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IMPLEMENTING U.S. POLICY IN THE ARCTIC

(113–78)

HEARING

BEFORE THE

SUBCOMMITTEE ON
COAST GUARD AND MARITIME TRANSPORTATION

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

JULY 23, 2014

Printed for the use of the
Committee on Transportation and Infrastructure

Available online at: http://www.gpo.gov/fdsys/browse/
committee.action?chamber=house&committee=transportation

U.S. GOVERNMENT PUBLISHING OFFICE

88–818 PDF WASHINGTON : 2015

For sale by the Superintendent of Documents, U.S. Government Publishing Office
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July 18, 2014

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Coast Guard and Maritime Transportation
FROM: Staff, Subcommittee on Coast Guard and Maritime Transportation
RE: Hearing on "Implementing U.S. Policy in the Arctic"

PURPOSE

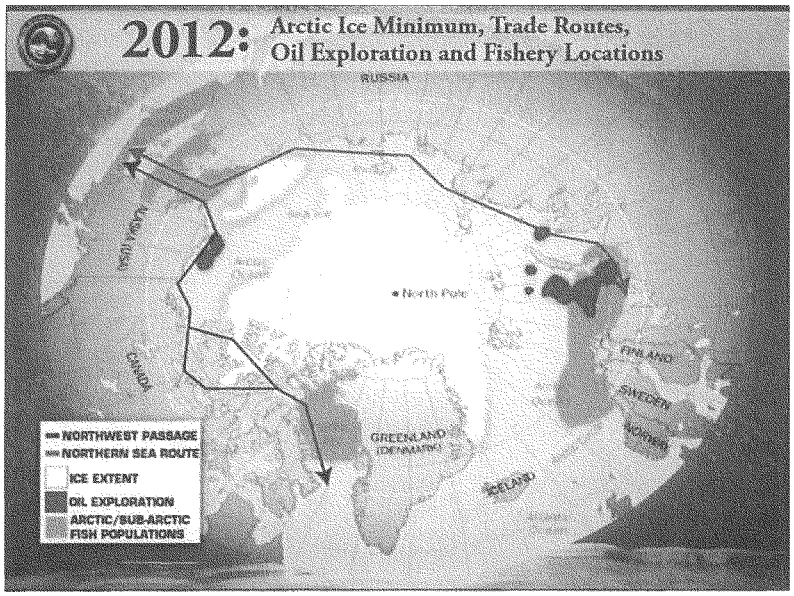
On Wednesday, July 23, 2014, at 10:30 a.m. in 2253 Rayburn House Office Building, the Subcommittee on Coast Guard and Maritime Transportation will hold a hearing to review U.S. policy in the Arctic and how the agencies with the largest presence in the Arctic intend to implement such policy. The Subcommittee will hear from the Coast Guard, the Navy, the Department of State, the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), and the State of Alaska.

BACKGROUND

The Arctic: Geographic and Political Scope

The Arctic is generally defined as those lands and waters north of the Arctic Circle (66° 33′ 44″ North latitude). The Arctic Research and Policy Act of 1984 (15 U.S.C. 4101 et. al) defines U.S. territory in the Arctic as all water north of the Aleutian Chain and all territory north of the Kuskokwim River in Alaska. In addition to the United States, seven other countries have territory in the Arctic: Canada, Russia, Norway, Denmark (by virtue of Greenland), Finland, Sweden, and Iceland. These countries are all members of the Arctic Council (see below).

Climate conditions in the Arctic have changed over the last few decades. The percentage of the Arctic Ocean covered in ice during the summer months continues to shrink. As a result, waters previously blocked by ice have become navigable at certain times 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, reducing the time it takes to transport goods between East Asian and Western European ports by as much as 10 days. It may also ease the difficulties faced in extracting potential oil and gas resources, as well as expand fishing and tourism activities.



Arctic Policy

National Security Presidential Directive on Arctic Region Policy

In 2009, President Bush signed a *National Security Presidential Directive on Arctic Region Policy (NSPD 66)*. It declared that it is the policy of the United States 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; and
6. Enhance scientific monitoring and research into local, regional, and global environmental issues.

NSPD 66 requires the heads of the departments and agencies with responsibilities relating to the Arctic region to work to identify future budget, administrative, personnel, or other authorities to implement the policy directive. *NSPD 66* has not been changed by the Obama administration.

National Strategy for the Arctic Region

In May 2013, the President released the *National Strategy for the Arctic Region (National Strategy)* which establishes the federal government's strategic priorities for the Arctic region. The *National Strategy* is centered on three lines of effort:

1. Advance United States Security Interests – Ensure access to the airspace and waters of the Arctic for U.S. aircraft and vessels, support lawful commerce, improve awareness of activity in the region, and enhance Arctic infrastructure and capabilities, including ice-capable platforms as needed.

2. Pursue Responsible Arctic Region Stewardship – Protect the Arctic environment and conserve its resources, chart the Arctic region, and employ scientific research to increase understanding of the Arctic.

3. Strengthen International Cooperation – Working through bilateral relationships and multilateral bodies, including the Arctic Council, pursue arrangements that advance collective interests, promote shared Arctic state prosperity, protect the Arctic environment, and enhance regional security. Work toward U.S. accession to the United Nations Convention on the Law of the Sea.

In January 2014, the President released the *Implementation Plan for the National Strategy for the Arctic Region (Implementation Plan).* The *Implementation Plan* lays out 37 objectives that will be undertaken by various federal agencies to execute the *National Strategy's* three lines of effort. Objectives include:

- Improve maritime infrastructure to support operations in the Arctic;
- Enhance Arctic domain awareness;
- Ensure safe and responsible development of energy resources;
- Conserve Arctic ecosystems;
- Chart the Arctic region;
- Promote scientific research and monitoring; and
- Resolve boundary disputes.

Lead and supporting federal agencies are identified for each objective, as well as the actions that will be taken to accomplish the objective and benchmarks to judge progress. The "Department of Homeland Security (DHS)/Coast Guard" is designated the lead federal agency for the most objectives.

The Coast Guard, Navy, and NOAA have each developed their own Arctic strategies and implementation plans which outline what actions each agency intends to take over the next five to ten years to enhance their presence, understanding, and mission effectiveness in the Arctic. In February 2013, NSF released its *FY 2013-2017 Arctic Research Plan* to guide its Arctic efforts. Each of these plans and strategies are consistent with the *National Strategy* and the *Implementation Plan*. For instance, the Coast Guard released its *Arctic Strategy* in May 2012 and

its *Arctic Strategy Implementation Report* in May 2014. The Service's *Arctic Strategy* outlines three strategic objectives:

1. Improving Awareness;
2. Modernizing Governance; and
3. Broadening Partnerships.

The Coast Guard's *Artic Strategy Implementation Report* identifies 12 initiatives it intends to pursue over the next 10 years to carry out its *Arctic Strategy*, including improving maritime domain awareness and recapitalizing its polar icebreakers.

Issues

1. Icebreakers

Current Status

The Coast Guard is the only federal agency that owns and operates icebreakers (NSF charters a privately-owned ice capable research vessel NATHANIEL B. PALMER to conduct scientific research in the Antarctic). To conduct its current mission in the Arctic, the Coast Guard principally relies on its medium icebreaker HEALY.

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 all polar icebreaking operations.

In addition to the HEALY, the Coast Guard currently has in its inventory two Polar Class heavy icebreakers: the POLAR STAR and POLAR SEA. 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 and operate in temperatures as low as -60 degrees F. Currently, the POLAR STAR is the only operational heavy icebreaker.

The POLAR STAR was commissioned in 1976, but was in non-operating commissioned status from 2006 through 2013. In fiscal years 2010 and 2011, Congress appropriated a total of $60 million to conduct a service life extension of the POLAR STAR, which was completed on December 14, 2012, at Vigor Shipyards in Seattle, Washington. The icebreaker was certified mission ready in November 2013 and is expected to have a service life of 7 to 10 years. It recently completed the breakout and resupply of NSF's McMurdo Station in Antarctica.

The POLAR SEA was commissioned in 1977. In 2006, the Coast Guard began a rehabilitation project that was supposed to extend the icebreaker'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. The Coast Guard placed the POLAR SEA in commissioned inactive status on October 14, 2011, and transferred certain major equipment from it to the POLAR STAR.

Section 222 of the *Coast Guard and Maritime Transportation Act of 2012* (P.L. 112-213) required the Secretary of Homeland Security to submit to the Committee an analysis of reactivating and extending the service life of the POLAR SEA through fiscal year 2022. If the Secretary determined based on the analysis that it was cost effective to reactivate the icebreaker, the Secretary is required to submit a service life extension plan to the Committee. If a determination is made that it is not cost effective to reactivate the icebreaker, then the Secretary is authorized to decommission the POLAR SEA. On November 7, 2013, the Secretary submitted the analysis to reactivate the POLAR SEA. It estimated the cost to reactivate at $99.2 million and the cost to reactivate and operate for 10 years at $574 to $750 million. Although the Committee has received the reactivation analysis, the Secretary has yet to make a determination to reactivate or decommission the icebreaker.

Section 214(a) of H.R. 4005, the *Coast Guard and Maritime Transportation Act of 2014* authorizes the Commandant of the Coast Guard to decommission the POLAR SEA without a determination from the Secretary. It also requires the Service to submit a plan to the Committee to maintain Coast Guard polar icebreaking services through fiscal year 2050.

Icebreaker Studies

NSPD 66 and the *National Strategy* call for a strong U.S. presence in the Arctic, but neither discusses federal requirements for polar icebreakers. 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. It called for a fleet of three polar icebreakers (Presidential Report to Congress. October 1990). However, staff has been informed that the White House Office of Science and Technology Policy is currently reviewing polar icebreaker needs. It is unclear if that will result in a new Presidential level declaration of policy on polar icebreakers. In the interim, several studies have been conducted outlining the need for a robust U.S. fleet of polar 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 United States 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.

High Latitude Study: In September 2011, the Coast Guard provided its *High Latitude Region Mission Analysis Report* to Congress. The report 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 *NOC-10*.

Icebreaker Recapitalization

The Coast Guard expects the POLAR STAR to remain in operation no longer than 2023. The Service estimates that designing and building a new polar icebreaker will take 8 to 10 years. The fiscal year 2013 budget request for the Coast Guard included $8 million to begin survey and design for a new polar class icebreaker. To date, Congress has appropriated $9.6 million. The fiscal year 2015 budget request includes an additional $6 million to continue survey and design work. In a November 2011 report to Congress, the Coast Guard estimated it would cost approximately $859 million to construct a new polar class icebreaker (*U.S. Polar Icebreaking Recapitalization*). The Service has informed staff that its current estimate is approximately $1 billion.

The Coast Guard recently completed a draft operational requirements document for a new polar class icebreaker. The document includes input from 11 federal agencies with interests or missions in the Arctic. In testimony before the Subcommittee in April 2014, Admiral Robert Papp, the former Commandant of the Coast Guard, made the following three points concerning the acquisition of a new polar class icebreaker:

1. Impact the acquisition of a $1 billion icebreaker would have on the Coast Guard's current effort to recapitalize its aging fleet of vessels, aircraft, and communications systems:

"I can't afford to pay for an icebreaker in a $1 billion dollar budget because it would just displace other things that I have a higher priority for. I just don't see how we can fit an icebreaker in. The Offshore Patrol Cutter is my highest priority for the Coast Guard. I need to fit that in the budget. And I fear that if we try to fit the cost of an icebreaker in there, it would displace the Offshore Patrol Cutter, or some other very important things."

2. Sharing the cost to acquire a new polar class icebreaker:

"If we are going to build a new icebreaker, if that is a priority, we just can't fit it within our acquisition account and I would look across the inter-agency... my number one

option is to get support across the interagency, those agencies that benefit from the support of an icebreaker, to contribute towards the construction of it."

3. Reactivating the POLAR SEA:

"We might be able to overhaul POLAR SEA and fit that into the budget as an affordable means for providing an additional icebreaker as we await a time that we can build a new icebreaker. Refurbishment of the POLAR SEA may be a viable option for that."

Section 214(b) of H.R. 4005 prohibits the Coast Guard from spending any of its funds to design or build capabilities into the new polar class icebreaker that come from requirements requested by other federal government agencies. However, the language does allow the Coast Guard to spend funds transferred from other agencies for such purposes.

2. The Arctic Council

The Arctic Council is an intergovernmental forum established in 1996 to discuss issues impacting the area and its indigenous communities, as well as to coordinate activities among its eight member states. The Council also includes six organizations representing indigenous peoples and 12 observer states.

The Artic Council is organized into working groups and task forces to discuss issues including emergency response, sustainable development, and environmental protection. Although the Council does not have formal policy making authority, its member states recently used the forum to reach two agreements to coordinate member state responses to search and rescue cases and incidents of oil spills in the Arctic.

The General Accountability Office (GAO) recently completed a report on U.S. participation in the Arctic Council (GAO 14-435). It found that there is no overall strategy to guide and prioritize federal agency participation in the Council and no system in place to track progress made by agencies in implementing recommendations adopted by the Council. GAO recommends the State Department develop a strategy and a system to track agency work on recommendations.

The chairmanship of the Arctic Council rotates every two years among the eight member states. The United States will assume chairmanship of the Arctic Council in April 2015. The agenda for the U.S. chairmanship is currently being drafted by the State Department. On July 16, 2014, Secretary Kerry appointed Admiral Papp as the Nation's first Special Representative for the Arctic.

3. Polar Code

The International Maritime Organization (IMO) is a United Nations organization composed of nations that register commercial vessels under their flag. It acts as a policy making forum which establishes safety, security, and environmental rules for vessels operating in

international waters. Rules adopted are usually in the form of self-executing amendments to existing international treaties such as the International Convention for the Safety of Life at Sea (SOLAS). The Coast Guard represents U.S interests at the IMO.

In May 2014, the IMO's Maritime Safety Committee approved a draft Polar Code and related amendments to make the Code mandatory under SOLAS. The Code establishes rules governing the design, construction, equipment, operational, and crew training standards for vessels operating in Arctic and Antarctic waters. It would also establish mechanisms for governments to check such vessels for compliance. IMO is expected to formally adopt the Code at its next session, which will be held in November 2014.

WITNESSES

Panel I

Vice Admiral Peter V. Neffenger
Vice Commandant
U.S. Coast Guard

Rear Admiral Jonathan White
Oceanographer and Navigator of the Navy
Director, Space and Maritime Domain Awareness
U.S. Navy

Ambassador David Balton
Deputy Assistant Secretary for Oceans and Fisheries
Bureau of Oceans and International Environmental and Scientific Affairs
Department of State

Panel II

Captain Dave Westerholm, *USCG Ret.*
Director, Office of Response and Restoration
National Ocean Service
National Oceanic Atmospheric Administration

Dr. Kelly Faulkner
Division Director, Polar Programs
Geosciences Directorate
National Science Foundation

Ed Fogels
Deputy Commissioner
Department of Natural Resources
State of Alaska

IMPLEMENTING U.S. POLICY IN THE ARCTIC

WEDNESDAY, JULY 23, 2014

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

The subcommittee met, pursuant to notice, at 10:04 a.m. in Room 2253, Rayburn House Office Building, Hon. Duncan Hunter (Chairman of the subcommittee) presiding.

Mr. HUNTER. Good morning. The subcommittee will come to order. Sorry about the room size, small. There are more of us. Anybody who wants to can sit on the front row.

[Laughter.]

Mr. HUNTER. The subcommittee is meeting this morning to review how the agencies that will play the largest roles in the Arctic intend to implement the National Strategy for the Arctic Region, as well as enhance their presence, understanding, and mission effectiveness in the area.

As we all know, the ice caps are shrinking in the Arctic, effectively creating new coastline and navigable waters. This opening is already providing significant economic opportunities for the energy and maritime transportation sectors. However, as human presence increases and as other nations continue to make claims in the Arctic, it has also exposed a new set of risks and challenges to our sovereignty and national security.

The national strategy calls for a strong U.S presence in the Arctic, but the Implementation Plan that accompanies it fails to identify what specific infrastructure or capabilities are required to meet those goals, or how or when they will be funded. For instance, there is no discussion of requirements for icebreakers, but each of the agencies here today requires one to carry out its missions in the Arctic.

