the myth of Seward's Folly still lingers. It's time to quit arguing whether investment in the North is worth it and recognize the valuable people, resources and location we gained as a nation.

Arctic resources include globally significant quantities of commercial fisheries, minerals, renewable energy sources, and world-class amounts of oil and gas. A 2008 U.S. Geological Survey estimates 13% of the world's undiscovered oil, and 23% of undiscovered gas lies in the Arctic. Six of the Arctic nations are already pursuing oil and gas development offshore, and energy may soon be the primary cargo transiting the Bering Strait.

America is one of only eight Arctic nations, and one of two with territory adjoining the Bering Strait – really a "Bering Gate," the only route from the Pacific to the Arctic.

Changes in the Arctic are creating opportunities in a once remote and harsh region. Ice cover is at historic minimums, and multi-year ice is decreasing. Icebreaking technology has advanced, bringing significant new efficiencies. Northern sea routes, sought by explorers for hundreds of years, are opening up.

Several sources report that international shipping of crude oil, refined products, and other potentially hazardous cargoes through the Bering Strait is growing rapidly as European and Asian shippers see the advantages of the Arctic route. Other Arctic – and even non-Arctic – nations have seen the potential, but America is missing the boat.

Most traffic occurs under arrangements for icebreaker escort by vessels working with Russia's Northern Sea Route Administration. We understand that last year, for the first time, Norway's Tschudi Shipping Company worked a partnership with Russian maritime authorities to bring 41,000 tons of iron ore from Kirkenes, Norway to China.

Again this year, Russian ships, and ships of other nations escorted by Russia's Northern Sea Route Administration, are coming in force. Hazardous cargoes are making the backhaul as well – at least one tanker bringing gas condensate to Asia this year is reported to have returned to Europe with aviation fuel.

In August of this year, Norway's *MV Nordic Barents* was the first non-Russian bulk cargo ship to transit the Northern Sea Route in Russian waters.

Other records are being set along the Northern Sea Route, from the *STI Heritage's* fastest-ever voyage from Murmansk to Thailand, transiting in just eight days, to the *Perseverance's* latest-ever northern voyage, which ended just two weeks ago on November 18. Altogether, the Northern Sea Route saw nine tankers carrying 600,000 tons of gas condensate pass by this year.

I joined an Arctic conference in Arkhangelsk, Russia in September, where Russia's Prime Minister Vladimir Putin told the Russian Geographical Society that his country sees the opportunities in the Arctic, and they are ready to pounce. Speaking of the Northern Sea Route at the Russian Geographical Society conference, Putin told us, "We are planning to turn it into a

key commercial route of global importance. … We see its future as an international transport artery capable of competing with traditional sea routes in cost of services, safety, and quality."[2] President Medvedev, dedicating a new northern rail project in Yakutsk – headed for the Bering Strait – indicated as much last month.

Russia intends to make the Northern Sea Route as important to global shipping and commerce as the Suez Canal.

And Russia is putting its money where its mouth is, building nine new icebreakers in the next decade, and discounting tariffs on icebreaker escorts to make sure that shippers find the Northern Sea Route for distance savings of up to 40 percent. Russia's claim to new extended continental shelf resources in the Arctic Ocean under the United Nations Convention on the Law of the Sea could give Russia greater control of Arctic shipping. Cargo moving through the Bering Strait this year – from Russian and American sources – is worth well over $1 billion. Add to that a Bering Sea fishery owned by both nations worth billions each year and the situation is clear: in monetary terms, there's billions to be made and billions to protect.

At the same Arkhangelsk conference, Russia's Academy of Sciences Vice President Nikolai Laverov showed a slide of Alaska's declining throughput in the Trans-Alaska Pipeline System (or TAPS) and Russia's competitive success in attracting Arctic investment. All Arctic energy production depends on access, and Russia has it. Russia is now in the lead in Arctic oil production – and they're keen to stay there.

Meanwhile, other Arctic and circumpolar nations are investing in fleets of icebreakers. The report of exactly how many ships are being operated by other countries varies (some count polar, medium and light icebreakers, as well as ice 'strengthened' or 'capable' vessels), but all the tallies make one thing clear: other nations have seen the writing on the wall and are investing in infrastructure. Sweden has at least four vessels; Finland, at least six; and Russia over two dozen (and counting). Canada has about eight, and even the European Union is constructing an icebreaker – a heavy, polar class icebreaker.[3]

Our Arctic neighbors are leaps and bounds ahead of our position, and non-Arctic nations are in hot pursuit.

A Chinese researcher, Mr. Li Zhenfu of Dalian Maritime University, writes that, "Whoever has control of the Arctic route will control the new passage of world economics and international strategies."[4] The prospect of commercial and strategic opportunities presented by receding sea ice cover and accessibility of Arctic resources has moved the Chinese government to allocate more resources for Arctic research, and they have asked to join the Arctic Council as an observer. China's Rear Admiral Yin Zhuo has asserted that no nation has sovereignty over the

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[2] Putin, Vladimir (2011, September). Remarks presented at the second International Arctic Forum, "The Arctic – Territory of Dialogue", Arkhangelsk, Russia. Available online: http://premier.gov.ru/eng/events/news/16536/.
[3] "The World Icebreaker, Ice Breaking Supply and Research Vessel Fleet." A report commissioned by the Finnish Maritime Administration on behalf of the Baltic Icebreaker Management. Released by the Finnish Transport Agency, Helsinki, February 2011.
"Polar Icebreakers of the World." A list developed and maintained by Mobility and Ice Operations. July 25, 2011.
[4] Li, Zhenfu. *Zhonggua Hanghai*, vol. 32, no. 2 (June 2009).

Arctic, and said that China must plan to have an indispensable role in Arctic exploration as they have one-fifth of the world's population.[5]

Japan has stepped up its research in global environment, climate and marine science in the Arctic. And with China and Korea, Japan has applied for permanent observer status on the Arctic Council.