While Russia maintains a fleet of nearly 40 icebreakers, and China, a non-Arctic nation, is building new icebreakers, the U.S. fleet of heavy icebreakers is in a dismal state. I wouldn't even call it a fleet, frankly. One has been rusting away in Seattle for 3 years with a busted engine, while the Coast Guard fails to make a decision about its future. The other is operational, thanks to an infusion of $60 million from Congress, but that only gets it 7 years longer.

The Coast Guard has been working with 10 other Federal agencies to develop requirements for a new polar icebreaker, but has yet to identify where in its acquisition budget it will find the $1.2

billion to construct it. I share the concerns raised by Admiral Papp at our budget hearing in March, that forcing the Coast Guard to pay for a new icebreaker will significantly delay the acquisition of other new assets that the Service critically needs. And I agree with him that the cost should be shared across all agencies that have requirements for an icebreaker. I look forward to hearing from our witnesses on whether they plan on contributing money, as opposed to just missions and requirements, to this whole-of-Government effort.

I am also interested in hearing the status of negotiations on the Polar Code. As vessel traffic increases, the implementation of the Polar Code should go a long way toward ensuring the safety of maritime transportation and protection of the Arctic environment. Establishing vessel construction and operating standards upfront will create a predictable operating environment for industry.

Finally, the United States is set to take the chairmanship of the Arctic Council next year. I applaud, obviously, the recent appointment of Admiral Papp as the Nation's first Special Representative for the Arctic. I am interested in hearing more about what role Admiral Papp will play in the chairmanship, as well as the agenda that the State Department intends to put forward.

We need to be protecting our national interests in the Arctic. I hope today's hearing will draw light on how the administration intends to accomplish that.

I thank the witnesses for appearing today, and look forward to their testimony. With that, I yield to Ranking Member Garamendi.

Mr. GARAMENDI. Chairman Hunter, thank you so very much for scheduling this meeting. We have talked about this issue, you and I and our staffs, for some time. And here we are, on an extraordinarily important hearing.

As distant and remote as the Arctic and Antarctic regions may appear to most Americans, the reality is that they are two regions that are especially important to this Nation, the Arctic ranking at the top. We are likely to become more—and likely to become exceedingly important in the years ahead, both geopolitically, as well as strategically.

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 of search and rescue operations, maritime safety, scientific research, and environmental protection.

But is the Coast Guard up to the challenge? What about other Federal agencies that have key responsibilities in the Arctic and the Antarctic, for that matter? Are we in Congress fulfilling our responsibilities to provide the Coast Guard with the resources it needs to be semper paratus, always prepared and ready for the rigors of operating in these most inhospitable regions?

I am heartened that, by the administration's release of its 2013 National Strategy for the Arctic Region, and the release earlier this year of the Implementation Plan for this strategy. These two documents provide overarching guidance and agency-specific Arctic strategies developed by the Coast Guard, the Navy, NOAA, each providing greater detail for their respective agencies' missions and objectives.

But I am compelled to say that I remain disappointed that these planning initiatives have not yet taken root in the administration's budget. And if you look at certain programs, especially the Coast Guard icebreaking missions—and here I echo you, Mr. Chairman—the gap between what is needed to effectively implement the Arctic strategy and what is requested and funded is huge, growing, and, frankly, doesn't work.

Whether or not you believe in the science underlying the projections of warming the—of the Arctic climate, that is immaterial. Well, it is not. It is really central to this issue. The stark reality is that, with each passing year, the Arctic is becoming more accessible, more open, more warmer, and more compelling economic and security priority to the United States.

Other nations have grasped this reality. We should, too. It is well past the time when we can afford to ignore the imminent challenge. Next year, when the United States assumes the chair of the Arctic Council for 2 years, we might finally take up this challenge.

No, we are going to do that today.

I yield back.

Mr. HUNTER. Thank the ranking member. On our first panel of witnesses today are Vice Admiral Peter Neffenger, Vice Commandant of the United States Coast Guard; Rear Admiral Jonathan White, Oceanographer and Navigator of the Navy—I didn't know that that was an actual title, it is good to go; and Ambassador David Balton, Deputy Assistant Secretary for Oceans and Fisheries at the Department of State.

Admiral Neffenger, you are recognized for your statement.

TESTIMONY OF VICE ADMIRAL PETER V. NEFFENGER, VICE COMMANDANT, U.S. COAST GUARD; REAR ADMIRAL JONATHAN W. WHITE, OCEANOGRAPHER AND NAVIGATOR OF THE NAVY, AND DIRECTOR, SPACE AND MARITIME DOMAIN AWARENESS, U.S. NAVY; AND AMBASSADOR DAVID A. BALTON, DEPUTY ASSISTANT SECRETARY FOR OCEANS AND FISHERIES, BUREAU OF OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS, DEPARTMENT OF STATE

Admiral NEFFENGER. Thank you, sir. Good morning, Chairman Hunter, Ranking Member Garamendi. I am pleased to appear before you today to discuss Coast Guard operations in the Arctic, the Coast Guard's Arctic strategy, and Coast Guard efforts to ensure safe, secure, and environmentally responsible maritime activity in this region.

With your permission, Mr. Chairman, I have written testimony for the record, and I will make a brief opening statement.

In my previous role as Deputy Commandant for Operations, I spent a significant amount of time focusing on Arctic and polar issues for the Coast Guard. I have traveled extensively throughout the Arctic and the Antarctic regions to understand the challenges of operating in these extreme environments, the range of national and international priorities and initiatives, and the impacts of increasing human activity.

In the spring of 2013 I represented the United States on an Arctic Council trip to the Russian Far North, which included an over-

view of Arctic oil and gas exploration, infrastructure development, and culminated in travel to the North Pole. I also recently visited the Antarctic, with the National Science Foundation, as well as to the South Pole to observe operations there and our icebreaker contributions to the U.S. Antarctic Program.

The primary lesson from these travels is that these regions are remote, they are hostile, they are unforgiving, but they nonetheless present the potential for substantial economic and scientific gains for our Nation. Operations in the polar regions demand detailed and deliberate planning, supported by specialized, reliable, and unique equipment.

I mentioned that human activity is increasing in the Arctic. It is doing so because the region has become more accessible. There really is a new ocean opening, and Coast Guard authorities require our presence wherever people operate in U.S. waters.

The activity we see falls into three general categories: resource development, primarily oil, gas, and mineral; opportunities for new trade routes; and ecotourism. To address these, the Coast Guard recently published its Arctic strategy to outline the Service's near-term approach to meeting the mission demands generated by these activities.

Our strategy complements the National Strategy for the Arctic, and envisions a mobile, seasonal Coast Guard operational presence to meet mission demands over the next decade, and sets forth three key objectives: to improve awareness, we need a better understanding of what the operations are up there; to modernize governance, that has to do with managing the various activities that are doing so across international lines; and then, to broaden partnerships, we need to know who else has capability up there that we can call upon.

We have recently completed an implementation plan for our strategy, and it outlines 12 initiatives in support of our objectives. These involve Federal, State, local, tribal, and international partners, and they focus on operations, maritime domain awareness, environmental protection, communications, strategic partnerships, academic and scientific research, contingency planning, and international cooperation and coordination.

One such initiative is the establishment of an Arctic Coast Guard Forum for the eight Arctic Council nations to coordinate exercises, strengthen relationships, and implement the recent Arctic oil spill response and search and rescue agreements.

Today Coast Guard aircraft and vessels patrol nearly 1 million square miles of ocean off the Alaskan coast to enforce U.S. laws, conduct search and rescue, assist in scientific research, advance navigation safety, and foster environmental stewardship. We use polar-class icebreakers, National Security Cutters, and ice-strengthened buoy tenders, in additional to seasonal air and communication assets to execute these missions. We work with the Department of Defense, specifically the Navy, to advance maritime domain awareness by testing Arctic technologies and capabilities, including communications equipment, unmanned aerial vehicles, and ice radars. We have conducted ice rescue training, exercised pollution response capability, and collected scientific data that will be used to further the understanding of this Arctic ecosystem.

And just as we do elsewhere, we respond to emergencies. *Healy* recently diverted from scientific research to respond to a 36-foot sailing vessel beset in the ice 30 nautical miles north of Barrow. It was about a 6-mile transit in to rescue that individual.

Current and future operations in the Arctic and Antarctic will continue to be informed by the availability of polar icebreakers and ice-strengthened vessels. *Polar Star*'s recent reactivation will provide the U.S. with heavy icebreaker capability for about another 7 to 10 years. We believe that *Polar Star*, along with the medium icebreaker, *Healy*, provide a minimum capability necessary to address the Nation's near-term icebreaking needs in the Arctic and Antarctic, and will give us the time we need to assess longer term national needs and requirements.

Mr. Chairman, the increasingly accessible Arctic region and the opening of Arctic waters present unique opportunities and significant challenges for our Nation. We look forward to working with the administration and Congress to ensure that the Coast Guard, with its unique authorities, missions, and partnerships, can continue to support U.S. national priorities in the Arctic and Antarctic regions, and to remain always ready to meet the demands of emerging maritime frontiers.

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

Mr. HUNTER. Thank you, Admiral.

Admiral White?

Admiral WHITE. Good morning, Mr. Chairman. First of all, good morning, Chairman Hunter; good morning, Ranking Member Garamendi; good morning, other subcommittee members. My name is Rear Admiral Jonathan White, and I currently serve, as mentioned, as the Oceanographer and Navigator of the Navy, and as the lead of the Navy's Task Force Climate Change. I have submitted my full written statement to the committee. I ask that it be made part of the hearing record. And, with your permission, I will give a brief opening statement.

I join my colleagues in supporting the President's National Strategy for the Arctic Region, and appreciate the opportunity to discuss the Navy's preparations in implementing U.S. policy in the Arctic. The Arctic Ocean is experiencing significant change in its seasonal ice coverage, which is making it more accessible to maritime activity. The diminishing sea ice is slowly opening the region to increased commercial activity and shipping.

As the maritime domain, the Navy has responsibilities in the Arctic. In support of the U.S. National Strategy for the Arctic Region and the Department of the Defense Arctic Strategy, the Navy has identified four strategy objectives: ensure U.S. Arctic sovereignty; provide ready naval forces; to preserve freedom of the seas; and promote partnerships.

We acknowledge that the risk of conflict in the region is currently low. The Arctic Council and other diplomatic venues provide effective means to resolve disputes between nations. However, the U.S. Navy must be ready to operate in this challenging environment, just as it does routinely on, under, and above every other ocean.

History shows us that the presence of navies on the world's oceans provides security and stability that promote economic development and commerce. As President Theodore Roosevelt stated over 110 years ago, "A good Navy is not a provocation to war, it is the surest guaranty of peace."

The Navy's existing posture is appropriate to address the near-term defense requirements in the Arctic, primarily through undersea assets. For the Navy to develop the full range of capabilities it has in other oceans will take time.

This past February, the chief of naval operations, Admiral Jonathan Greenert, signed the U.S. Navy Arctic Road Map 2014–2030, which aligns with the National Arctic Strategy and the U.S. Coast Guard Arctic Strategy. It includes a detailed Implementation Plan to develop Arctic capabilities and capacity in step with the changing environment.

Over the next decade, the Navy will continue to develop capabilities and experience, largely through personal exchanges and exercises in the high latitudes, and primarily in the open water during the summer season. We will also continue to conduct research to better understand and predict the complex Arctic environment and how it relates to safe and effective naval operations.

Our challenge over the coming decade will be to balance the resource demands of current requirements with investments in the development of future capabilities. To accomplish this, the Navy will emphasis low-cost, long lead-time activities, and use partnerships to ensure we do this in cost-effective and smart ways. Over the course of the next few years, the Navy will continue to leverage strong partnerships with the U.S. Coast Guard and other national and international Arctic partners and stakeholders to cooperatively address the challenges of Arctic operation.

These challenges are substantial, the Arctic Ocean is a vast and remote frontier with little shore infrastructure to support operations, frequent extreme hazardous wind and sea conditions, very limited navigation aids, dated and unreliable navigation charts, and limited communications. By the mid-2020s, we predict the summer sea ice will diminish to the point of opening a near-polar deepwater transit route across the Arctic for at least several days during the late summer.

As commercial enterprise in the Arctic slowly increase during this period, new mission requirements for the Navy will likely be to assist the Coast Guard and other nations with search and rescue or disaster response. But we may also be called upon to ensure freedom of navigation in Arctic waters. We will continue to transition toward the capability to operate on and above the sea for sustained periods, as required.

By 2030, the Navy looks to have the necessary trained and equipped personnel, along with surface, subsurface, and air capabilities to respond to contingencies and emergencies affecting national security in the Arctic. The U.S. Navy must be prepared to sail on to distant and remote waters to protect national interests and freedom of the seas.

We are confronted today by the prospect of a newly accessible ocean, one that presents significantly more challenges than other maritime regions. Fortunately, we have time to prepare. We have

made significant progress in understanding those challenges, and preparing the Navy for success. The key, again, will be to balance potential investments with other service priorities. But we are moving forward with a flexible approach, and we know we can keep pace with the evolving Arctic region, as we protect our national security interests.

Thank you, Mr. Chairman and Ranking Member Garamendi and committee members, for the opportunity to appear before you today. This concludes my oral statement, and I look forward to your questions.

Mr. HUNTER. Thanks, Admiral. They have a nickname in the Navy for the Navigator of the Navy? I mean, do you have a nickname? They call you "Nav" or anything?

Admiral WHITE. The best job and title for a flag officer in the Navy, sir, in my opinion.

[Laughter.]

Mr. HUNTER. That is great. "The Navigator."

Admiral WHITE. The Navigator would be better.

Mr. HUNTER. Ambassador Balton, you are recognized.

Mr. BALTON. Good morning, Chairman Hunter, Ranking Member Garamendi, other members of the subcommittee. I appreciate the opportunity to be before you today. I also have a written statement and I ask that it be included as part of the record.

The United States and other Arctic nations now face new challenges and opportunities in the Arctic region. I will try to summarize our approach to these issues, with a particular focus on our upcoming chairmanship of the Arctic Council.

As we have already heard, the Arctic region is experiencing very significant change, much of which results from a warming climate. Sea ice, glaciers, ice sheets are diminishing, permafrost is thawing, coasts are eroding. These and related phenomena are causing very serious problems for the roughly 4 million people who live north of the Arctic Circle and for the governments of the Arctic nations.

But, at the same time, these very changes are presenting new opportunities, including increased shipping, offshore hydrocarbon development, tourism, other activities. Our Government and others are seeking ways to take advantage of the opportunities in a safe, responsible, and sustainable way.

In promoting our Nation's interests in the Arctic region and strengthening international cooperation, we use the Arctic Council as the primary mechanism for multilateral engagement. The Council was created in 1996. It is a high-level intergovernmental forum of the eight Arctic States and the Arctic indigenous peoples, as well. The challenges and opportunities of the Arctic have grown. And, so too, the Council has evolved. It now has six standing working groups, a permanent secretariat, and has taken on some new and impressive tasks, including serving as the venue for the negotiation of the first two binding agreements among the eight Arctic governments.

The United States is a leader of the Arctic Council. We have led or co-led many of its most important initiatives. And, yes, we will assume the chairmanship of the Arctic Council next April for 2 years.

The Department of State is currently in the process of developing a robust program for our chairmanship through regular meetings with our Federal interagency counterparts, the State of Alaska, the Alaska congressional delegation, others in Congress who care about this, Alaska Native groups, industry groups, environmental groups, other interested stakeholders. We have not finalized our proposed program yet, but I can tell you it will be in line with the National Strategy for the Arctic Region issued in May 2013, and the subsequent implementation plan.

Current areas we are thinking of highlighting include climate change in the Arctic, improving economic and living conditions for Arctic residents, and responsible stewardship of the Arctic Ocean. Examples of projects in these areas might include improving access and availability to clean energy in remote Arctic communities, improving water sanitation, improving black carbon regulation, and pursuing an international management framework for living resources of the Arctic Ocean.

We are still consulting with stakeholders in the United States on these ideas and others. We then must present them to the seven other Arctic governments; the Council operates by consensus, we will have to negotiate our proposed program with our partners in the Council.

As noted, and recognizing the importance of the Arctic, Secretary Kerry has appointed Admiral Robert Papp to lead our efforts to protect and advance U.S. interests in the Arctic as the State Department's Special Representative for the Arctic Region. We anticipate that Admiral Papp will soon travel to Alaska to consult with those on the front lines of our Arctic State.