Polar air routes have characterized the jet age since the late 1950s, and Arctic air transport is now key to air cargo bound between North America or Europe and Asia. Governments and industries in Russia, Europe and Asia see the same potential for shipping. Why don't we?

B. Our national mandates are not being met.

The irony of America's present situation is painful: a staggering national debt weighs on the future of our children, while the contributions of a promising and abundant region go largely unnoticed. When we ask you for icebreakers, it's for safety, security, and American jobs. It's to serve American shipping, American exports. It's to help lower costs for Americans in regions like Western Alaska, which has a higher cost of living than anyplace in the nation. Americans lack jobs, our industries struggle with the cost of doing business, and rural Alaskans suffer the staggering cost of energy, while huge amounts of foreign energy are beginning to pass by our front door in tankers, taking advantage of game-changing shipping opportunities.

The United States is falling behind in maintaining an Arctic presence and in helping to set best practices as this region sees increasing international resource development and shipping. But more importantly, we are failing in our own national mandates, goals and policy.

In 1936, President Franklin Roosevelt issued Executive Order 7521, directing the Coast Guard, under the direction of the Secretary of the Treasury and with the cooperation of the Secretaries of War (Army), the Navy, and Commerce, to keep channels and harbors open to navigation by means of icebreaking operations. That order has never been implemented in the Arctic.

The Arctic Research and Policy Act of 1984 recognized that the United States was lagging behind other circumpolar nations even then, and it directs the Office of Management and Budget to "seek to facilitate planning for the design, procurement, maintenance, deployment and operations of icebreakers needed to provide a platform for Arctic research by allocating all funds necessary to support icebreaking operations, except for recurring incremental costs associated with specific projects, to the Coast Guard."

Last year's Coast Guard Authorization Act of 2010, section 307, implements the Arctic Marine Shipping Assessment (AMSA), mandating that the Coast Guard "shall promote safe maritime navigation by means of icebreaking where necessary, feasible, and effective..." That makes

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[5] Qtd. in Wright, David Curtis. *The Dragon Eyes the Top of the World: Arctic Policy Debate and Discussion in China.* China Maritime Study No. 8. Newport, RI: U.S. Naval War College (Aug. 2011). Page 2. Available online: http://www.usnwc.edu/Research---Gaming/China-Maritime-Studies-Institute/Publications/documents/China-Maritime-Study-8_The-Dragon-Eyes-the-Top-of-.pdf.

President Roosevelt's order the law of the land for the entire nation. We welcome this mandate as Alaska has half the nation's coastline, and likely over half of America's ice.

That act also required that a report on the comparative cost-benefit analyses of icebreaker renovation or construction be delivered no later than October 15 of this year to the Senate Committee on Commerce, Science and Transportation, and the House Committee on Transportation and Infrastructure. It moreover required a report from the Commandant of the Coast Guard on the High-Latitude Study assessing the polar icebreaking requirements for Coast Guard missions, including search and rescue, marine pollution response and prevention, fisheries enforcement, and maritime commerce. We understand that full report is embargoed still by President Obama's administration.

This past spring, the President updated the United States military's Unified Command Plan to give U.S. Northern Command advocacy responsibility for Arctic capabilities. Accompanying shifts of UCP geographic boundaries mark the military's awareness of the vital and ever-growing importance of the Arctic. Then Commander of the Northern Command, U.S. Navy Admiral James Winnefeld, Jr., recognized the implications of the changing Arctic, and noted the gaps faced by the military, including infrastructure and mobility, and search and rescue capabilities.[6] General Charles Jacoby, his successor, formerly ran the U.S. Army in Alaska. He, too, knows our challenges.

Around the same time as this spring's announcement, a report by the National Research Council on the implications of climate change on national security cited major gaps in U.S. naval forces' ability to perform their missions in the Arctic.[7] That report advised that the U.S. Navy, Marine Corps and Coast Guard take action to ready themselves for Arctic conditions. The protection of our domestic security is the fundamental mandate of the U.S. Armed Forces, and it is threatened if we remain unprepared.

This year, in response to the recommendations of AMSA, the eight Arctic Council nations signed a binding Search and Rescue Agreement. Alaska supported this, and sent experts to the first multinational exercise conducted under this agreement in October in Whitehorse, Yukon Territory. Without icebreakers and other Arctic USCG assets, major deficiencies in the region's life safety response capabilities exist – and our promise to provide search and rescue in our sector of the Arctic is compromised.

Finally, the United States Congress, in the 2010 Coast Guard Authorization Act, charged the Committee on Marine Transportation Services (CMTS) to develop an integrated Arctic shipping regime, and to coordinate the establishment of domestic transportation policy to realize the goal set by President George W. Bush of safe, secure and reliable shipping in the Arctic. The AMSA Implementation Act, additionally, encourages the Coast Guard to negotiate agreements with

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[6] Winnefeld, Jr., Admiral James A., U.S. Navy Commander, United States Northern Command and North American Aerospace Defense Command. Statement before the House Armed Services Committee, 30 Mar. 2011. Available online:
http://www.northcom.mil/Docs/2011%20NORAD%20and%20USNORTHCOM%20Posture%20Statement%20(HASC%20Final).pdf.

[7] *National Security Implications of Climate Change for U.S. Naval Forces.* Committee on National Security Implications of Climate Change for U.S. Naval Forces. Washington, D.C.: The National Academies Press, 2011.

other Arctic nations through the International Maritime Organization. Those agreements would focus on 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.

The United States has been protecting our sovereign airspace along Alaska's shores for over 50 years. The United States Coast Guard has been protecting America's coast for over 200 years. Why don't we protect our sovereign waters along Alaska's Arctic coast with the same vigor?

America has a duty to protect its citizens in coastal communities and to safeguard their way of life. Coastal Alaskans have spent thousands of years relying on the sea for their food and clothing, for the heat they create from whale oil and the shelter they derive from driftwood. The majority of Alaska Natives in the North get more than half of their meat and fish from wild, local harvests. Sixty percent of those wild harvests are from marine mammals. It is imperative we ensure that the increasing foreign ship traffic off our shores does not jeopardize the freedom of Americans to maintain a subsistence lifestyle.