Please allow me to say just a word about the importance to U.S. Arctic interests of our joining the 1982 Law of the Sea Convention. The Convention provides the basic legal framework applicable to all the oceans, including the Arctic. Its provisions are highly favorable to U.S. national security and economic interests. As we speak, the United States and other nations with coastlines on the Arctic are working to determine the outer limit of their respective continental shelves.

Unlike the other Arctic nations, however, the United States is not a party to this Convention. And this places us at a very serious disadvantage in securing legal certainty and international recognition of the outer limits of our outer continental shelf in the Arctic and elsewhere. What is at stake is the exclusive right to resources on and under the continental shelf. More broadly, U.S. succession to this Convention is a matter of geostrategic importance in the Arctic and elsewhere. We need to be a party to fully claim our rightful place as an Arctic nation.

In conclusion, the Arctic presents enormous and growing geostrategic, economic, environmental, and national security implications for the United States. We are endeavoring to meet those challenges in the Arctic, and to seize the opportunities within our grasp. I very much appreciate the opportunity to appear before you today. Happy to answer any questions you may have. Thank you.

Mr. HUNTER. OK, thank you, gentlemen. I am going to start the questions now, starting with myself. So here is my question. It is pretty basic.

There is a lot of talk about how important the Arctic is, but I don't believe it. I don't believe it is worthwhile at all, because there is no money allocated towards it, the Navy is not putting any money towards it, Homeland Security is not putting any money towards it. You have a chart in front of you that I would have liked to have made big, but it is not. This shows all the icebreakers that other countries have. We have one that can't even go in the thick ice right now at all.

So, my question is, why is it a national security—why is it important, national security-wise, and why do we really need icebreakers? Can't we just use Russia's? Can't we use Finland's? Canada's? Sweden's? Argentina's? Australia's? Chile's? Estonia? Germany? Japan? Why can't we use theirs? And, if it is so important, why aren't we doing anything, except talking about it and making sure we have groups planning for it and meeting with each other to talk more about it, but not really caring to put money in? So it must not be that important.

Admiral NEFFENGER. Well, Mr. Chairman, I can answer from the Coast Guard's perspective. What I would say is that the Nation—we are an Arctic nation, not simply a nation with an Arctic State. And I speak purely from the physical fact, that we, as a nation, touch Arctic waters. And those Arctic waters are U.S. waters, and U.S. laws and regulations apply in those waters, just as they do elsewhere.

And so, from our perspective, we know that it—the region, when it was ice-covered all the time, was a region you could choose to go to, and we did, as a nation, for many purposes. Some were exploratory in nature and some were defense-related in nature, specifically the establishment of the DEW line back in the fifties. But now it is a region where the accessibility is allowing it to be open to human activity. And, as I said, that human activity is taking the form of extractive resource mining, the potential for development of ecotourism, and, of course, new trade routes.

So, from our perspective, we now have a requirement to be present. The Nation expects us to be present to extend its sovereign responsibilities over its waters, wherever there is activity in those U.S. waters that demand U.S. Coast Guard presence. And we see that in the form of concerns over the amount of—potential amount of traffic that is going through. The good news is it is a relatively limited development right now, and we have—it is a measured evolution of change in the Arctic. But, nonetheless, we are seeing increasing traffic and we are seeing increasing activity, and we expect that Shell Oil will return to the northwest coast of Alaska to attempt to continue its drilling operations that it started back in the summer of 2012.

So, it is purely from an operational standpoint that we see the importance of it, and we articulated that. That is why we put out an Arctic Strategy. We really wanted to make it clear that, despite the challenges associated with the resourcing of Arctic needs, the demand for presence won't go away. And, as I said, as other nations—whether we ultimately develop much off of our own Arctic coast, the development that is existing elsewhere in the Arctic, and the stuff that I have seen going on through my travels, tells me that we are going to want to pay attention to it.

Mr. HUNTER. Thanks. Admiral White, when is the Navy going to put forward funds for an icebreaker, if it is so important?

Admiral WHITE. Sir, we view—and since the mid-1960s, icebreaking has been a Coast Guard mission. We support the Coast Guard's strategy and their requirements for icebreaking for the Arctic and anywhere else that it may be needed. We rely on them, we support them. We are working very closely with them in an integrated planning team——

Mr. HUNTER. You support them with money?

Admiral WHITE [continuing]. Requirements.

Mr. HUNTER. You support them with money?

Admiral WHITE. We do not support them with part of our budget, sir. They were given the mission, we are a mission-funded organization. And so, we rely on them. But we support them totally with the requirements. We work hand in hand, whether it is icebreakers or maybe aircraft carriers or landing ships. It is a team approach that we do to all the operations that we are involved in together. But icebreaking was given to the Coast Guard, and we are in full support of them.

Mr. BALTON. So, unlike my colleagues, the mission of my agency is a little bit different. The Department of State has as its mission to carry out U.S. foreign policy. We don't break ice, we don't operate at sea.

That said, I agree with you, that—with respect to the importance of having icebreaking capability in the Arctic and Antarctic, including for our foreign policy and our presence. But I would not agree that is the only measure of the importance of the Arctic to our Nation. There is a lot going on in the Arctic. The icebreaking issue is only one facet of many.

Mr. HUNTER. As I have got 13 seconds left, let me ask this. Does the Navy have a national security requirement for a heavy icebreaker in the Arctic? Yes or no?

Admiral WHITE. The Navy has a requirement for icebreaking to support assured access in the Arctic, as—under the Coast Guard—agreement with the Coast Guard, that they will do the icebreaking for us. Right now we have no requirement to build—for the U.S. Navy to build an icebreaker for the Arctic, and we rely on the Coast Guard's capability to break ice. They are meeting the requirements that we have in the near term, and we fully support that, sir.

Mr. HUNTER. All right, thank you. Mr. Garamendi is recognized.

Mr. GARAMENDI. Just very quickly on this, the number that I have heard for a new icebreaker is somewhere in the half-a-billion dollar range. And I would just tell all of us that are on the Armed Services Committee that we expect to spend, in the next 10 years, some $15 billion rebuilding the B61 bomb that nobody knows what to do with.

So, we have choices, and we ought to look to ourselves about the choices we make. We are committed to that $15 billion. We could take a half dozen of those unnecessary, unused bombs, and build a icebreaker. These are our choices. Responsibility really does lie here.

Enough of that. I want to hit the Law of the Sea. Mr. Ambassador, you spoke quickly to that issue. I would like you to expand

upon it, and really why it is important. And also, why, in your view, it has not yet passed the Senate, so we can blame them, rather than us, on this one.

[Laughter.]

Mr. BALTON. Thank you, sir. The Law of the Sea Convention is important for many reasons, including in the Arctic. What I touched on in my oral statement has to do with the extended continental shelf. If you know about this, under international law, the Law of the Sea, the country with the coastline gets the first 200 miles off its coast as its continental shelf, regardless of what it looks like down there, what it is made out of. And then——

Mr. GARAMENDI. Exclusive Economic Zone.

Mr. BALTON. No, we are talking about the sea floor under——

Mr. GARAMENDI. OK.

Mr. BALTON [continuing]. The Exclusive Economic Zone, the continental shelf.

Mr. GARAMENDI. Got it.

Mr. BALTON. So you get the first 200 miles as a given. But then, if you can demonstrate that the area beyond 200 miles meets certain tests set out in the Law of the Sea Convention, you can claim that, too. And there is a process set out in the Law of the Sea Convention to guarantee recognition by other countries to this area of sea floor.

The area of the U.S. continental shelf beyond 200 miles in the Arctic and elsewhere may be two to four times the size of California, may have trillions of dollars of resources under there. But as a nonparty to the Convention, we don't have the process to go through to get the international recognition of our continental shelf beyond 200 miles. That is a serious disadvantage for the U.S. There are others, as well, but I think it is one of the most compelling reasons why——

Mr. GARAMENDI. What are the issues why it has not passed over the last, what, 15 years or more?

Mr. BALTON. You probably should ask some of your counterparts in the Senate. This administration——

Mr. GARAMENDI. No, I am asking you for your opinion.

Mr. BALTON. Well, I am saying this administration——

Mr. GARAMENDI. Don't be diplomatic, just tell us.

Mr. BALTON [continuing]. The last administration, the administration before that have all supported it.

Some of the complaints we have heard have to do with worries about dispute settlement under the Convention. There is compulsory and binding dispute settlement over most disputes that might arise under that. We think that is actually a good thing. We are likely to be the plaintiff in most cases, and use the dispute settlement mechanism to enforce the rules of the Convention, which are favorable to the United States.

There are also some concerns about the sharing of resources under the Convention.

Mr. GARAMENDI. OK. I want to—better move on here.

We have not really had a discussion about the two sea routes, and specifically the Northern Sea Route, which is adjacent to Russia. Just quickly, let's get that on the table so we understand what

the implications are for the U.S. Coast Guard, the Navy, and then the diplomat issues.

Admiral NEFFENGER. Yes, sir, thank you. As you know, the Northern Sea Route is a route that was—is proposed and developed by the Russian Federation, which travels along their northern Arctic coast, and it allows for, under some circumstances, significantly shorter route times from Europe to Asia for certain types of cargo. That sea route—the Russians, 2 years ago, established the Northern Sea Route Administration, and established a series of regulatory requirements that have to be met in order for vessels to use that. They really are developing this as a potential trade route.

It has largely been used intra-Russia right now. They are moving from port to port within Russia. There have been a couple of transits across that. We are seeing still in the double-digit numbers, not much more than that. I think some 47 vessels transited the Northern Sea Route last year. I can get the exact number for the record.

[The information follows:]

Seventy-one (71) vessels transited the Northern Sea Route in 2013.

Admiral NEFFENGER. But the implications for us are that all of those vessels will travel—if they are making the full transit, will travel through the Bering Strait, which, as you know, in its narrowest point, is within about 20 miles or so of the Russian Federation. That means that if there were to be a maritime casualty in those straits, it would directly affect U.S. interests, and could potentially do significant damage to U.S. environmental concerns in Alaska.

The other concern is simply the management of that traffic through there, understanding, you know, how to do so safely.

So, I would say that the—as we—it will be interesting to watch the development of the Northern Sea Route. I know that the Russian Federation has—sees that as one of their key economic development issues with respect to their Arctic coastline. What we are mostly seeing is gas and oil moving across there. That poses probably the concern that, if you had a casualty, it could be one that would be significantly worse than, say, a cargo vessel moving through there.

Mr. GARAMENDI. I will come back. I will take up the issue second round.

Mr. HUNTER. Mr. Rice would be recognized right now, but we are going to recognize Mr. Coble because of his seniority and Coast Guard service. And he hates waiting.

Mr. COBLE. I apologize for my delayed arrival. Admiral Neffenger, at the subcommittee fiscal year 2015 budget hearing in March Admiral Papp expressed his concern that the Coast Guard could not afford to acquire a new polar-class icebreaker on its own without significantly delaying its current program to replace its aging fleet cutters and aircraft. I think the chairman touched on this, at least indirectly. What say you in response to that? Do you embrace Admiral Papp's conclusion?

Admiral NEFFENGER. Yes, sir. I would agree with Admiral Papp. I mean he is absolutely right, that under our current fiscal constraints it would be very challenging to insert the cost of a polar

icebreaker into our capital acquisition budget. We—it would displace other existing high priorities, such as the recapitalization of our Medium Endurance Cutter fleet, which is one of our most critical pressing needs.

So, over the next 2 to 3 years we are going to be looking at the—getting a better fidelity on the actual cost to replace, as we look at the requirements and some initial design possibilities, as well as assess the state of the U.S. shipbuilding industry, to actually build an icebreaker, something they haven't done, and a heavy icebreaker is something they haven't done in over 40 years. And that will give us a better idea.

But ultimately, we were going to have to face the question as to how you put additional monies into a budget to pay for what will be a very expensive acquisition.

Mr. COBLE. I realize, Admiral, this is not your shop. But when I was in the Coast Guard, we referred to the Navy as the "Big Outfit." So what does the Big Outfit say in response to my question?

Admiral WHITE. And I hope the Big Outfit doesn't mean we are the fatted calf to pay for icebreakers, sir, but thank you for the opportunity.

We are larger. We certainly have large force structure. But our force structure is designed to meet the mission requirements for national security and defense, as outlined.

These are very austere budget times. We are faced with challenges, in terms of replacing our SSBN force in the future: aircraft carriers, an aging fleet of other surface combatants, submarines and aircraft. We have no plan to build an icebreaker. We have no mission for icebreaking. Therefore, we see the great partnership that I know you are aware between Navy and Coast Guard, sir, as the means by which we will rely on the Coast Guard for that mission, as it stands right now. We are happy with that, and we are happy with the Coast Guard's assessment on how they are going to meet those mission requirements in the future, sir.

Mr. COBLE. Ambassador, you mentioned that there are other issues in the Arctic, in addition to the Coast Guard icebreaker issue. Are any of those other issues as pressing for resolution as is the icebreaker issue? That may be subject to personal interpretation.

Mr. BALTON. Yes, that is kind of an open-ended question. Here is my best answer for you, sir. Yes, there are other compelling issues in the Arctic beyond those that have direct concern to the Coast Guard and the Navy.

Ways of life in the Arctic are changing very rapidly, as the conditions in that part of the world change, for the indigenous and subsistence populations, particularly in the northern part of Alaska, Canada, and Greenland. The role of our Government must be to help adapt to the changes that are coming. This includes failing infrastructure, because of permafrost thawing; coastal erosion; health issues that are arising. Those are some of the other compelling issues that I see there, sir.

Mr. COBLE. Gentlemen, thank you for being with us. Appreciate it.

Mr. Chairman, thank you for your courtesy. I yield back.

Mr. HUNTER. Thank the gentleman. The gentleman from Washington is recognized.

Mr. LARSEN. Thank you, Mr. Chairman. Apparently I have got the little kid's chair from Thanksgiving, so I will try to sit up higher.

[Laughter.]

Mr. LARSEN. So I was wondering, Admiral Neffenger, could you tell us more about the preservation work the Coast Guard is doing on the *Polar Sea*, and then tell us how that work affects decisions about its future? And third, let us know when the Coast Guard will come to a final decision on what to do with the *Polar Sea*.

Admiral NEFFENGER. Yes, sir. As you know, the *Polar Sea* has sat dockside for the past 2½ years in an unmaintained status. The current—it has not had preservation work done to preserve it for a long period of time. And what I mean by that is we put her into a dockside status, but still in commission.

There is $8 million currently in the Senate mark of our appropriations bill, which will provide the funding necessary to do preservation work, to dry dock the vessel, to blank off all the overboard discharges, and to arrest the current condition of the vessel. Once that is done, then we will have to take a detailed look at it to determine what the true work list and cost would be to reactivate the vessel.

So, the reactivation remains an option for us, but we don't currently have plans to reactivate it. The current plans are to do the preservation work necessary to put it in an arrested status, and then conduct the detailed engineering review to determine what systems would have to be upgraded and renewed in order to bring it back into service.

Mr. LARSEN. So the business case analysis the Coast Guard did at the direction of this subcommittee and the full committee that resulted in an approximate $100 million cost to reactivate and begin to use *Polar Sea*, did that $100 million include this approximate $8 million to preserve it, or was that—is that a dollar amount beyond the $8 million?

Admiral NEFFENGER. That would be a dollar amount beyond, as I understand it, and I will make sure I get that correct for the record. But, as I understand it, the—that $100 million was a snapshot in time, if we were to have begun at that point to reactive the vessel. We believe that there has been some additional deterioration in the 2½ years it has been sitting. And it is not as if it is—we are actively not concerned about that. But——

[The information follows:]

The $8 million for a preservation drydocking of *Polar Sea* is in addition to the $100 million reactivation estimate provided in the Coast Guard's Business Case Analysis.

Mr. LARSEN. Well, it doesn't rain a lot in the Northwest, so it is probably not——

[Laughter.]

Admiral NEFFENGER. But I suspect it will be something more than $100 million, once we do the assessment. We learned a lot in the reactivation of the *Polar Star*, and we have discovered some things with respect to the systems on the *Polar Star* that we would

have to upgrade on the *Polar Sea*, were we to bring her back in service, as an additional bridging strategy, what we consider longer term needs.

Mr. LARSEN. Right. You are right, sure.

So, Admiral White, I came in at the end here, and—of your answer to your question. I got the gist of it. But can you tell—give me a sense, and the subcommittee a sense of how the Navy was engaged in the construction of our last icebreaker, the *Healy*? About 1990-ish.