Mr. Chairman, the United States has a long history of national mandates and policy that require our action. And yet we fail to act on them. Moreover, the recent decision of the U.S. House of Representatives to retire the nation's only heavy icebreaking ships without replacements is a disappointment. But to the extent that the all-or-nothing approach forces a legitimate conversation about the need for icebreakers and an opportunity to spotlight the conversation – I applaud the decision.

We should, however, be cautious about the risky "game of chicken." If it fails, it fails Americans – and Alaskans most of all.

C. The savings and benefits outweigh the costs.

We understand that the action we are asking Congress to take will require significant funds. We understand the costs, but we cannot ignore our obligations or the major opportunities we face.

In a conference recently in Juneau, University of Alaska Professor Dr. Lawson Brigham, a former USCG icebreaker captain, noted that the U.S. Navy is building 47 Littoral Combat Ships at a price of $400-500 million each. He asked, why not consider building 45 of these ships, and allocating that other $800 million to $1 billion in the budget for the Coast Guard to build one major polar icebreaker?

Some have argued we should charge for icebreaker escort services as other nations do. Ship owners pay for services in the Panama and Suez Canals. U.S. vessels pay for oil spill preparedness and insurance. A bill pending in this Congress would have the U.S. lease, rather than own, icebreakers it needs in the Arctic. Long term charter agreements are in place in the Antarctic, and it has been argued that private contractors are able to build icebreakers more quickly and less expensively, operate them more efficiently in terms of cost and maintenance, and would bear the expense of decommissioning. This is worthy of consideration if it moves us forward faster in the Arctic.

However we work out our finances, America and its trading partners could reap huge economic benefits from accessing northern sea routes. Former U.S. Coast Guard Lieutenant Commander Scott Borgerson wrote nearly four years ago about the financial advantages available to world commerce through Arctic shipping.[8] He told us how plying the Northern Sea Route from Rotterdam to Yokohama instead of traveling via the Suez Canal would yield distance savings of more than 40 percent. He told us that one container ship voyage from Seattle to Rotterdam via the Northwest Passage instead of the Panama Canal could save about 20 percent of its costs – then about $3.5 million dollars.

Borgerson envisioned a future of global Arctic shipping where "a marine highway directly over the North Pole will materialize. Such a route," he wrote, "which would most likely run between Iceland and Alaska's Dutch Harbor, would connect shipping megaports in the North Atlantic with those in the North Pacific and radiate outward to other ports in a hub-and-spoke system."

As the Arctic Marine Shipping Assessment predicted, most Arctic shipping traffic today is destinational, carrying resources out from or products in to Arctic regions. But we need to envision a time, coming soon, when products travelling to and from non-Arctic ports traverse our Arctic Ocean and Bering Sea – and we need to be ready.

II. Our lack of legal protection.

I want to make sure Congress understands there are now two classes of ships operating in the Bering Strait region – those that are under contingency planning requirements for oil spills, and those that are not. U.S. vessels are highly regulated: by NOAA, by EPA air quality controls, by the Interior Department's BOEM and BSEE oversight of exploration – in fact, over 120 federal laws regulate the use of the coastal zone and offshore areas. But ships originating outside the U.S. – such as those traveling between Russia or Europe and Asia, are not even required to have a spill contingency plan, even though they pass by hundreds of miles of U.S. coastline. We face the prospect of increasing international ship traffic through the Bering Strait – carrying anything from crude oil to aviation fuel – with minimal requirements to prepare for oil spills, maintain air quality, or care for wildlife and subsistence needs.[9]

Icebreakers can help us reduce the risks brought about by that disparity. If we are to achieve our policy of advancing safe, secure and reliable shipping as the Arctic Ocean becomes more accessible, the U.S. must operate new polar class icebreakers. Without them, little or no appropriate government capability exists to enforce prevention measures or to respond to a spill in this region. It is folly to rely on aircraft and submarines alone to protect U.S. interests. We learned that tragic lesson when we lost six lives as a helicopter crashed trying to evacuate crew from the shipwrecked *Selendang Ayu* in 2004.

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[8] Borgerson, Scott G. "Arctic Meltdown: the Economic and Security Implications of Global Warming." *Foreign Affairs*, vol. 87, no. 2.

[9] The State of Alaska has sought remedies to this situation in its comments on the USCG Port Access Route Study for the Bering Strait.

There are a range of legal ways and international agreements we might pursue to require safety measures from itinerant vessels transiting the Bering Strait. (None are quick or easy solutions, but measures that protect our national security rarely are.)

- Working on a vessel routing system to prevent collisions and groundings from increased shipping, following protocols of the International Maritime Organization, and coordinating with the Russian Federation. The State of Alaska provided comments to the USCG's Port Access Route Study for the Bering Strait regarding this approach.

- Having all Arctic nations seek ship owners' participation in an Oil Spill Response Organization with a contingency plan, perhaps as part of the upcoming Arctic Council Oil Spill Preparedness and Response Agreement. Alaska has joined U.S. delegations negotiating this agreement.

- Resolving the debate on Law of the Sea, and ratifying the Law of the Sea Treaty, which with Article 234 authorizes the extension of environmental law in traditionally ice-covered areas. As the debate on ratification continues, the State has asked for clarification of U.S. intent in implementing Article 234.

- Using existing authority in the Oil Pollution Act of 1990 to cover nontank vessels and working a reciprocal deal with Russia and Canada. The Final Rule on Nontank Vessel Response Plans and Other Vessel Response Plan Requirements Regulations is still under development within the Coast Guard and the Department of Homeland Security. Section 701 of the Coast Guard Authorization Act of 2010 directs that this final rule be issued no later than April 15, 2012.

- Forming an agreement with Canada and/or Russia similar to the 1817 Rush-Bagot Agreement, creating a mechanism like that of the St. Lawrence Seaway Development Corporation, whereby Arctic nations establish a shipping authority that administers the route, provides compliance, icebreaking, and other aids to navigation, including spill preparedness and response. (Borgerson also suggested this in his 2008 article, "Arctic Meltdown".)

III. How Alaska is helping America live up to the promise of the Arctic.

Mr. Chairman, Congress spoke last year in the Coast Guard Authorization Act of 2010 and AMSA Implementation, and charged the Committee on Marine Transportation System with this mission: to coordinate the establishment of domestic transportation policy to ensure safe and secure maritime shipping in the Arctic. I would like to say for the record now that as these processes get underway, we need to be ambitious, creative, and determined. The United States must acknowledge its responsibilities and embrace new possibilities. The Arctic needs resources, not just rules. What's happening in the Arctic Ocean and along northern sea routes has global, historic and exciting significance, and we need to take an active role. We must plan for an Arctic shipping future that could be like a new Suez Canal.

In a visit to D.C. last month, I briefed the leaders of CMTS in some activities the State of Alaska is conducting to help America move toward the new world of Arctic shipping, and how we are bringing resources to the table to help to achieve safety, create jobs, and spur exports of goods and services. We are hopeful the CMTS will mesh with the outcome of our current work with the Arctic Council, the International Maritime Organization, and the U.S. Coast Guard and Army Corps of Engineers, and Alaska's Northern Waters Task Force.

Below is a non-comprehensive list of these activities:

- **Arctic Council:** The State of Alaska actively supports the United States' work within the Arctic Council, and I serve as our state's liaison on Council issues. As we support the Council's work to implement recommendations of the 2009 AMSA, the State is active in implementing the Arctic Council's aforementioned Search and Rescue Agreement, signed at the Ministerial in Greenland this past May. We are likewise a participant in the Council's oil spill response instrument negotiations. In addition, through the Pacific Northwest Economic Region (PNWER), Alaska is bringing resources and support for the Arctic Council Sustainable Development Working Group's proposed aviation and maritime infrastructure project, which will survey the region's infrastructure needs.

- **USARC/Research programs:** Alaska is also deeply involved in Arctic research. I work closely with the U.S. Arctic Research Commission (USARC), which I chaired under Presidents Bush and Obama from 2006-2010, and served on from 2001-2010 as a Commissioner, and which is currently chaired by Ms. Fran Ulmer, former lieutenant governor of Alaska and former chancellor of the University of Alaska Anchorage. Our University is currently working hard to launch the newest ice-strengthened research vessel, the Sikuliaq (see KOO lee auk), in the nation's NSF-sponsored UNOLS fleet. Moreover, with the University vice president, I co-chair a State Committee on Research which is writing a research and development plan that assesses Alaska's research and development needs for our economy, health, safety, environment, and culture. Alaska researchers play a major role in our understanding of Arctic change and Arctic resources, Arctic engineering and methods of spill response in ice-covered waters.

- **USCG forward basing:** In Alaska we are supporting the U.S. Coast Guard's efforts to bring forward basing to Alaska's North Coast, and we're examining ways we can help provide hangars for fixed and rotary wing aircraft in Barrow and Nome. The Alaska National Guard air-refuelable helicopters and aircraft, as well as helicopters of the North Slope Borough, are America's front-line for search and rescue in the Arctic Ocean today – Coast Guard response is based much further away.

- **New and improved ports:** The State of Alaska has also joined with the U.S. Army Corps of Engineers to conduct a port study for western and northern Alaska. Our intent after the study is to foster investment to establish a deep water port in Western Alaska to serve as a port of refuge for Coast Guard vessels and itinerant traffic. The port would also meet the needs of large vessels, including fishing fleets, and resource export vessels. At the same time, we see a need to upgrade the minimal port facilities which now exist for cargo import and export in a range of Western Alaska communities.

- **Shuttle container shipping:** In 2006, the State of Alaska committed $50,000 for the first pre-feasibility study on transarctic container shipping, looking at the economics and logistics of trans-shipping containers from North America and Asia between Aleutian and Icelandic ports, thus tying North Atlantic and North Pacific shipping together through the Arctic. The results of the study are promising.[10] Recently, we have heard interest to look at this again from Aleutian, Asian and European ports that would send and receive cargo in such a system. One option to consider as we proceed would be to include this work under the Arctic Council's proposed Arctic Maritime and Aviation Transportation Infrastructure Initiative.

- **Early warning system:** The State is a major financial sponsor of the Automatic Identification System receiver network established by the Marine Exchange of Alaska, which now covers all traffic operating in the Arctic region, approaching or leaving the Bering Strait and the Aleutian Archipelago. The network provides location data and advanced warning to the U.S. Coast Guard and state emergency responders of all ships approaching state waters, and gives us – and communities – a heads-up on traffic, including stalled itinerant vessels that might be headed for a shipwreck.

- **Review of new regimes for shipping administration:** Last year, Alaska's State Legislature created the Northern Waters Task Force (NWTF).[11] This task force is charged with examining the effects of changes in the Arctic on shipping, energy and local industry and making recommendations on infrastructure and regulatory needs, mitigation strategies, and ways for the State to be involved in governance of Arctic shipping. NWTF will present their report to the Legislature in January of 2012. Early discussions indicate that international cooperation and investment in oil spill response capabilities will be among the measures recommended.

Conclusion

Mr. Chairman, members of the Committee, Alaska has and will continue to work hard on Arctic policy because we are America's Arctic – it's our home, our history, our heritage and our future. And we work hard with high hopes for outcomes.

But we ask for the U.S. to work hard with us. To reiterate, Mr. Chairman, we ask for three things.

First, we need icebreakers. Without action on this, America is putting its national security on the line, and we are going to miss the opportunities of the Arctic while watching other nations advance. Good policy only goes so far without the infrastructure to act upon it. We have mandated icebreakers more than once. We're missing the boat. Let's build them.