Admiral WHITE. Yes, sir. In the 1980s, Congress provided the funding that had been set aside to build *Healy* to the Navy to run the acquisition program. Then, in the building of *Healy*, it was a team effort. So the program management and the actual building, outfitting, transition of operations, was a Coast Guard/Navy partnership approach. But it was purely because the funding was put into our shipbuilding coffers, not out of hide, as it were, to do that, sir.

Mr. LARSEN. So it was a separate dollar amount, and it was part of the overall shipbuilding account, set aside within the Navy shipbuilding account?

Admiral WHITE. Yes, sir.

Mr. LARSEN. Is that how that worked? OK, yes. Admiral Neffenger, any comment on that?

Admiral NEFFENGER. I think he is accurate on that score. I don't—I wasn't involved in that——

Mr. LARSEN. Sure.

Admiral NEFFENGER [continuing]. At that time, with the details on that. But I do know that the money was given to the Navy shipbuilding account at the time, and we leveraged the capabilities of NAVSEA and Navy acquisition professionals to help us with that acquisition.

Mr. LARSEN. Yes. And I will just finish with Ambassador Balton, but with a preface. I met with the Ambassador to Singapore 2 weeks ago, and they are getting observer status with the Arctic Council.

Can I rephrase? I will just say that again. Singapore is getting observer status with the Arctic Council. There is a good reason for that, and that is because of Singapore's long interest in providing support services in the natural resource space, and they see that as important. And if Singapore is doing that, there are many other countries doing that. And I think the U.S. is perhaps falling a little bit behind on Arctic Council.

So, I want to know what is the administration doing to respond to the GAO findings that have come out regarding the U.S. policy towards the Arctic Council?

Mr. BALTON. Thank you, Congressman. Yes, you are absolutely right. Singapore has already obtained observer status in the Arctic Council, along with, at the last meeting, Japan, South Korea, China, India, and Italy. Plus, there were others granted observer status before that. Clearly, interest in the Arctic region is rising, including among States very far from the Arctic indeed.

Yes, we participated in the GAO audit. We very much appreciated their attention to the issue. We have embraced their recommendations. We are going to do better to make sure that the

work of agencies within the Arctic Council and pursuing Arctic Council projects are properly tracked. We accept those suggestions from GAO.

Mr. LARSEN. All right. Well, I appreciate the indulgence for a little extra time. And we will help you track those findings, as well.

[Laughter.]

Mr. BALTON. OK.

Mr. LARSEN. Great. Thank you, Mr. Chairman.

Mr. HUNTER. Thank the gentleman.

Mr. Jolly is recognized.

Mr. JOLLY. No questions.

Mr. HUNTER. No questions?

Mr. Sanford, any questions?

Mr. SANFORD. Yes, sir. This may or may not be the case, but I have heard it suggested, and that is there is a yearly run down each—so I am going to the opposite side of the world, but it ties to sort of asset utilization and, therefore, service life of what is obviously a rare resource, Navy or Coast Guard or—in this case, obviously, only Coast Guard—in the world of icebreaking, and that is that there is a yearly run down to McMurdo Station during their summer to open up the channel into McMurdo. It is used, essentially, for one ship, as I understand it. And then the ship heads back up to the Northwest.

But it is apparently a month down and a month back, sort of a 2-month voyage. A, is that correct? And what someone suggested in the brief conversation I had in this matter was that there might be cheaper alternatives to doing that, that in some ways taking 2 months to run an icebreaker down to the Antarctica and back is a very expensive way of doing business. And I would be curious to hear you all's thoughts on that, because, you know, if we didn't use it that way, it would obviously open up some other alternatives, in terms of sea routes in the North.

Admiral NEFFENGER. Well, and on your second panel you have got the National Science Foundation, Dr. Kelly Falkner, and she can speak directly to the impact of that operation on U.S. national interests.

The Coast Guard support to that is, indeed, to break out the channel in McMurdo. And although it is for a couple of ships that come in, those ships are very critically important to the—all the operations that we have going down there.

And during my recent visit down there this past February, I had a chance to spend some amount of time looking at not only the scientific research that is going on, but the day-to-day real-time data that is being pushed out of there. So I would tell you that it gave me an appreciation for how important——

Mr. SANFORD. No, no, I wouldn't question National Science Foundation's work in Antarctica. But what I would question is is there a—I mean does any cheaper alternative jump out to you all, as a taxpayer, other than running an icebreaker a month down and a month back.

Admiral NEFFENGER. Yes, sir, and I think that is a fair question. But the—I think it goes back to maybe the point that I made earlier, and that is that, you know, these are remote regions by definition. So it is going to—there is a certain amount of cost just associ-

ated with getting to that region, if we decide that there are interests in being there.

And what we found is that there is very little—despite the numbers of icebreakers that other nations are operating, there are very few actual heavy polar-class icebreakers in the world that are capable of conducting that mission in a safe and responsible and efficient way. And so——

Mr. SANFORD. If I might interrupt, what was suggested—and again, I would be curious to get your professional opinion—was that contracting with some of those other governments could take care of the McMurdo station without the 2-month lift down and back, and reserve our activity for further north. True or false?

Admiral NEFFENGER. Well, they—and I know the National Science Foundation did, indeed, contract during—from 2006 to this past—until just before this past year, when the Coast Guard did not have a heavy icebreaker in operation.

And my only answer to that would be that contracting is attractive until the contract vessel is not available any more. And I think what we found is that other countries have pulled back their icebreakers at times when they needed them, and it has left the U.S. Antarctic Program in a challenging situation.

So, if we want assured access as a nation, then I think the Nation needs to decide whether or not it wants to continue to field icebreaker capability, despite what is arguably a very substantial transit time to get down there and back. So I am not sure if that answers your—if that is responsive to your question, sir, but that is——

Mr. SANFORD. Last question. Is it essentially a month down and a month back? Is that correct?

Admiral NEFFENGER. Roughly speaking. Yes, sir.

Mr. SANFORD. Right. I would yield back, Mr. Chairman.

Mr. HUNTER. Thank the gentleman. I got one little quick question. I am going to pass it to Mr. Garamendi here.

Could you answer Mr. Larsen's question on whether—why the determination hasn't been made to—whether you are going to move forward with the *Polar Sea* or not? Because that is what your—you were going to make a determination. You did an analysis, but no determination was made. The determination was, "We have now made an analysis."

Admiral NEFFENGER. Yes, sir. Actually, it is not that we have been avoiding the determination, it is just the timing hasn't yet come forward.

We have got the *Polar Star* in operation for the next 7 to 10 years. That buys us some time to do this requirements analysis and assessment that I described as part of the initial acquisition stages of a new icebreaker. That doesn't say we are going to buy a new icebreaker, it just says, "Let's see what one would look like. What are the requirements we have to build into it? How do we strip those requirements down, and make this as affordable as possible, given the challenging fiscal environment?"

And then——

Mr. HUNTER. It was *Polar Sea* that he asked about, specifically.

Admiral NEFFENGER. Yes, sir. So when you look at *Polar Sea*, we say, "There may be a need to extend this interim heavy icebreaker

capability as a bridging strategy beyond 10 years. If we need to do so, then this—the money that we have requested and that is currently in the Senate mark would give us the ability to begin the process of assessing the true cost to now bring it back into service, and when we might want to bring that back into service," because the challenge would be not to bring it into service sooner than you need it—otherwise you have got overlapping capability, and you may not extend to the point where you could have a new icebreaker in the water.

So, it takes about 3 to 4 years, once you decide to begin reactivating to actually do that. And we think that the—over the next 2 years we will be able to make a determination as to when you want to begin that activation process. Again, I don't know if that is as responsive as you need it to be.

Mr. HUNTER. No.

Admiral NEFFENGER. But the decision is that it is an option. We have a rough idea of what the costs are going to be to do it. We know what it is going to take to preserve that vessel, to hold it in stasis until we can get the monies, if we decide to do so, and then to begin to make the case as to whether or not we think we need that, going forward.

Mr. HUNTER. And I am glad Mr. Young got here. I think this might be our last Arctic hearing that we have on this, because I don't think anybody really wants an icebreaker.

Mr. Young is recognized.

Mr. YOUNG. Mr. Chairman, again, thank you. I have problems, you know, with the Coast Guard and icebreakers. You are talking about repairing an old, old ship. And when you get done, you got a ship that is out of style, out of—it doesn't compete. And you know, I have talked to every Commandant I have had, and I don't know if the Coast Guard is—I guess we are going to pass the law on the last study we had.

I still believe leasing is the option we should take place, not foreign vessels. Have you gone to any of the shipyards and said, "What could you build for us?" Not your—"What could you build for us that could do this mission?" Have you done that?

Admiral NEFFENGER. Yes, sir. There has been a lot of look at the lease. And, as you know, some of the initial evaluations and the detailed analyses don't show a competitive advantage or a cost advantage to leasing. And I can provide those, again, for the record.

But let me give you my general thoughts on that——

Mr. YOUNG. Let me interrupt you one moment. When was the last study done by the Coast Guard on leasing?

Admiral NEFFENGER. It was done 2 years ago, sir.

Mr. YOUNG. Really?

Admiral NEFFENGER. And there is a——

Mr. YOUNG. Have you submitted that to Congress?

Admiral NEFFENGER. Yes, sir, we did.

Mr. YOUNG. You did?

Admiral NEFFENGER. It came in the form of a response to queries, but we can—and we can provide that——

[The information follows:]

The most recent analysis on leasing was reported in the Polar Platform Business Case Analysis, delivered to Congress on November 2, 2011. The

Coast Guard analyzed prospective leasing of currently available platforms and several build-to-lease alternatives.

The analysis concluded that leasing a polar heavy icebreaker is not feasible or cost effective for the Coast Guard in line with the following reasoning:

1. There are currently no U.S.-built polar heavy icebreakers available for demise or time charter. A prospective leasing entity would need to construct a polar heavy icebreaker. Considering the unique design requirements and crewing restrictions associated with multimission operations and defense readiness, and lease terms exceeding that allowed under Office of Management and Budget (OMB) guidelines, a lease would prove more expensive to the Government than purchasing a polar icebreaker.
2. OMB Circular A–11, Preparation, Submission, and Execution of the Budget (Appendices B and C) requires agencies to score all long-term lease funding authority upfront in the year the lease is started. This budgetary requirement makes it difficult, if not impossible, to execute long-term capital asset leases, especially considering the high cost of polar heavy icebreakers.
3. Contract structures are typically more complex including sophisticated termination liability processes, lease termination clauses and contingent liability clauses which will be difficult to calculate and negotiate, which increases uncertainty and cost risk for both any prospective leasers and the Government.
4. Unless capable of self-financing, the leaser would be obligated to obtain financing for prospectively leased ships and aircraft, creating the potential for liens which, in cases of a leaser's financial difficulty, could impact the availability of the polar heavy icebreaker to conduct its missions as required.
5. The maintenance support method and costs for nonstandard assets are unknown but would need to be included in the cost of leasing commercial assets. Limited flexibility in maintenance planning may restrict the ability to surge assets or incur significant costs by breaking the terms of the lease. Emergency or unscheduled repairs, which are more likely due to the nature of icebreaking operations, would result in additional costs.
6. 14 U.S. Code 665 prohibits constructing a U.S. Coast Guard vessel in a foreign shipyard unless the President determines it to be in the national security interest of the U.S. to do so and transmits the determination to Congress. The Coast Guard currently has no plans to construct or lease a heavy icebreaker built in a foreign shipyard.

Mr. YOUNG. I would appreciate that.

Admiral NEFFENGER. The real challenge—it is both a challenge with respect to requirements in the build, a challenge with respect to sovereign requirements, if—as you are operating a military vessel. Some of those are surmountable.

But the real challenge is—well, it comes on a couple fronts. There is a scoring issue. Again, that perhaps is surmountable, but there is a scoring issue, which actually makes a lease less desirable, in terms of costs, than an outright purchase. There is the fact that we tend to operate our vessels for 40 to 40-plus years. And so leases tend to be short-term solutions, bridging strategies to longer term.

For example, we leased our airborne use of force helicopters while we were arming and preparing our existing helicopter fleet for service. That provided a good, you know, interim bridging strategy until we could get an armed helicopter in place in our existing fleet.

The other problem is that you still have to build heavy icebreakers. There are no heavy icebreakers available for lease. So

you still have to go through the requirements process, and we are still looking at a number of years.

But the real question is, does a lease answer the question for that long-term need? If you only use it for a short period of time, then you are going to amortize those costs over a much shorter period.

Mr. YOUNG. Well, again, Mr. Chairman, you know how I feel about this. I actually believe that I can get a proposal to you, if you would be receptive, for a vessel to do the job for a lot less. Because you are not going to get the $10 billion from this Congress to build a new icebreaker. That simple. You are not going to get it.

Admiral NEFFENGER. Yes, sir.

Mr. YOUNG. You can ask all you want, you are not going to—in the meantime, we don't have icebreakers, and all the rest of the countries do have icebreakers. I am looking for a solution to a problem, has American-built icebreaker in the Arctic.

Admiral NEFFENGER. Well, yes, sir. We would evaluate any proposal that comes our way. We are—like you, we are interested in finding effective solutions to what is a daunting challenge, to put heavy icebreaker capability back on the water.

Mr. YOUNG. Mr. Chairman, that is—I do appreciate your having this hearing, because we are an Arctic nation and, you know—of course, we may be—cart before the horse, or horse before the cart, I don't know which one it is going to be. A lot of scientists I talk to, contrary to what people in this audience may believe, we may be not having—other than a tremendous need for big icebreakers, because it may not quite be as warm as they think it is up in the Arctic. Everybody says it is going that way, but we will see.

I want to be flying over this area when I am long gone, as a raven. And I want to say if your ancestors get plopped on, it is going to be me saying, "I told you so."

[Laughter.]

Mr. YOUNG. So thank you, Mr. Chairman.

Mr. HUNTER. I envision Don more as an eagle when he comes back.

I have got a quick question. What if the Coast Guard just went for search and rescue, navigation aids, fisheries, enforcement, oil spill recovery? Forget about the other stuff that other agencies want you to do, and the Navy's not—if they are not going to help you, they are not going to help you. How much would that cost? Just a Coast Guard enforcement-type icebreaker to be up there, clear the ice, rescue vessels, and not do anything with national security, meaning not be able to operate any type of military operation off of it. What would that cost?

Admiral NEFFENGER. I can't give you a dollar amount, but what I will tell you is that is essentially what we are looking at, through the requirements process. We have spent a lot of time talking to other agencies in the work, and we said, "Look, if we build one of these things, we would like to build, basically, a heavy icebreaker, and we don't want to load it down with things that detract from the ability to break ice," because, as you know, the more stuff you put on to a vessel, the more requirements you ask of it, the more compromises you make, in terms of basic hull design, and the like, particularly with an icebreaker.

What I would tell you is that we will probably still need a heavy icebreaker, even if you are only conducting Coast Guard missions, because you still need the ability to access—and one of the things, as I talk to scientists who are looking at a receding ice pack—you know, receding doesn't mean disappearing, to Mr. Young's point. And what you find is that sometimes you have actually much more challenging ice conditions as a result of that, because you have ice flows moving, they collide into one another, they create pressure ridges, and they create much more opportunity, like this character that we just rescued from the ice in the Northwest Passage, to get beset in the ice and get into trouble real fast.

In fact, we saw an example of that in the Antarctic last year, where you had a medium icebreaker from the Chinese and a medium icebreaker from the Russians beset in the Antarctic ice. And, fortunately, before we had fully diverted to go rescue them, the ice pack shifted, as a sort of wind shift, and they got themselves free. But they were in danger of being there for some extended period of time, because they didn't have the capability to break themselves out.

So, you always want that capability. But I would agree with you, that you want to reduce the requirements and descope them as much as possible, so that what you have is a purpose-built, heavy icebreaker that can conduct the basis round of Coast Guard missions.

Mr. HUNTER. Thank you.

Mr. Garamendi?

Mr. GARAMENDI. Just quickly, I think for all of us on this side of the panel, the *Healy* gives us an opportunity and a thought process on how it might be done. Money in the defense budget was used to build the *Healy* through the Navy, a process that we should take a look at, if we are serious about having a new heavy icebreaker.

I want to go back to the Northern Sea Route. We were discussing that issue. It seems to me to be one that we need to understand, relationships with Russia and the rest. Admiral White, you were going to take up that issue.