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[10] Niini, M., M. Arpiainen, and R. Kiili. *Arctic shuttle container link from Alaska, US to Europe*. Report AARC K-63. Aker Arctic Technology Inc., Mar. 2006.

[11] Alaska State Legislature, HCR 22, Legislative Resolve No. 54 (2010), Establishing and relating to the Alaska Northern Waters Task Force. Available online: http://housemajority.org/coms/anw/pdfs/26/Scan001.pdf.

Second, while we wait for new icebreakers, we need to take legal action to protect our coasts and prevent spills in the Arctic and Aleutians. We made this clear in our comments to the U.S. Coast Guard's Port Access Route study, and we urge the U.S. to step up the pace.

And third, the federal and state governments need to continue working together through the CMTS and Arctic Council processes to ensure that America does not miss out on the historic, game-changing opportunities in Arctic shipping. Arctic shipping presents safety challenges for sure. But for America, it is an opportunity, and one that could pass us by.

Alaska encourages America's new shipping policy to be ambitious. It should keep us safe, create jobs, help improve the quality of life in Western Alaska, and generate goods and service exports, as polar aviation does today. We need to grasp the historic opportunities of the changing Arctic. America has been an Arctic nation for 150 years. It's time we started acting like it.

Thank you.

Testimony of Dave Whitcomb, Chief Operating Officer, Vigor Industrial

House Coast Guard and Maritime Transportation Subcommittee

December 1, 2011

Chairman LoBiondo, Ranking Member Larsen, Congressman Young, distinguished members of the Subcommittee.

My name is Dave Whitcomb and I am the Chief Operating Officer at Vigor Industrial, the largest private sector ship construction, repair and maintenance company in the Pacific Northwest. Through Todd Pacific Shipyards in Seattle, which Vigor acquired earlier this year, our shipyards have been closely involved with the maintenance and repair of the Coast Guard icebreakers Polar Sea and Polar Star since they were commissioned in the late 1970s. We have also maintained the medium Coast Guard icebreaker, the Healy.

In my testimony today, I want to describe the condition of the existing ships, what can be done economically to ensure that those assets continue to perform their missions, and what the alternative of constructing new heavy polar icebreakers would likely entail and cost.

Let me begin with the single most important point of this testimony- the hulls and frames of both the Polar Star and Polar Sea are perfectly sound and capable of continuing to perform icebreaking for the foreseeable future

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INDUSTRIAL EVOLUTION

To fully appreciate why this matters and what the unique value of these ships truly is, it helps to understand what goes into building them. The internal frames of ships are comparable to the studs on houses or the girders on skyscrapers. On the Polar Sea and Polar Star frames are spaced 16 inches apart, are 30 inches deep and have an 8 inch face frame on each frame. This leaves an effective space between the Ts of just 8 inches. By comparison, the National Security Cutter internal frame spacing is 27 inches in the extreme bow of the ship and 49 inches in the majority of the ship.

On the Polar Sea and Star, the steel plating in the ice belt of the hull is 1 3/4 inches thick compared to 5/16 and 3/8th inch for an NSC. I'm holding in my hands examples of the difference in the thickness of these hulls and with your permission at the end of my testimony I will pass them up to the committee so you can examine them yourself.

Consider what it takes to bend and fabricate steel of this thickness. Also consider that to weld the framing to the hull plating, the steel plating has to be heated to high temperatures, then highly skilled welders have to go inside the heated and confined space and weld that steel together. It is arduous, difficult, expensive work. Indeed, on the initial build by Lockheed some of the most experienced workers simply walked off the job because the conditions were so challenging.

What all this means is that it is extremely expensive and demanding to build a heavy polar icebreaker, something our nation has not done now for more than thirty years. That is why the existing ships are so unique and hard to replace.

I want to emphasize that we do believe there is a need to build new heavy icebreakers and we urge the Congress and the Administration to work together to quickly authorize and

fund such a project. This position is also held by the Shipbuilders Council of America, which represents more than 50 companies and 120 shipyards across America. But as members of this committee can appreciate, even if the Congress immediately began the process of authorizing and funding new heavy icebreakers, fully functioning replacements would not likely be mission ready for ten years or longer. What is more, realistic estimates indicate the cost of a new heavy icebreaker would likely be at least one billion dollars.

Until Congress and the Administration provide for such funding and the replacements are actually in the water, we must have the capability to complete the vital missions our polar icebreakers have performed for decades.

The good news is that the Coast Guard Cutter Polar Star is now nearing completion of its reactivation which will prepare it to function effectively for at least a decade or more assuming regular maintenance.

The other good news is that the Polar Sea also can be restored to full mission readiness with a comparable longevity at relatively modest cost and in a reasonably short period of time.

Vigor Industrial estimates that bringing the Polar Sea up to an operationally capable condition would require approximately 11 million dollars. We base this on the fact that we have done comparable work on the Polar Star already and are well aware of what is required. My written statement includes more details of that estimate. This work would require approximately two years to complete and might well be finished faster depending on availability of key components.

The take home message is that for just over one percent of the cost of a new vessel, and at a two year versus ten year minimum horizon, the United States of America would have a second fully functioning heavy icebreaker able to complete vital missions under our own flag for at least a decade or more.

Others today have spoken of the dangers inherent in relinquishing our icebreaking capacity to former adversaries or economic competitors. Our message today from a shipbuilding and repair perspective is simple: there is an affordable, proven, prompt and practical alternative that should not be squandered.

Thank you for the opportunity to speak with you today. I have provided additional information in my written testimony and would be glad to answer any questions.

Itemization of key work that needs to be performed to return USCGC Polar Sea to service at level equal to USCGC Polar Star.

Note: these are rough estimates based on current experience with the USCGC Polar Star reactivation.