Admiral WHITE. Yes, sir, Ranking Member Garamendi, thank you.

The Northern Sea Route represents the most navigable sea route that is open for certain periods of time during the late summer during the ice minimum in the Arctic. We anticipate, by the mid-2020s, that it will be ice free, which, under international definition, means less than 10 percent ice coverage, for up to 6 weeks per year. That represents significant amount of transit across that passage, even without necessarily having to have an icebreaker.

We look at the Northern Sea Route, and especially the entrance to it through the Bering Strait, as a strategic crossroads that we are concerned about, just like we are all those crossroads, this one especially because we own part of that strategic crossroads. So, as we monitor what is happening in the Northern Sea Route, we do so from a national security perspective, but also understanding that the way that these routes unfold in the Arctic, we anticipate that they will do so peacefully, with low risk of conflict. We have no anticipation of that.

We also, as I mentioned, are looking for a deepwater route to start opening up in the mid-2020 timeframe, which would be near the pole, and would provide another alternative, although it would unfold and open up more slowly, certainly, than the Northern Sea Route. But all these routes are going to change the way that the Arctic is looked at, and we are monitoring them closely, as we watch our missions evolve, sir.

Mr. GARAMENDI. Thank you.

Mr. BALTON. Thank you, sir. I don't have much to add. You suggested that relations with Russia are problematic; that is certainly so. However, our nations do have common interests in the Arctic, and one of them is to prevent or prepare for the possibility of a casualty in the Bering Strait region.

And so, even in these difficult times, we need to be working with all of our neighbors, regardless of other problems, to——

Mr. GARAMENDI. Well——

Mr. BALTON [continuing]. Prepare for just that.

Mr. GARAMENDI. The Northern Sea Route appears to be totally within the Russian sphere of influence. That is, the economic——

Mr. BALTON. Yes, that is true. But vessels that pass all the way through the Northern Sea Route come through the Bering Strait.

Mr. GARAMENDI. Understood.

Mr. BALTON. And that is where our interests kick in, of course. Because, if there were an accident there, the effects in Alaska and the United States would be palpable.

Mr. GARAMENDI. Is that northern route, under the current Russian program——

Mr. BALTON. Yes.

Mr. GARAMENDI [continuing]. Open to all?

Mr. BALTON. Yes, I do believe so. However, there are requirements Russia has put in place for escorts, Russian escorts, icebreak escorts and others.

Mr. GARAMENDI. I noticed the admiral took a real deep breath as you began.

[Laughter.]

Mr. GARAMENDI. So finish, and then the admiral——

Mr. BALTON. No, I was just trying to recall what I had heard about that. But the answer is yes.

Mr. GARAMENDI. Admiral, anything to add?

Admiral WHITE. With the qualifier the Ambassador put in, I agree. The Russians are very careful, in that they—certain ships going through there must be escorted during certain parts, because of the concerns with navigating safely, the hazardous conditions that are involved, and some of these choke point areas going through the Northern Sea Route. So they do also require that vessels meet a certain limit through the Polar Code and other requirements, in terms of the ship's ability to maintain and sustain itself in going through those passages.

So, it is open with conditions, I think, is the best way to say it, sir.

Mr. GARAMENDI. Very good. I have completed my questions on this particular panel. So I will yield back what time there is. Thank you.

Mr. HUNTER. I thank the ranking member. Mr. Sanford is recognized.

Mr. SANFORD. I don't want to be a broken record, but I do want to follow up on what Chairman Young was saying, which is this whole leasing alternative. Because when you think about it, essentially, about a third of our heavy-duty icebreaking capacity is built around that trip down to McMurdo and back. You know, settling in after you get back, the trips through the South Pacific and back up.

And therefore, I mean, if you have that kind of time that is allotted to that one mission in a multibillion-dollar asset, it just begs this larger question of free up that time, have that asset utilization available for the Northern Sea Route and other, and look at the leasing option that the chairman was talking about. And I would yield back.

Mr. HUNTER. Thank the gentleman. Mr. Larsen?

Mr. LARSEN. Thank you, Mr. Chairman. Just to clarify, I think in my colleague from Alaska's excitement to be a raven, he said an icebreaker cost $10 billion. The only estimates I have seen are anywhere from $800 million to $1 billion. Still a lot, but not $10 billion. Is that right?

Admiral NEFFENGER. That is correct. Those are current, rough order estimates.

Mr. LARSEN. Unless you want to buy 10. I will yield to Mr. Young.

Mr. YOUNG. Well, as far as I am concerned, I got that number because I thought we were going to ask for 10. I mean I never saw an agency that didn't have——

[Laughter.]

Mr. LARSEN. Duly noted. Duly noted. The other thing I just want to clarify, having been here late—but I understand a lot of discussion was taking place around icebreakers—but implementing Arctic policy is a diplomatic—certainly more and more diplomatic effort. But from a Coast Guard perspective, icebreakers do not a policy make. There are other assets and other missions you have to implement up there. And you all are trying to figure out how to do that. Is that right?

Admiral NEFFENGER. Yes, sir. And I had mentioned earlier that we have a number of initiatives to implement our Arctic Strategy.

Mr. LARSEN. Yes.

Admiral NEFFENGER. But some of those are policy in nature. They include support to the chairmanship of the Arctic Council coming up, and they also include support to the Arctic Council itself. We serve on a number of the working groups. And, in fact, directly involved in the negotiations of the two agreements that were referred to on search and rescue, as well as on oil spill response.

We are also looking at, in conjunction with this idea of an Arctic Coast Guard forum as a way for the Arctic Council nations and the operating agencies, the maritime agencies, the Coast Guards or the Coast Guard-like navies of the Arctic nations, to work together, to find a way to not just implement those agreements, but to think about how you would share information, how you would monitor the sharing of that information so that you have awareness of what

is happening, how you would do—conduct joint exercises, and the like.

So, all of that is designed to take the policies that are being discussed, and figure out how you implement those in a real-world basis, because that is what we care about. Somebody hands us a policy, you think, "Well, how am I going to actually carry this policy out?"

We are also looking at standing up a Center for Arctic Studies and Policy at our Coast Guard Academy, and this is a low-cost standup. This is really an establishment of a venue to begin to look at those, at the operational implications of policies that are being developed with respect to the Arctic. And it will give us a chance to, again, to provide an academic setting for sharing of that information.

But I think what I owe you is—the committee is just the explanation of that Implementation Plan, and it lays out a number of the policy-related initiatives that we have, with respect to operations in the Arctic. But it largely centers on understanding what is happening up there, working with partners, and then looking at governance issues and how you would implement those.

[The information follows:]

The Implementation Plan for the Coast Guard's Arctic Strategy centers around 12 initiatives. These 12 initiatives carry out our strategic objectives of Improving Awareness, Modernizing Governance and Broadening Partnerships. The 12 are outlined below:

1. Enhance Operation Arctic Shield: Operation Arctic Shield is our mobile and seasonal operational presence in the Arctic. This initiative seeks to enhance our operational effectiveness to meet mission demands. Operations include air and sea patrols for search and rescue, maritime domain awareness, training, and protection of sovereign interests; exercises with Federal, State, local, tribal, industry, and international partners; and evaluation of technologies for pollution response.

2. Improve Maritime Domain Awareness: Maritime domain awareness (MDA) is a tool used for effective Coast Guard Operations. MDA involves collection, analysis, and understanding of data pertaining to a wide range of information including vessel locations, awareness of current and historical passengers, crew ownership, and financial relationships; what activities the vessels are conducting; what cargoes they may be carrying; and what natural conditions they are facing—wind, seas, tides, currents, storms, ice conditions, and marine mammal migrations. With our Federal, State, local, tribal and international partners, the Coast Guard is developing improvements within this initiative to provide a more complete operational picture of activities in the Arctic.

3. Recapitalize Polar Icebreaking: Heavy icebreaking capability is critical to providing assured access to the Polar Regions for the U.S. and executing the Coast Guard's statutory responsibilities in areas such as search and rescue and marine environmental response. The Preliminary Operational Requirements Document (PORD) Integrated Product Team (IPT) has gathered and compiled Coast Guard and external stakeholder requirements (Department of Defense, National Science Foundation, Department of State, Department of Homeland Security, etc.). The PORD is currently in concurrent clearance. The Operational Requirements Document (ORD) and Alternatives Analysis has an estimated completion date of May 2015.

4. Improve Arctic communications capabilities: The harsh environment in the Arctic has hampered development of a robust communications infrastructure. The Coast Guard is working with the Department of Defense to evaluate gaps in communication capability and identify communications needed to support military operations in the Arctic region.

5. Continue International Maritime Organization (IMO) Polar Code Development: The United States is working through the International Maritime Organization (IMO) to develop and achieve adoption of the Polar Code, which includes both mandatory and recommended provisions, to cover the full range of safety, design, construction, equipment, operational, training, communications and environmental protection matters relevant to ships operating in the Arctic and Antarctic.
6. Promote Waterways Management: The Coast Guard is developing Arctic waterways management regimes including aids to navigation, vessel tracking, and ship routing in cooperation with international partners to ensure safe, efficient, and free flow of maritime traffic.
7. Support Arctic Council and U.S. Chairmanship: The United States will chair the Arctic Council from May 2015 to May 2017. The Coast Guard expects to play a significant role due to our existing engagement in Council activities. The Coast Guard is currently participating on the Arctic Council Oil Spill Prevention Taskforce and has served on two previous taskforces that established the 2011 Arctic Search and Rescue Agreement and the 2013 Oil Spill Prevention and Response Agreement. The Coast Guard is also active within the interagency process, known as the Arctic Policy Group, in preparation for U.S. chairmanship of the Arctic Council in 2015.
8. Establish an Arctic Coast Guard Forum (ACGF): The Coast Guard proposes to establish an Arctic Coast Guard Forum to bring all eight Arctic coast guards together to collaborate on Arctic issues. Modeled after the North Pacific Coast Guard Forum, the ACGF will be a unique arena where the maritime governance service of the Arctic countries discuss coordination of exercises, strengthen relationships, and share best practices. The first "expert-level" meeting of the ACGF occurred March 2014 in Canada, and garnered enthusiastic approval of concept. A senior leadership meeting will occur in September 2014 to approve the Terms of Reference and issue a joint statement.
9. Establish a Center for Arctic Study and Policy: The Coast Guard will develop a think tank to study the operational implications of policies that are being developed with respect to the Arctic.
10. Establish an Arctic Policy Board: The Coast Guard is working with DHS to develop an Arctic Policy Board under the Federal Advisory Committee Act. The Coast Guard will seek Board members from industry, science, academia, tribal communities, environmental groups, and other stakeholders. It will provide a broad range of expertise to the Secretary of Homeland Security on safety, security, and stewardship matters relating to the Arctic region.
11. Create an Arctic Fusion Center: The Coast Guard plans to study and, if warranted, implement a Fusion Center to collect and disseminate critical information with Federal, State, local, and tribal stakeholders.
12. Create an Arctic Maritime Assistance Coordination Center: The Coast Guard plans to study and, if appropriate, implement an international center for Arctic mission coordination for search and rescue and other emergency response.

Mr. LARSEN. OK, thanks. And for Admiral White, I will just—I will follow up with you later about the Navy Arctic Road Map. We are—my office is taking a look at that in a little more detail, but I will just follow up with you specifically on that later.

Admiral WHITE. Yes, sir.

Mr. LARSEN. Yes. Thank you very much.

Thank you, Mr. Chairman. Yield back.

Mr. HUNTER. Thank the gentleman. Unless Mr. Garamendi has more questions——

Mr. GARAMENDI. Just a quick question. A lot of the icebreaking activities would seem to benefit commerce, specific ships that may

want to go from here to there. Can you charge for the services, breaking the ice so the ship can pass or get unstuck?

Admiral NEFFENGER. Well, I suppose the best example would be, if you look at the Great Lakes icebreaking mission that we have, we do not charge for those services. And—although, what we have done there is develop a tiered approach to it. We keep the major arteries open, for lack of a better description, and then we leave it to commercial icebreaking services and those contracted for—to open up the entrances into the ports and the small harbors.

We used to do it all, but over the course of the last 6 or 7 years we have really changed that, and trying to reduce to simply the large—you know, basically the maintenance of the main waterway, which is in the interest of the Nation.

Mr. HUNTER. I have got just one last statement, I guess. I have always said whoever—I didn't say this originally, someone else did, but whoever controls the ocean controls the world, right? And now, whoever controls space controls the oceans.

But I think this portends bad things for America. I think you see us with one heavy icebreaker, everybody else with more than that. And I think, in 20 years, you are going to see all of them in the Arctic doing what we should be doing, and not doing it as well as us, or as environmentally safe as we would do it, and we will be watching. We will be talking about all these policy things we would like to implement, and these neat Arctic groups that we talk to ourselves in, but with no actual presence in the area.

I think that is what is happening here. I think we are going to look back in 10 years and have absolutely nothing, because it doesn't seem like it is that big of a deal, because money is not being appropriated or set aside from the Navy's $15 billion defense budget, or acquisition budget that the Navy has. The Coast Guard's budget is only $1 billion a year. You are trying to recapitalize a fleet right now that is 40 or 50 years old. It is not going to happen.

And I guess what I would say is that until you want it to happen, we are not going to hold another hearing like this, unless specifically requested by another Member for a certain reason, because nothing has really changed. I mean there is no Presidential request for this, there is no money being put in by the Navy. I guess the need just isn't there right now. If we are happy to let Russia do it for us, we will have Russia do it for us. We are happy to have them take us into space, too.

Mr. GARAMENDI. They make our rocket engines.

Mr. HUNTER. Then we can do that—yes. So, I guess that is what you are saying, because it is all talk. It is no action. And it seems like it is not that important that we are in the Arctic. Message received here.

We are not going to force you to do what you don't want to do. And if you don't want to be there, and you don't want to build an icebreaker, if you don't want to lease one, or if you are going to do study after study for 20 years to see what the best cost analysis is to do it, then we just won't do it, and we will focus on other things, like making sure we have enough tunafish for the fleets. And we won't be in the Arctic, and that is fine.

So, with that, I would like to call our second panel of witnesses. Thank you, gentlemen. Appreciate it.

Good morning. Our second panel of witnesses today includes Captain Dave Westerholm, Director of the Office of Response and Restoration for NOAA; Dr. Kelly Falkner, Division Director of Polar Programs at the National Science Foundation; and Ed Fogels, Deputy Commissioner of the Department of Natural Resources of the great State of Alaska.

Captain Westerholm, you are now recognized.

TESTIMONY OF CAPTAIN DAVID WESTERHOLM, USCG, RETIRED, AND DIRECTOR, OFFICE OF RESPONSE AND RESTORATION, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; KELLY KENISON FALKNER, PH.D., DIVISION DIRECTOR, DIVISION OF POLAR PROGRAMS, NATIONAL SCIENCE FOUNDATION; AND EDMUND FOGELS, DEPUTY COMMISSIONER, DEPARTMENT OF NATURAL RESOURCES, STATE OF ALASKA

Captain WESTERHOLM. Good morning, Chairman Hunter, Ranking Member Garamendi, and members of the subcommittee. My name is Dave Westerholm, and I am the Director of the Office of Response and Restoration at the National Oceanic and Atmospheric Administration, NOAA, which is in the Department of Commerce. In this capacity I was recently selected to serve as the Arctic lead for the National Ocean Service.

Thank you for inviting NOAA to testify today on our work to implement U.S. policy in the Arctic. I am pleased to follow my colleagues from the U.S. Coast Guard, U.S. Navy, and Department of State, and I am pleased to join here my colleagues from the National Science Foundation and the State of Alaska Department of Natural Resources. We work with all of these agencies to advance U.S. security interests, pursue responsible stewardship, and improve maritime domain awareness, safety, and environmental intelligence in this critical region.

NOAA envisions an Arctic where decisions and actions are based on sound science, and support healthy, productive, and resilient communities and ecosystems. To achieve this vision, NOAA is using state-of-the-art technology and innovative partnerships to improve Arctic marine navigation, provide ocean and coastal observations and weather forecast, promote environmental stewardship, and prepare for and respond to maritime hazards.

Although NOAA provides important stewardship in science in the Arctic region, today I would like to focus my remarks on the services that NOAA provides, which are deemed critical in various Arctic reports to meet our Nation's maritime safety, economic security, and environmental protection needs.