Task	Time Frame	Estimated Cost
Diesel engine overhaul- return Polar Sea engines to stock configuration as approved by USCG on Polar Star	Best case -10 months (based on Polar Star experience) Worst case – if delays with parts - 18 months	$5 million
Replace obsolete cranes with new cranes. Cranes have already been purchased by USCG for both Polar Star and Polar Sea. Cranes intended for Polar Sea are waiting in the warehouse at Allied Crane	7 to 9 months to remove old cranes from Polar Sea and install new cranes (Note: This new configuration will resolve one of the original main issues that caused Polar Star and Polar Sea to be placed in caretaker status)	Vigor understands that the cranes have already been paid for by the USCG. Removal of old cranes and installation of new cranes is estimated at $3 million.
Controllable pitch propeller hydraulic system upgrade for all three propeller shafts	6-7 months – this includes removal of existing obsolete systems, fabrication of replacement and installation in ship. This configuration has already been approved and installed on Polar Star.	$3 million for removal, fabrication and installation.
Total Time and Cost	All tasks can be accomplished concurrently. Total realistic time frame: Minimum is 10 months. Maximum is 18 months.	Estimated total cost is $11 million

House Transportation and Infrastructure Subcommittee on Coast Guard and Maritime Transportation
"Protecting U.S. Sovereignty: Coast Guard Operations in the Arctic"
Washington, D.C.
December 1, 2011

Statement Submitted for the Record
Edison Chouest Offshore, Inc.

As this Committee and the U.S. Congress determine the appropriate need and execution of Coast Guard responsibilities in the Arctic, Edison Chouest Offshore submits this testimony for the record to share important information earned through decades of experience in shipbuilding, Arctic and Antarctic operations, icebreaking, and vessel leasing.

Founded in 1960 as Edison Chouest Boat Rentals in Galliano, Louisiana, the Edison Chouest Offshore (ECO) family of companies is widely recognized today as one of the most diverse and dynamic marine transportation providers in the world. Though it began by providing specialty vessel servicing for the offshore oil and gas industry in the Gulf of Mexico, ECO's reach is now global, and its business includes significant engagement throughout the worldwide commercial market, as well as with the U.S. government and academic sectors. ECO is the largest charterer of vessels to the U.S. government, with more than 20 vessels currently serving the Department of Defense and the National Science Foundation. ECO owns and operates five shipbuilding facilities in Louisiana, Mississippi, and Florida, and employs over 6,200 U.S. workers; making the company a major economic engine in the coastal regions in which it operates.

Part of what makes ECO unique is the ability to offer its customers a total marine solution -- incorporating design, construction, and operation, as well as field development and field maintenance. This total solution package underpins ECO's business model, which is predicated on leasing Contractor-Owned-Contractor Operated (COCO) vessels under Long Term Time Charter (LTTC) agreements.

The concept of LTTC is an outgrowth of the commercial marketplace. Offshore operators in the private sector recognized long ago that it is more efficient and improves mission performance to focus on their own core responsibilities. That is why not a single major oil and gas company maintains or operates its own service vessel fleet. By allowing the marine transportation industry to focus on designing, constructing, and operating the vessels, the oil and gas industry is able to focus on its core competencies and more effectively perform its mission – exploration and production of oil and gas.

The National Science Foundation (NSF) recognized that reality years ago when it competed a contract for the design, construction, and operation (charter) of an icebreaker to service its needs in the Antarctic. ECO won that competition in 1990 and within 2 years designed, built, and commissioned the *R/V N.B. Palmer*. The *R/V Palmer* has been under charter to the NSF ever since and by all accounts has exceeded its contract requirements and performed extraordinarily well…all with a fixed, finite cost to the taxpayer. In fact, the model was so successful at NSF

that the agency contracted with ECO for the design, construction, and charter of the ice-capable vessel *R/V L.M. Gould* only a few years later. Both vessels continue to perform their missions today and are available for duty more than 360 days per year.

In addition to the NSF charters of the *R/V Palmer and R/V Gould*, ECO also performs LTTCs for the U.S. Navy to provide vessels for commercial-type responsibilities and services. By using an LTTC to achieve non-combat missions, the Navy can instead focus its resources and personnel on its core defense mission while increasing the efficiency of both combat and non-combat functions.

The LTTC model is a proven success in the commercial and government sectors, and as it becomes increasingly clear that the U.S. Coast Guard (USCG) must develop a more efficient, reliable, and high-performing icebreaking capability, it is only logical for the Service to also adopt the LTTC concept.

The need for reliable and effective USCG icebreaking capability is clearly recognized and recommended by the numerous internal and external reviews conducted over the past few years. How best to provide that service, particularly in such an austere fiscal environment, is the primary question. We believe an LTTC is the optimal solution.

Under an LTTC, the USCG would hold a competitive procurement for specific icebreaking capability and offer the winners a charter term of 5 to 10 years (with options to extend). A total charter rate would be developed up front to include the pro-rated cost of design, construction, and operation of the vessel. Once that cost is determined it is fixed for the period of the lease, and any additional costs, including construction risk, all vessel maintenance and upkeep, and ultimate decommissioning expenditures, would be incurred by the owner/operator, not the taxpayer. (Contrast that with responsibility of the taxpayers to fund the massive amount of maintenance, repair, and standby/decommissioning costs required on the 2 USCG heavy icebreakers, the *Polar Sea* and the *Polar Star*, and it is clear those accumulating financial liabilities can quickly become extraordinarily high and jeopardize the mission itself.)

The *R/V Palmer* offers a real world example. During the construction phase, NSF requested some engineering changes to the approved *R/V Palmer* design. Because it was commissioned under a fixed cost lease, the additional costs to NSF were limited and the build time was extended by only two months. The benefit to NSF was the quick delivery of a ship precisely tailored to all mission requirements without the burden of up-front construction costs, budgeting for annual maintenance, or budgeting for the regular five-year overhaul throughout the life cycle of the vessel. And upon a determination by the NSF that the *R/V Palmer* is no longer necessary, it is the owner/operator who will be responsible for all associated legacy costs, not the taxpayer.