One of these services is charting, and NOAA is responsible for providing foundational data and services to support safe marine navigation and domain awareness. Accurate and up-to-date nautical charts are critical to safe operation, and these charts require not only bathymetric data, but also data on shoreline features, water levels, sea floor characteristics, and precise positioning. NOAA is investing in hydrographic surveys in the Arctic, as well as shoreline mapping missions and tide and current surveys, in order to enhance our navigation products and services.

Furthermore, NOAA is working closely with our partners such as the State of Alaska, the U.S. Coast Guard, Navy, and members of the academic community to provide the data needed for safe navigation, science, and more informed coastal decisionmaking.

Major stakeholders and partners, including those who live, work, or are responsible for activities in the Arctic, also require weather, water, and sea ice information for planning and decisionmaking. NOAA provides this information. However, weather analysis and prediction capabilities are not as robust in the Arctic as they are in other parts of the United States, due to the limited scope of existing observations.

Because of Alaska's vast size, remote population, and environmental conditions, our decision support services are vitally important to Arctic communities. As an example, the decision when to deliver heating and fuel oil to a coastal community may require weather and sea ice outlooks weeks in advance to ensure safe transit.

NOAA is also responsible for delivering scientific support to the U.S. Coast Guard for marine hazards, including oil spills and marine debris, which can pose additional challenges in the Arctic. With decreased summer sea ice, we expect to see continued growth in maritime commerce, tourism, and oil and gas exploration. Given this growth, we must be prepared in the event that a vessel or exploratory drilling unit has an oil spill.

To support our planning and preparedness for spill response in the Arctic, NOAA has been working with all our partners, engaging with Alaska communities, and compiling and developing baseline information on natural resources. We are providing access to critical observations and data through the Alaska Ocean Observing System, and we have launched a web-based tool to assist emergency responders in dealing with incidents called the Arctic Environmental Response Management Application, or Arctic ERMA. Arctic ERMA was tested during the 2013 Arctic Shield operation, in collaboration with the U.S. Coast Guard. Arctic ERMA is again being used in Arctic Shield in 2014 to further enhance our ability to respond to an Arctic incident.

As transportation grows in the Arctic, where there is cargo, tank, fishing, cruise, or recreational vessels, the potential for incidents will continue to grow, and we must be prepared to give the response community the most accurate navigation, weather, and sea ice information possible, as well as sound scientific advice on the most effective response strategies. We will continue to build our services in the Arctic, working with our Federal and State partners, as well as academic institutions, local communities, and industry.

In closing, NOAA plays a unique and important role in providing critical information and services to support safe, reliable, and efficient navigation in the Arctic. I thank you for inviting NOAA to testify today, and I welcome any questions you may have.

Mr. HUNTER. Thank you, Captain. Dr. Falkner is recognized.

Dr. FALKNER. Chairman Hunter, Ranking Member Garamendi, and distinguished members of the subcommittee, we appreciate this opportunity to discuss how the National Science Foundation is implementing U.S. policy and meeting its icebreaking needs for re-

search in the Arctic, as well as for research and operations of the U.S. Antarctic Program that NSF manages on behalf of the United States.

To promote scientific progress, NSF bears a critical responsibility for providing scientists with access to the oceans. In recent decades, the polar oceans have undergone wide-ranging physical, chemical, and biological changes, with implications for global change. Moreover, relatively unexplored Arctic and Southern Ocean areas remain ripe for new discoveries. I refer you to my written statement for important examples of polar marine science objectives.

So, Mr. Chairman, ice-capable research platforms are essential to keeping the U.S. at the forefront of polar research. In addition, NSF also requires heavy icebreaker services to conduct vital annual resupply of our Nation's Antarctic research program.

So, with respect to Antarctic operations, U.S. policy calls for year-round U.S. presence at three research stations in Antarctica: McMurdo, Amundsen-Scott South Pole, and Palmer. These support an active and influential science presence that ensures the U.S. a leading role in governance through the Antarctic Treaty system.

Last year, after a 7-year hiatus, the Coast Guard successfully provided icebreaking services for Antarctic operations via the 38-year-old refurbished *Polar Star*. Barring unforeseen circumstances, the Coast Guard expects it will be able to meet this mission requirement for at least the remainder of *Polar Star*'s projected life of 6 to 9 years. We are now at a critical juncture in planning how to meet this national need beyond this timeframe.

In considering how to best fulfill our responsibilities for the U.S. Antarctic Program, NSF operates, in accord with U.S. policy and instructions contained in Presidential Memorandum 6646, that every effort will be made to manage the program in a manner that maximizes cost-effectiveness and return on investment. Now, going forward, NSF must secure cost-effective and reliable icebreaking services for the resupply mission that is critical to supporting the broad goals of the U.S. Antarctic Program.

For research in the Southern Ocean, NSF-supported scientists primarily rely on two leased vessels: the light icebreaker, *Nathaniel B. Palmer*; and the ice-reinforced *Laurence M. Gould*, both owned and operated by Edison Chouest Offshore of Louisiana. Over the past two decades, this combination of vessels fostered development of NSF's world-class Southern Ocean research and ensured regular resupply and personnel movements for Palmer Station.

In the Arctic, NSF exercises a range of options in order to expeditiously and cost effectively support cutting edge marine research. NSF funded the construction in Marinette, Wisconsin, of a highly science-capable vessel that can operate in ice up to about 3 feet thick. *Sikuliaq*, to be operated by the University of Alaska, will service the U.S. research community from her home port in Seward, Alaska, beginning in early 2015. 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, and within the Arctic Ocean, as ice conditions permit, or under escort of a more capable icebreaker.

The only other U.S. Government-owned research icebreaker is the 15-year-old Coast Guard cutter, *Healy*. NSF and other agencies sponsor Arctic marine research on the *Healy*, and the vessel can routinely operate in ice of up to about 5 feet thick. Since operations began in 2001, the vessel has been tasked at capacity. NSF coordinates with the Coast Guard for scheduling and scientific technical support of this medium-duty icebreaker that can operate in the summer in the High Arctic.

NSF also engages international partners in a variety of ways to facilitate activities of U.S. scientists. International engagement has proven to be a very cost-effective way to leverage our research assets, both in the Arctic and in Antarctica.

In addition, NSF expects to continue to exploit technologies such as autonomous underwater vehicles, surface buoys, and moorings with innovative sensor systems, as these will increasingly provide cost-effective and wide-reaching Arctic and Southern Ocean marine observations.

So, in closing, Mr. Chairman, sustaining U.S. scientific preeminence in the coming decades will continue to demand appropriate research and logistical support, including an efficacious, reliable, cost-effective blend of ice-capable research platforms and heavy icebreaking services.

I thank you for your time and interest, and I will be happy to answer any questions.

Mr. HUNTER. Thank you, Doctor. Mr. Fogels is recognized.

Mr. FOGELS. Mr. Chairman, members of the committee, Congressman Young, my name is Ed Fogels, and I am the Deputy Commissioner of the Department of Natural Resources for the State of Alaska, in the administration of Governor Sean Parnell. I am honored to be here today.

Alaska appreciates the Federal efforts to include us in the deliberations on the National Strategy for the Arctic Region, and the invitation of the Governor's cabinet to participate as part of the U.S. delegation at the Arctic Council meetings. It will be of utmost importance to ensure that the State is welcome as an active collaborative partner in these proceedings.

The United States is only an Arctic nation because of Alaska. Arctic Alaska is mainly remote, presenting challenges that few non-Alaskans could comprehend. Everyday essentials are all dependent on the ability to transport people and supplies across vast roadless areas. As the committee envisions the future of Arctic transportation and infrastructure, the needs and challenges of Alaska's citizens must be kept at the forefront. The very health of our communities depends on us.

We already have a strong framework of existing laws and regulations in place that guide resource management in the Arctic. My written testimony lists all these laws that we have that are specific to Alaska. We also have broad national laws, a long list that guide resource development. We must strive to use these laws and regulations more efficiently, and avoid the unnecessary, overly burdensome application we have seen in recent years.

The State supports the expanded use of Alaska's existing military bases: Joint Pacific Alaska Range Complex; the Joint Base Elmendorf-Richardson; and Eielson Air Force Base. And we believe

these bases and their assets are critical to security in the Pacific and the Arctic.

We need more icebreakers. I really don't need to go into too much more detail, as we have been discussing icebreakers quite a bit today. But needless to say, we do support more icebreakers. The Coast Guard will also need expanded aviation assets in the U.S. Arctic. At this point, we believe that conflicting and unnecessary Federal policies, as well as limited financial means appear as obstacles. Fortunately, Alaska Native Corporations and the State are willing partners to expedite this expansion of these assets.

Let me talk a little bit about mapping. Our Arctic needs better maps. We have mapped the surface of the planet Mars more accurately than America's Arctic. The State is leading the way in the effort to get better mapping, with excellent collaboration from Federal agencies, under the leadership of the Department of the Interior. And we are making good progress. The State has contributed $12 million, the Federal agencies $16 million, but $30 million is still needed to complete our Arctic base map of the State.

We need better oil spill response infrastructure for both future development and for the increased shipping. The United States has highly prospective oil and gas basins in the Chukchi and Beaufort Seas that will provide for the necessary private-sector investment in oil spill response systems.

Let me talk a little bit about our communities. Communities in the Arctic are some of the—have some of the highest rates of poverty, suicide, domestic and sexual abuse, and substance abuse in the Nation. These social issues are clearly linked to the economic well-being of these communities. The Parnell administration has invested in clearing pathways of economic opportunity wherever possible to allow these communities to take control for a better future. Rather than developing redundant or overlapping regulations that hurt our efforts to help these communities, we need to focus on ways we can improve infrastructure for access, and streamline our regulatory process.

An example of what we need to do is to develop an Arctic deepwater port. The State and the U.S. Army Corps of Engineers are working together, and we are already far along in the process of investigating possible deepwater port sites in Alaska. We would like to see expedited analysis, permitting, planning, that would make State port investments more economically feasible and certain.

An example of what we don't need to do in the Arctic is to unnecessarily block our rural communities from developing access, like the Federal veto of a short stretch of road that would connect the community of King Cove to a decent airport. Many lives have been lost because of this community's inability to access this airport.

In closing, I would just like to say that, for over half a century, the State of Alaska has been at the forefront of natural resource management, employing some of the world's most accomplished scientists and technical specialists. We are a model for responsible resource stewardship amongst Arctic nations within the United States. We don't need to increase the already overly complex regulatory burden. We need to look for ways to make the system more efficient. We need to work together to improve Arctic infrastruc-

ture. This is critical for not only the health of our communities, but for the security of the Nation.

Thank you very much for the opportunity to testify, and I welcome any questions from the committee.

Mr. HUNTER. Thank you, sir.

My first question is for NSF and NOAA. You have requirements that you have given to the Coast Guard for what you would like to see in an icebreaker. Are you contributing funds? You have a—Doctor, your funding for NSF is about $7.6 billion a year. What is NOAA's funding?

Captain WESTERHOLM. For icebreaking?

Mr. HUNTER. Just overall. What is your budget? Four billion dollars?

Captain WESTERHOLM. About $4 billion.

Mr. HUNTER. $4 billion, $7.6 billion. The Coast Guard's acquisition budget, again, is just about $1.2 billion. So I am asking. Are you willing to put in money? And, if not, why are we here?

Dr. FALKNER. We do, in fact, reimburse the Coast Guard for the day rates of the services that we need.

Mr. HUNTER. Excuse me, ma'am. Let me clarify. Are you willing to put in money to build an icebreaker?

Dr. FALKNER. We need icebreaking services; we don't need a full-time, heavy icebreaker at our beck and call. And we do not have the resources to support such. So, as I mentioned in my testimony, the most cost-effective way for us to meet our needs is to contract for the time that we need. We have worked successfully with the Coast Guard for many years, going back to the inception of the program in the fifties. At this point in time, they have that one ancient asset that we are relying on.

I think the answer to your question is that NSF is not resourced to build a heavy icebreaker for the Nation.

Mr. HUNTER. I didn't ask that. I asked if you were willing to contribute even a small amount. I guess the answer is no.

Sir? Captain?

Captain WESTERHOLM. So my answer would be very similar in that, you know, we support the Coast Guard's icebreaking capability and their long-range plans, and we are working with them, but NOAA is also not resourced for the icebreaking mission.

Mr. HUNTER. OK. The answer is no. OK. So that is easy. I guess what that means, in the long run, is why should the Coast Guard care about your requirements if you are not willing to put any skin in the game. That is what I would make sure the Coast Guard does not do. Why should they have to spend more on their acquisitions for you, when you are not willing to pay to have it made?

So let's go from that to the next thing I think Mr. Young is interested in, too. When it comes to leasing, Doctor, you lease from Chouest. Is that right? The two smaller——

Dr. FALKNER. Our research vessels are leased from Chouest. We work with the Military Sealift Command to lease our cargo vessel and our tanker.

Mr. HUNTER. Are they operated by civilian mariners?

Dr. FALKNER. They are. It is——

Mr. HUNTER. They are? And that actually——

Dr. FALKNER. Contractor-owned, contractor-operated right now. They can also do Government-owned, contractor-operated leases for us.

Mr. HUNTER. The Coast Guard has told us over and over again that that is impossible. It is impossible to have merchant marines in charge of one of their ships, when the ship's main goal is just icebreaking and research——

Dr. FALKNER. They provide icebreaking services with their breaker. They are not doing the resupply of the fuel, and they are not bringing in—the cargo in, as part of that mission. They are cutting the channel and the ice to McMurdo Station to allow those other vessels to come in.

Mr. HUNTER. But you have a model right now, where you are basically using those leased icebreakers.

Dr. FALKNER. They are not icebreakers.

Mr. HUNTER. Oh, they are not?

Dr. FALKNER. They are ice-reinforced vessels that require escort of a leased breaker——

Mr. HUNTER. The *Nathaniel B. Palmer* and—OK, got you. That is the *Nathaniel B. Palmer* and the—how do you say it?

Dr. FALKNER. Those are our research vessels. That is another set of vessels. What I was referring to before were our resupply mission vessels. And we, through the Military Sealift Command, contract each year for a tanker to bring down approximately 6 million gallons of fuel, and for a cargo vessel to bring down hundreds of containers of materials, and to return materials from the continent back.

Mr. GARAMENDI. Somebody has to break the ice.

Mr. HUNTER. OK, so who actually—who breaks the ice? You don't contract with the icebreakers——

Dr. FALKNER. The Coast Guard broke the ice this year.

Mr. HUNTER. OK.

Dr. FALKNER. Prior to that we had 7 years where the Coast Guard did not have an asset capable of doing the job. And those 7 years, we contracted with foreign breakers to handle that mission.

Mr. HUNTER. Got you. Where does Chouest come in? I am——

Dr. FALKNER. Chouest purpose-built two vessels for us. One is the icebreaker, the light—medium icebreaker that I referred to.

Mr. HUNTER. OK. So Chouest did build an icebreaker for you.

Dr. FALKNER. They did.

Mr. HUNTER. That they operate?

Dr. FALKNER. They operate, right.

Mr. HUNTER. OK.

Dr. FALKNER. They—we, through our prime contractor, contract with them to operate our research vessel.

Mr. HUNTER. OK. But it is an icebreaker, it is a small icebreaker.

Dr. FALKNER. It is.

Mr. HUNTER. OK. And they operate that all the time for you?

Dr. FALKNER. They do.

Mr. HUNTER. OK. Got you.

Dr. FALKNER. And we also have an ice-reinforced vessel, the *Laurence M. Gould*, which runs between Punta Arenas in Chile, to our station, Palmer Station, on the peninsula, and performs both the

resupply and personnel movement for us, as well as does research. And it is a shallow draft vessel, which is necessary at the moment, to get into that station, given the constraints.

Mr. HUNTER. How are you able to lease the icebreaker if CBO scores it upfront in 1 year, the entire lease? Did you have to work through that?

Dr. FALKNER. All of these arrangements were made before the current requirements for scoring were put in place.

Mr. HUNTER. So it wasn't scored in 1 year, it was scored over the life of the lease, like real life is supposed to be.

Dr. FALKNER. Right. This was done quite a while ago now.

Mr. HUNTER. OK, got you. All right, Doctor, thank you very much.

Mr. Garamendi?

Mr. GARAMENDI. Very interesting set of questions, Mr. Chairman. In the earlier testimony, we heard discussions about the cost of a new icebreaker being significantly greater if there are research facilities on board, and it is designed for research. Let's explore that a little bit in the context of the chairman's questions about skin in the game, and participation.

And the specific question is should we build—if we were to build a new heavy icebreaker, would NOAA and the National Science Foundation want to—I guess Alaska, also—want to have scientific capability on that icebreaker? Yes? No?

Captain WESTERHOLM. I will start this time, I guess. So I think the answer is, to the extent that it can be economically done.

And I go back to that—I go back to the chairman's question, and I think I need to amplify the fact that, much like our survey vessels, much like our weather and sea ice forecasting, I mean, it benefits the Nation. The Coast Guard's icebreaking capability benefits the Nation.

So to work ahead on a combined Federal requirement, I think, is a smarter plan than to stovepipe into a single set of missions. So I think——

Mr. GARAMENDI. So the answer is basically, yes, you would want to have scientific research capabilities on the icebreaker.

Captain WESTERHOLM. Those that would support our missions, yes.

Mr. GARAMENDI. National Science Foundation?

Dr. FALKNER. We have participated in the process of defining requirements that Vice Commandant Neffenger described earlier. It is NSF's position that we do not wish to see a heavy icebreaking capability compromised by adding on mission.

We really do need heavy icebreaking in Antarctica. We can't get by with less than that capability.

Mr. GARAMENDI. I am working towards a strategy on how we can find the money to build such an icebreaker. Timing issues are, obviously, in play here. But it seems to me that, in the budgets of the National Science Foundation, and NOAA, and the Coast Guard, and the Navy, and a few others, we could put together the money necessary to build this with each providing a specific amount of capital money for their specific mission requirements.

So, NOAA, you need a—you want an icebreaker that has some capabilities on it. National Science Foundation says, "Yes, but we

don't want to pay for it, and therefore, it is not necessary." OK. But I think we can put together something here, if we put our minds to it. We are going to have to work across our own committees and across various budgets in order to do that. But, anyway, it is the strategy that you may want to comment on at another time.

I want to go to the U.S. Navy and NOAA. We have the navigator of the Navy just sitting behind you. The Navy—The Navigator.

[Laughter.]

Mr. GARAMENDI. How do you coordinate with the Navy on what seems to be the same mission? That is, what is going on, how do navigation, tides, sea floor, all of those things, how does NOAA coordinate with the Navy on what apparently is the same type of mission?

Captain WESTERHOLM. So I would say it is not exactly the same mission, but we do coordinate well with the Navy. I mean, obviously, they need information, but not only mainly in the United States, but worldwide, for operations of defense. But certainly in the United States, some of the survey information that we have, some of the weather, sea ice information, we coordinate. We work together with them at the National Ice Center, as well as the Coast Guard.

So, I would say that our mission is to, you know, chart the waters of the United States. And theirs is to defend the United States. But certainly we work closely with them——

Mr. GARAMENDI. The navigator seems to have a mission, in addition to defending the United States, which is to what the heck is going on in the ocean. What is the weather? What is the tide?

Captain WESTERHOLM. Absolutely, in terms of national security——

Mr. GARAMENDI. I hear not too much coordination from you.

Captain WESTERHOLM. I would probably disagree with that.

Mr. GARAMENDI. And in written testimony, please tell me exactly how you do coordinate——

Captain WESTERHOLM. OK. Yes, sir.

Mr. GARAMENDI. And since Admiral White is still here, answer the same question, please. You can do it in writing. We are running out of time here, so—I know you want to speak. You take that deep breath and want to jump in, and I like that. But you are not at the table at the moment. So, we really need to do that.

Mr. Chairman, we have had some briefings that are in the classified area that I think are pertinent to this issue of both NOAA and the navigator's tasks. And I would like some opportunity to go back through that on the more classified side of it. So, we will do some thinking on that, and maybe have a conversation amongst ourselves on how we might be able to bring that kind of information into this issue.

We have had a good discussion about the type of vessels that are needed, and the like. It seems to me—and I will just make this as my final 8 seconds here—that there is a increasing activity in the Arctic and the Antarctic, climate change being a principal piece of that, and causing it to happen. That is going to require icebreaking capability, more than we have had in the past. And, frankly, I think the problem is ours.

We are hearing basically the agencies or the various Government organizations protecting their current budget turf, and saying it is somebody else's responsibility, when in fact they all share the responsibility, which means we are going to have to coordinate. We are going to have to find some way to pull together the necessary resources from multiple budgets and appropriations so that the task of providing sufficient icebreaking capability can be met.

And so, perhaps from the oil revenues of Alaska we can find money. Perhaps from NOAA, NASA, and the Navy, and the rest, we can pull together the necessary money. With that, I will yield back.

Mr. HUNTER. Thank the gentleman. And the gentleman from Alaska is recognized.

Mr. YOUNG. I can assure the gentleman we——

Mr. HUNTER. Give us your money.

Mr. YOUNG. If we build an icebreaker, we are going to charge the hell out of you. I can tell you that right now.

[Laughter.]

Mr. YOUNG. But this is a national issue, and I think everybody understands that.

But I was interested, Doctor, in your comments. You lease—it has worked well?

Dr. FALKNER. Our leases for our research——

Mr. YOUNG. Yes.

Dr. FALKNER [continuing]. Icebreakers? Yes.

Mr. YOUNG. It has worked well. See, because that is what I am saying, Mr. Chairman. It can work. It is this ingrown "I have got to own it" atmosphere. We have got a problem.

Mr. GARAMENDI. Ask about the heavy icebreakers. Those are light icebreakers.

Mr. YOUNG. Well, they are the same thing. I mean they—we have two ships that I know built capable right now to break heavy ice by a private company that does this, American made. And that is my key, is American made. And I just think we can do it.

I have to say one thing, Captain. Are you aware that NOAA has the authority now to build an icebreaker?

Captain WESTERHOLM. The——

Mr. YOUNG. A high-latitude survey vessel.

Captain WESTERHOLM. Correct.

Mr. YOUNG. Yes. And that was passed through—that is one thing wrong with being here too long—or everybody says that, "been here too long." We passed that law in 2001, and I don't think any time that your organization has asked for that money to build that type vessel——

Captain WESTERHOLM. And, to my knowledge, sir, we haven't. We have asked for ice-capable vessels which can operate in ice, but not icebreaking vessels.

Mr. YOUNG. OK. Well, I mean, I would be interested. And I am like the chairman and the gentleman from California that, you know, with everybody interested in this, I think we can solve this problem, instead of, you know, working together to get icebreaker capability in the Arctic.

And I have to say, Ed, I was proud of you because you finished your testimony exactly on time. You know how rare that is in Con-

gress? I mean very nearly that is about like a rare bird. I go back to my raven, as I was saying before.

Mr. GARAMENDI. You still have 3 minutes.

Mr. YOUNG. Yes, I still have 3 minutes. The—it was brought up by the gentleman of California. What role is the State playing as far as infrastructure in the Arctic for this so-called new boom that is going to occur?

Mr. FOGELS. Yes. Thank you, Congressman Young. I think we are participating in a number of ways. We are working with—right now, with the Federal Government and with the Bering Straits Native Corporation to look at possibilities of developing a new deep-water Arctic port. We are looking at road infrastructure, both on the North Slope and to the Ambler Mining District, about the possibilities of perhaps increasing our road system in Alaska. I believe we are working with the Federal Government to try and improve our aviation facilities up in Barrow, which will be key to any—supporting any future Arctic activity.

Mr. YOUNG. How is the cooperation? You getting pushback from the Federal Government, or are they willing to do something besides talk? Or how is that working?

Mr. FOGELS. Congressman Young, on some fronts we are getting good cooperation. On other fronts we would like to see better cooperation. We are seeing some conflicting policies, Federal policies, as I mentioned in my remarks.

I think that probably the biggest single conflict that I see is this new interest in the Arctic. Wow, we have to do something new in the Arctic. But then there is no funding to go along with it, as I think has been discussed in this committee, too. So——

Mr. YOUNG. And again, for the committee, we—you look at our State. You know, if you take all the land east of the Mississippi River to the Atlantic Ocean, from the tip of Maine to the tip of Florida, that is part of Alaska. And we are surrounded—the State is not as you envision a State, because all those States have got State borders. But we are a body of land on a map that has the State of Alaska scattered all over the State.

And that is our biggest challenge, because the Federal Government has a tendency not to work with the State on these bodies of land, and we do have some on the Arctic. And that is something we have to realize, is this is a—you are State of California. But this is State of Alaska, scattered all over. And it is hard to put this together. And if we don't have cooperation from the Federal—cooperation, not dictation—then we have a real challenge. And that is our biggest challenge we have today.

One last thing, mapping. Are you doing—are you contracting that out? Or how is that working?

Captain WESTERHOLM. We're employing three approaches to surveying in the Arctic. We award contracts to private sector surveying firms, which we have done in the Arctic the last 5 years. We also conduct hydrographic surveys using NOAA's fleet. And lastly, we use data from the Coast Guard, Navy, and the academic community for reconnaissance surveying.

So, to the extent that our trusted partners are able to collect data, and that NOAA is able to use it, we employ all three methods.

Mr. YOUNG. Now, have you mapped the waters from the Arctic north—I am talking about Barrow north—all that activity, as far as shoals, upheavals, mountains, depths? Have you done that?

Captain WESTERHOLM. So the short answer to that is no, there is a lot more to do. We have done some surveying in the High Arctic, such as at Delong Marine Terminal, where Red Dog Mine is located. In 2015, we plan to survey at Barrow, Point Hope, Kotzebue, the Bering Strait, and Port Clarence.

NOAA surveys approximately 500 nautical square miles per year in the Arctic. There are about 40,000 square miles of priority surveying to be done up there. So it is going to take not only our contracting survey effort and our partners, but it will take some time as well.

Mr. YOUNG. OK.

Mr. HUNTER. Thank the gentleman. And let me get this right, too. It seems like NOAA and the NSF and Alaska, just with public-private partnerships, would be happy to do what you—you are able to do what you do without Government-created vessels, meaning you could piggyback on Shell or any of these other big energy companies that are going to be in the Arctic now, the way that they are in the central U.S. now. They are going to hit the Arctic in a big, big way probably over the next 10 to 20 years, right?

So, I guess all we are missing by not having the Government paid-for icebreakers is the Coast Guard enforcement capability of maritime law, and environmentalism, and that type of thing, and the Navy's ability to move freely up there. But I guess those aren't a big deal. So, if you didn't have those, you are happy. you could work off of private ships, right? I mean meaning you could lease them, you could piggyback on Shell or other energy companies that build their own icebreakers to use for themselves. You could do that if you had to, and keep doing what you are doing. Is that correct?

Dr. FALKNER. Provided the assets existed. They do not, at this point in time. What we are talking about is a national mission in Antarctica. NSF has a responsibility for coordinating it because, under the treaty system, an active and influential science presence is central.

But we have had the pleasure of coordinating since 1957 the presence with our military partners, with Department of Defense. We work with the Air National Guard, we work with the Air Force, Military Sealift Command, and the Coast Guard. And we have had a long tradition of that type of cooperation for supporting that national mission.

So, if you are talking about an alternative that doesn't yet exist, we would be making a change.

Captain WESTERHOLM. And I think that, for some of our missions that we fulfill with ice-capable vessels but not icebreaking capability, the answer is yes, we would still be doing some of those, and leasing those.

I think there is some actual scientific work we do right on the sea ice edge. We do some of the oil pollution work in NOAA's Office of Response and Restoration, actually, with the *Healy*, as I mentioned, and Arctic Shield. So there are some missions that we do that benefit from having an icebreaking capability that is able to

get into and out of areas to give us more information that we need for NOAA.

And I would also mention—and I have earlier—that our sea ice and weather forecasts are enhanced by being able to get accurate data right at that edge of where the *Healy* can operate, where vessels with a lesser ice class could not.

Dr. FALKNER. We are capable of operating our own research vessels. We are cooperating with the Coast Guard. The *Healy* exists, and she has done a good job up until now, and she will exist, presumably, for the rest of her service life, and we would continue to cooperate. But if we look beyond *Healy*, we could imagine the science community meeting its needs collectively across Government in other ways. And we have been clear with the Coast Guard about that.

Mr. HUNTER. Thank you. Mr. Garamendi?

Mr. GARAMENDI. I think we are about ready to wrap up, Mr. Chairman. I want to thank you for putting together a very, very important hearing, and the information that is coming forth.

David whispered in my ear that at 500 nautical square miles per year, it is going to take some time to map the 950,000 square miles in the Alaska region.

Captain WESTERHOLM. And the 40,000 priority square miles that we have already identified, correct.

Mr. GARAMENDI. So we are going to be at that some time. The public-private partnerships that are inevitably going to have to take place in order to move that along are something that we should probably be encouraging in multiple ways here.

Mr. Young raised a question about private heavy icebreakers, and I think there are several around. I was reminded there was one that operates off the east coast of Canada for some mining operation, where they are bringing mineral out of that area. So maybe that is something that may be available. We ought to explore that. It seems to be more—and see what potential there is on private icebreakers, private heavy icebreakers, and whether that could be a stop-gap.

I do think we need to have a heavy icebreaker for the U.S. Coast Guard, and I think we can find a way to do it if we pool together the resources from—excuse me, the money from multiple agencies that would benefit from such an icebreaker. And we might best be able to do that in the defense budget. We will talk about some strategies that that might—and the *Healy* might be a strategy that we talk about.

So, all those out there in the defense industry and the defense budget that are protecting your budget, know that I am looking at it.

[Laughter.]

Mr. GARAMENDI. OK. Admiral White, we can talk offline about my question.

That is it, keeping in mind Mr. Young, who went 1 minute and 10 seconds over his allotted time, I yield back.

Mr. HUNTER. I thank the ranking member. Thank you to the witnesses today for your testimony.

And I think one thing, too. If we bring DOD and Coast Guard in on this, you are looking at a $1 billion heavy icebreaker. If you

are looking at science research, and simply the ability to break ice, you are looking at $500 million for a heavy icebreaker. You double the cost by bringing in a defense-capable ship, where you can actually run operations off of it.

So I think that is a way to look at it, too, is, once again, if you are not going to pony up and put skin in the game, then why do you get to even give us your requirements? We don't really care, unless you want to put in some money.

So with that——

Mr. GARAMENDI. Mr. Chairman?

Mr. HUNTER. Yes, yes, please.

Mr. GARAMENDI. You have said several times in this hearing that you don't care. In fact, you care deeply. Otherwise, you wouldn't be——

Mr. HUNTER. Here is what happens here. I have got 4 years to chair this subcommittee, just if everything stays as is. Don Young has been working the icebreaker issue for decades, literally. And it hasn't gone anywhere. And what I see as an unwillingness on behalf of the parts of Government that need this and actually will use it to really try to make it happen, just a lot of talk.

And what is going to happen is we are not going to have a seat at the table when you have these Arctic countries up in the Arctic, doing what they are doing. We are going to say, "Hey, but we have a policy that says this," and they will say, "But you don't have a Coast Guard within 200 miles of us here. So why do we really care?"

And we are going to lose power and influence that way with our allies and with our enemies, and that is what is happening right now, is we are going to fall behind as other countries are ramping up, and we are going to look back in 10 years and go, "Wow, it sure would have been great if we had a presence in the Arctic, because now we are way, way behind." But that is what I see happening here. And it would be nice to get something done within the next decade, instead of having the first meeting on whether we can even build one scheduled over the next 3 years. That is simply too slow, and it is bureaucratic and ineffective.

So, anyway, so thank you all very much. And, with that, the subcommittee stands adjourned.

[Whereupon, at 12:24 p.m., the subcommittee was adjourned.]

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TESTIMONY OF
VICE ADMIRAL PETER V. NEFFENGER
VICE COMMANDANT

ON

"IMPLEMENTING U.S. POLICY IN THE ARCTIC"

BEFORE THE
HOUSE COAST GUARD AND MARITIME TRANSPORTATION SUBCOMMITTEE

JULY 23, 2014

Good morning Chairman Hunter, Ranking Member Garamendi, and distinguished members of the Subcommittee. I am honored to appear before you today to discuss Coast Guard operations in the Arctic Region, the Coast Guard's Arctic Strategy, and how to ensure Maritime Safety, Security and Stewardship today–and into the future–in the Arctic Region.