It is no secret that the commercial industry's innovative and cost-effective approach to capital investment and sound risk management are not found in a traditional Government-Owned-Government-Operated (GOGO) model. One of the best examples to demonstrate the superior cost management control between a GOGO and COCO LTTC is to compare the USCGC *Healy* and the *R/V Palmer*, both of which are chartered to the NSF.

USCG Healy (GOGO Model)

Time to design and build -	9 years
Cost to design and build -	over $350 million
Crew complement -	85 USCG crew and 35 scientists (because the Coast Guard cycles its crew out every two years there is a need for continuous onboard training which leads to a significantly expanded crew and much higher operational costs)
Continuous Mission Day Capability - 65 days	
Present Day Rate –	more than $60K per day (does not include scheduled or unscheduled maintenance and overhaul costs)
Legacy Costs -	health care, retirement benefits, and vessel decommissioning costs are borne by the taxpayer

R/V Palmer (COCO LTTC Model)

Time to design and build -	2 years
Cost to design and build -	$50 million (upfront capital costs incurred by vessel owner, not government client)
Crew complement -	22 contract crew and 38 scientists
Continuous Mission Day Capability - 75 days	
Present Day Rate -	$37K (all scheduled and unscheduled maintenance and overhaul costs are borne by the vessel owner, not the taxpayer)
Legacy Costs -	health care, retirement benefits, and vessel decommissioning costs are borne by the owner/operator

While the Healy is a somewhat larger vessel with slightly more icebreaking capacity, those relatively modest differences cannot possibly justify the difference in cost, construction time, or operational efficiency. The benefits of the LTTC model are clear. In addition to vastly reduced total ownership costs (design, build, operation, crewing, maintenance, and ultimate decommissioning), a LTTC also offers:

- No need for USCG capital investment, thus leaving USCG budgeted funds available for its core missions
- Improved performance and reduced operating costs
    - The lease-owner-operator wants a quality ship that can be easily maintained and efficiently run over the life of the vessel, thus it is constructed for performance, durability, and longevity. Under the GOGO model, the shipyard's responsibility for the vessel ends the day it is commissioned, so their motivation is to meet the initial specifications at the lowest cost, without regard to long term maintenance.
- Elimination of taxpayer responsibility for construction cost overruns
    - Vessel chartering company assumes the risk for all construction cost increases based on the approved design.
- Reduced risk in vessel design
    - Vessel chartering companies will receive from USCG minimum vessel specifications and an operating profile. The vessel chartering company takes all

the risk to design the correct vessel to meet these specifications and operating profile

A LTTC will provide the USCG and the taxpayer with optimum performance and efficient value for taxpayer appropriated funds.

Over the past few years, the shortage of functioning U.S. built heavy icebreakers, has required the NSF to lease foreign owned and operated vessels to perform the icebreaking for the annual McMurdo resupply mission in Antarctica. As a U.S. owned and operated shipbuilder, as well as a significant taxpayer and engine of domestic economic growth, we find this situation to be untenable. Not only are we paying U.S. taxpayer dollars to a foreign entity, but oftentimes the foreign vessels we are leasing are unreliable, and do not meet the safety and environmental requirements of the US Coast Guard or the American Bureau of Shipping.

While the US continues to lease from foreign competitors, the international community is moving forward with the construction of new heavy icebreakers and the modernization of their existing fleets. The promise of the Arctic is not lost on them, and they are moving expeditiously to seize it. The question is, will we continue to cede our leadership role in Arctic operations and polar shipbuilding, or will we move forward with a pragmatic and economically responsible strategy to compete in the Polar Regions?

According to their own reports, the current options for the Coast Guard include:

- extending the life of the *Polar Star* by approximately 7 years for roughly $60 million (not likely to be completed until 2013)
- extending the life of the *Polar Star* up to 25 years for over $500 million (no estimate for how long such a significant government-run overhaul would take); or
- constructing a new GOGO polar class icebreaker for $859 million in capital costs alone (government-run construction estimated to take at least 8 to 10 years)

A final option is to use an LTTC to facilitate the design and construction of a U.S. heavy icebreaker which we believe could be accomplished in four to five years for a cost of around $500 million. A simple analysis of the options makes the answer rather obvious.

As the U.S. Navy and the NSF learned long ago, the economics of a charter arrangement are far superior to building, owning, and operating non-combat vessels. Recognizing that both GOGO and COCO heavy icebreakers can successfully perform the ancillary missions of search and rescue (SAR), intelligence surveillance reconnaissance (ISR), disaster support relief, fisheries monitoring, and scientific research, the only remaining consideration is whether or not a leased vessel can perform the national security mission of establishing U.S. sovereignty in the Arctic.

In that regard, there is a significant distinction between establishing an assured sovereign presence and actually defending U.S. sovereignty. The former is a function of demonstrating the requisite polar capability and establishing a physical presence in the Arctic. The latter is one of combat capacity. Though it is extraordinarily unlikely that an icebreaker operating in the Arctic would need to exercise a combat function, one could nonetheless be achieved under a

commercial charter through a small deployment of properly trained and equipped USCG personnel. This "military" enhancement is used routinely on COCO chartered vessels by the U.S. Navy, and allows the vessel operators to remain focused on their specific mission responsibilities.

The need to establish polar icebreaking capabilities is an increasingly vital issue for the U.S. Government. In the absence of functioning heavy icebreakers, we have been relegated to paying foreign operators to do the job for us. As we wrestle with whether or not to throw good money after bad, our friends and competitors in the international community have seized on the promise of the Arctic frontier, and are well on their way to enabling its access and establishing Arctic dominance. Our problem appears not to be a lack of will, but a dearth of resources. History provides us an answer to this problem through decades of demonstrated success in commercially chartered vessels. The COCO LTTC model provides the best value to the taxpayer and can deliver a heavy polar vessel to the USCG in less than five years, while stopping the atrophy of our national polar capabilities.

Statement for the Record

Ron Philemonoff, Chief Executive Officer

Tanadgusix Corporation, Anchorage, Alaska

House Transportation and Infrastructure Subcommittee on

Coast Guard and Maritime Transportation

Hearing

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

December 1, 2011

Mr. Chairman and Members of the Subcommittee, I am Ron Philemonoff, Chief Executive Officer for the Tanadgusix Corporation. Tanadgusix Corporation (TDX) is an Alaska Native village corporation created under the Alaska Native Claims Settlement Act (ANCSA) of 1971 passed by the United States Congress to provide economic well being for the indigenous peoples that resided in the village of St. Paul, Alaska.

The TDX Corporation owns several subsidiary companies that provide services to commercial, industrial, and public sectors. The subsidiary companies provide revenues to TDX that builds the company's long term strategic plan and growth for future generations. Innovation and seeking a rewarding future, TDX has invested in hotels, tourism, alternative energy, electric utilities, power plant projects, wireless technologies, satellite technologies, environmental construction services, remediation and maritime industries.

The Aleuts of St. Paul are the sons and daughters of slaves who were taken from their original home in the Aleutian Chain by Russian fur harvesters. They were placed on the Priblof Island of St. Paul for the purpose of harvesting Northern Fur Seals. The Aleuts of St. Paul have evolved into a proud and resourceful tribe. When Alaska was sold to the United States, the Aleuts became wards of the US and later civil service workers to manage the fur seal harvest. St. Paul became a special Reservation to protect the fur seal trade

As we look north to the Arctic as a place for future development of natural resources there, it should not be overlooked that conditions in the Arctic do not always facilitate maritime traffic and activity year round. Not to be overlooked is the year round activity in the Bering Sea,

the pathway to the Arctic, where abundant fishing, commercial marine traffic, and other at sea activities take place. A forward base in the Bering Sea for Coast Guard maritime operations would support all of this activity. I note that the original Coast Guard service, the US Revenue Marine, was stationed out of St. Paul Island. Later in the early 1960's, the LORAN C master station was located on St. Paul. Today St. Paul serves as the search and rescue base of operations for the winter fisheries. St. Paul Island is very well positioned to continue the support for activities in this important and strategic region of the United States.

I would ask the Subcommittee to recognize the strategic advantages of the St. Paul Island location. The island has a strategic location, supportive infrastructure, industrial and fleet capabilities, and renewable energy capabilities. Please note the following significant advantages:

- Bering Sea location with centralized access to the Great Circle shipping lane, and groundfish and crab fisheries.
- Farthest north ice-free port in the Bering Sea and gateway access to the Arctic.
- Excellent site for near future forward base operations.
- Essential infrastructure to include utilities, fuel, airport, warehouse space, and housing.
- Fully Developable port and uplands available.
- All 175 homes and facilities are connected to the piped water and sewer system and are fully plumbed.
- State-owned asphalt runway is 6,500' long and 150' wide. Regularly scheduled flights are available. Regular use by USCG air resources.
- Large hangar with private airport ramp access; capacity and land to support additional air assets.
- Virtually ice-free harbor with five acres of harbor uplands and vessel berthing with 600 feet of available water frontage.
- Ocean breakwater, 700' of dock space, and a barge off-loading area. Up to 60,000 SF of available warehouse storage, and shoreside storage.
- Million plus gallon fuel storage capacity. Residential and heating fuel, as well as Jet A fuel is available. A marine fuel dock supplies diesel fuel.
- Off Aircraft Maintenance: GPS, Power Supplies (red/black), Data Link Transceiver (DLT), Advanced Digital Interface Unit (ADIU), Air-to-Air and Air-to-Ground Datalink, etc.
- Product Lifecycle Management Support: acquisition; test and evaluation; and sustainment.

- Performance Testing (pre-mission verification) & Performance Monitoring (mission validation).
- Experience providing turn-key, state-of-the-art fuel storage and supply for Coast Guard.
- System included elaborate electronic quality and dispensing controls, overfill alarm functions, and water detection capabilities specifically designed for St. Paul Island's harsh sub arctic, maritime environment.
- Waste oil management and disposal.
- On island experience with USCG in light construction, and remediation services
- Developed on island renewable energy resources.
- Evaluated, designed, financed, and installed first hybrid wind-diesel power plant on St. Paul.
- Ability to assist Coast Guard with exceeding requirements of the Energy Policy Act of 2005; Energy Independence and Security Act of 2007; and EO 13423.
- Energy audits and retro-commissioning.

Accordingly, I submit that St. Paul is the ideal location for more permanent, year-round USCG forward basing and maritime support needs. Yes, the Coast Guard could set up temporary seasonal forward basing operations further north, but these locations would be compromised because of that more northern location. We at TDX recognize that there are some probable costs and needs that must be incurred to achieve USCG forward operating presence on St. Paul Island. These include such items as development of oceanside staging; additional dredging for harbor capacity for USCG Cutters; improvements to docking facilities and uplands; upgrades to the hangar including office space and heating improvements (some related to the former USCG Loran Station facilities). Additional adjacent land is available if additional hangars are required. However, in real-time perspective, and under the current fiscal environment, development of Deep Water Arctic Port and full USCG Ice Breaker support capabilities is a 25-year process at very best, and several $100M at best, for these further north options, whereas St. Paul provides currently developable assets and resources for stepping up USCG presence in most active current fishing areas. There is reliable and asset deployable access to Arctic offshore areas. We believe it provides full functionality and response capability and this capability is achievable without budget-busting impacts.

We at Tanadgusix Corporation and the Aleut people of St. Paul Island thank the Subcommittee for the opportunity to present this information and stand ready to assist with the orderly and strategic development of this Arctic region. We would be happy to provide additional information on the prospect for this opportunity on St. Paul Island. We believe this prospect will advance the interests of the United States and provide a sound presence for the U.S. Coast Guard as it performs all of its many missions so important to this region.

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