THE COAST GUARD IN ALASKA AND THE ARCTIC REGION

The Coast Guard has been operating in the Arctic Ocean since 1867, when Alaska was purchased from Russia. Then, as now, our mission is to enforce U.S. laws and regulations, conduct search and rescue, assist scientific exploration, and foster navigation safety and environmental stewardship. The Coast Guard uses mobile command and control platforms including large cutters and ocean-going ice-strengthened buoy tenders, as well as seasonal air and communications capabilities to execute these missions within more than 950,000 square miles of ocean off the Alaskan coast.

Since 2008, the Coast Guard has conducted operations in the Arctic Region to assess our capabilities and mission requirements as maritime activity and environmental conditions warrant. These operations have included establishing small, temporary Forward Operating Locations on the North Slope and in the Bering Strait to test our capabilities with boats, helicopters, and personnel. Each year from April to November we also fly aerial sorties to evaluate activities in the region. We will continue to deploy a suite of Coast Guard cutters to test our equipment, train our crews and increase our awareness of Arctic activity.

The Coast Guard operates and maintains two U.S. polar icebreakers, the U.S. Coast Guard Cutter (USCGC) HEALY and USCGC POLAR STAR. These cutters are sufficient to address the Coast Guard's current polar icebreaking activities and to continue support to the scientific community; however, the USCGC POLAR STAR operates with aging equipment and the recent reactivation effort is expected to extend its lifespan for only another six to nine years. The Coast Guard is completing preliminary requirements evaluation and documentation as part of the acquisition process to acquire a new polar icebreaker to address future needs. A polar icebreaker is critical to supporting key national priorities laid out in the National Security Presidential Directive on Arctic Region policy and the National Strategy for the Arctic Region. We are working with the Administration and other federal agencies to ensure full consideration of capabilities that will cost-effectively optimize benefits to the Nation.

To protect the Arctic environment, the Coast Guard is engaged with industry and the private sector to ensure oversight of pollution prevention, preparedness, and response requirements. Pollution response is significantly more difficult in the Arctic region. In 2010, we tested an emergency vessel towing system north of the Arctic Circle and in the last two years we exercised the Vessel of Opportunity Skimming System and the Spilled Oil Recovery System in Arctic waters. Both of these systems enable vessels to collect oil in the event of a discharge.

In addition to pollution response, 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 improve awareness, contingency planning, and communications. The Coast Guard is also 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 synchronize the efforts of Federal agencies responsible for overseeing the safe and responsible development of Alaska's onshore and offshore energy development projects in Alaska.

Potential increased vessel traffic in the U.S. waters of the Arctic region will require adequate waterways management systems. The Coast Guard is employing our Waterways Analysis and Management System and Port Access Route Study (PARS) methodologies to assess vessel traffic density and determine if a need exists for improved aids to navigation and other safety requirements. We are currently conducting a Bering Strait PARS, which is a preliminary analysis to evaluate vessel traffic management and appropriate ship routing measures. Information from this study, in coordination with other Arctic Nations, will also inform recommendations to the International Maritime Organization (IMO).

Coordination with federal, state, tribal, and international organizations such as the Arctic Council and IMO, as well as industry stakeholders, is critical to ensuring the safety, security, and stewardship of the Arctic region. The Coast Guard is engaging with international organizations and industry, through the Emergency Prevention, Preparedness and Response workgroup of the Arctic Council to develop, implement, and sustain Arctic-wide prevention and response strategies. In addition, the Coast Guard, under the auspices of the Interagency Coordinating Council on Oil Pollution Research, is engaging stakeholders to address critical research and development needs and capabilities for pollution response, and with the Department of Energy for oil spill prevention, in the Arctic environment. The Coast Guard led the U.S. delegation to the Arctic Council that developed the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response, which was signed into force on May 15, 2013. We are also conducting joint contingency response exercises with Canada, and we maintain communications and working relationships with agencies responsible for regional operations including Search and Rescue, law enforcement, and oil spill response.

The Coast Guard is increasing engagement with our peer maritime services from Arctic countries. The Arctic Coast Guard Forum (ACGF), modeled after the successful North Pacific Coast Guard Forum, will be a unique maritime governance group where the eight Arctic countries discuss coordination of exercises, strengthen relationships, and share best practices. Complimentary to the Arctic Council, the chairmanship of the ACGF will reside with the country holding the rotating chair of the Arctic Council. The first "experts-level" meeting of the ACGF occurred last in March 2014 in Canada, and garnered enthusiastic approval of the concept. An executive level meeting will occur in September to approve the Terms of Reference and issue a joint statement.

Our engagement with Alaska Native tribes continues to be mutually beneficial. Our continued partnership has made Coast Guard operations safer and more successful. We are working hard to ensure tribal equities are recognized, and that indigenous peoples and their way of life are protected, including managing our operations in coordination with Alaska Native subsistence activities to ensure de-confliction of these activities during operations. We look forward to continuing to strengthen our relationships with the Alaskan Native tribes.

Working with the Department of Defense, the Coast Guard is advancing maritime domain awareness by testing numerous types of technologies and capabilities for use in the Arctic, including communication systems and unmanned vehicles. We will continue to engage other federal agencies, Arctic nations, international organizations, industry, academia, and Alaskan state, local, and tribal governments to strengthen our relationships and inter-operability.

OPERATION ARCTIC SHIELD

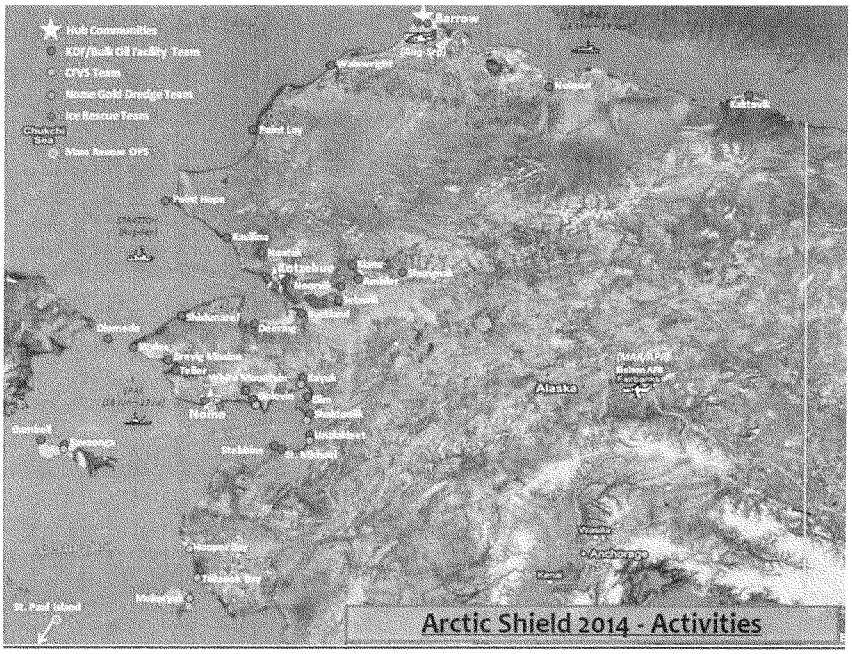
Arctic Shield is the Coast Guard's annual operation in the Arctic region. Using a seasonal and mobile approach, the Coast Guard's executes its statutory missions in the region.

Arctic Shield 2013 focused on Western Alaska and the Bering Strait with a three-pronged interagency operation consisting of outreach, operations, and assessment of capabilities from May through October 2013. Outreach consisted of delivering education and awareness services to Arctic communities and outlying native villages. Operations involved the establishment of a temporary forward-operating location in Kotzebue, as well as the deployment of major cutter forces, air assets, communication equipment, and logistics support to conduct the Coast Guard's missions. Assessment of capabilities involved an analysis of our front-line operations and mission support assets in Arctic conditions. Additionally, the Coast Guard led a spill of national significance seminar and several mass rescue workshops that were conducted in Anchorage, Kotzebue, Unalaska, Nome, Barrow and St. Paul; these workshops identified potential opportunities for improvement in preparedness and response actions to a maritime emergency. Arctic Shield 2013 was carefully tailored to deliver the appropriate set of capabilities to this remote area, and directly supported the priorities in the Coast Guard's Arctic Strategy.

The Coast Guard also continued regular deployment of the icebreakers POLAR STAR and HEALY; the national security cutter WAESCHE; and the seagoing buoy tender SPAR. The crews aboard the various vessels conducted the Coast Guard's statutory missions while providing an operational presence and command and control capability in the region.

Arctic Shield capability assessments included the deployment of a vessel of opportunity skimming system aboard the cutter SPAR and a Canada Coast Guard vessel. The training exercise reinforced crew familiarization with the equipment and built upon the Coast Guard's international partnership with Canada. In September 2013, a multi-agency team of engineers and scientists led by the U.S. Coast Guard Research and Development Center performed testing and evaluation of oil spill detection and recovery technologies in sea ice aboard the USCGC HEALY in the Arctic Ocean.

Arctic Shield 2014 operations are currently underway, where the Coast Guard is focusing on the North Slope and Barrow. Following the three-pronged approach of stakeholder outreach, capability assessment, and operations, the following unclassified schematic outlines our planned locations of activity during Arctic Shield 2014.



We have already conducted ice rescue training exercises and collected scientific data that will be used to further the understanding of the Arctic ecosystem. We will be testing numerous technologies, including communications equipment, cutter-based, unmanned aerial systems and ice radars.

THE NATIONAL STRATEGY FOR THE ARCTIC REGION

U.S. Arctic policy is set forth in the National Strategy for the Arctic Region and its Implementation Plan and the Coast Guard's Arctic Strategy aligns with this policy. The Coast Guard's strategic objectives in the Arctic are to improve awareness, modernize governance, and broaden relationships. In pursuing these objectives, the Coast Guard has initiated efforts that will enhance capabilities to continue performance of our statutory missions as the environment changes. The Coast Guard's efforts to foster safe, secure, and environmentally responsible maritime activity in the Arctic also advance the Nation's strategic objectives of advancing U.S. security interests, pursuing responsible regional stewardship, and strengthening international cooperation.

CONCLUSION

The Coast Guard has been conducting mobile and seasonal operations and targeted capability assessments in the Arctic. The challenges posed by this unique operating environment demand specialized capabilities and personnel trained and equipped to operate in extreme climates. As

human activity gradually increases, the Coast Guard's regional mission profile will continue to evolve.

Operating in ice-impacted waters is challenging, requiring specialized infrastructure and equipment, plus well-trained personnel, to achieve successful outcomes. The Coast Guard will continue to tailor operations and prioritize future collaborative efforts to match risk trends, maximize stewardship of resources, and assess out-year needs to ensure it can serve the nation's interest in the Arctic. This strategy is consistent with our Service's approach to performing its maritime safety, security, and stewardship missions.

While there are many challenges, the changing ice conditions in the Arctic Ocean also present unique opportunities. We look forward to working with the Congress to address how the Coast Guard can continue to support our national Arctic objectives, protect its fragile environment, and remain *Semper Paratus*–Always Ready–in this emerging frontier.

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

Question#:	1
Topic:	Shipping / Icebreakers
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)
Name:	Vice Admiral Peter Neffenger – USCG Deputy Commandant for Operations
Organization:	U.S. Department of Homeland Security

Question: Icebreakers are essential equipment as it relates to the execution of a variety of Arctic activities, including the maintenance of US domestic security. Their growing importance is demonstrated by the investment programs undertaken by other Arctic nations; Russia has a fleet of eight service-ready nuclear powered icebreakers, with a ninth under construction. China owns the world's largest non-nuclear icebreaker and has just launched a second. Canada has committed $38 billion to build additional vessels. In contrast, the US has only two polar-class icebreakers, with a third chartered from the private sector.

Do you believe that we have sufficient capability?

Response: The Coast Guard believes USCGCs POLAR STAR and HEALY provide the capability necessary to address the Nation's currently projected icebreaking needs in the Arctic and Antarctic until 2020-2023.

Question: Do you have a view on why we aren't we investing as much as other nations in what is an increasingly important area?

Response: The Coast Guard recognizes the critical importance of the Arctic, and, as directed in the Implementation Plan for the National Strategy for the Arctic Region, the Department of Homeland Security (led by the Coast Guard) is coordinating with other U.S. government partners to list the capabilities needed to operate in ice-impacted waters over the next twenty years. The Coast Guard is investing in a new icebreaker and leading the development of a long-term plan to sustain Federal capability to perform or support polar operations as defined by USG mission requirements.

Question#:	2
Topic:	Navigation & Communications
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Question: As you know, there are relatively few systems in place to monitor the control and movement of ships in ice-covered waters, and there are serious limitations to radio and satellite communications for voice or data transmission in the Arctic. What efforts are being made to rectify this?

Response: In order to improve vessel monitoring, the Coast Guard is considering revising the applicability of the mandatory carriage requirement of Automatic Identification System (AIS) equipment. The current requirement captures vessels that are 300 gross tonnage and greater. The Coast Guard will continue contracting with terrestrial and satellite AIS data providers and cooperate with the Canadian Coast Guard to share AIS data .Additionally, the Coast Guard is working with international partners to enhance Long Range Identification and Tracking (LRIT) data elements to form a special tracking region to encompass the Arctic. When adopted, this will provide all Arctic partners the capability to track most commercial vessels in the Arctic. Lastly, the Coast Guard continues to work with the International Maritime Organization to improve shipboard monitoring and communications in the Arctic through the addition of improved communications equipment onboard vessels and improved satellite communications capability.

Question: How do we intend to leverage the industry's growing experience in operating in this region?

Response: The Coast Guard engages with the maritime industry through numerous venues that allow us to capitalize on industry experience in the Arctic region. These include: joint research and development (R&D) projects through the Coast Guard's R&D Center and the Department of Homeland Security's Science and Technology Directorate (S&T) Centers of Excellence and Borders and Maritime Security Division; operational engagement through the Marine Exchange of Alaska; and through international venues, such as the International Maritime Organization and Arctic Council. In addition, the Coast Guard is establishing several Arctic-focused entities where maritime industry will be a key stakeholder, including a Center for Arctic Study and Policy, an Arctic Policy Board, and an Arctic Waterway Safety Committee. Also of note, in August 2014, after close collaboration with the U.S. Coast Guard, DHS S&T announced the selection of the University of Alaska Anchorage (UAA) and Stevens Institute of Technology (SIT) as co-leads for a new Center of Excellence for Maritime Research.

Question#:	3
Topic:	Ports
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Question: The Coast Guard, the Navy, the Arctic Council and the Army Corps of Engineers have all identified the lack of an Arctic deep-water port as one of our most pressing priorities in the region. The White House's January 'Implementation Plan for the National Strategy for the Arctic Region' aims to remedy this through the creation of a framework to guide future development, but this is not expected until the end of 2015. Given the very long lead-in time to build ports of this sort, how can we accelerate this process?

Response: Developing a port is not a Coast Guard responsibility. However, the Army Corps of Engineers is working on a feasibility study of options for possible navigation infrastructure improvements in the Bering Strait and Norton Sound region of the State. Following a preliminary assessment of 12 possible sites, the Corps is conducting a more detailed evaluation of options at up to four of these locations – Nome, Port Clarence, Point Spenser, and Cape Riley. The study, which the Corps is conducting in collaboration with the State of Alaska, will be based on an economic analysis and an environmental impact statement.

Question: Is enough being done to exploit the expertise and knowledge of the private sector?

Response: In March of 2014 the GAO published *MARITIME INFRASTRUCTURE: Key Issues Related to Commercial Activity in the U.S. Arctic over the Next Decade*. In this report the GAO conducted interviews with key commercial maritime industry segments including commercial shipping lines, cruise lines, petroleum, fishing, and mining representatives. Based on these interviews the GAO reported that the level of commercial activity in the U.S. Arctic is expected to remain limited for the next decade. Nonetheless, the Coast Guard remains strongly engaged with industry, non-governmental organizations, and other parts of the private sector across the Arctic region to ensure the Service's readiness as commercial development proceeds.

The Coast Guard continues to work to improve awareness, contingency planning, and communications, and is also 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 of July 2011) to synchronize the efforts of Federal agencies responsible for overseeing the safe and responsible development by industry of Alaska's onshore and offshore energy development projects in Alaska.

Question#:	3
Topic:	Ports
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

The Coast Guard is also working with private sector partners to employ a Waterways Analysis and Management System and Port Access Route Study (PARS) to assess vessel traffic density and determine if a need exists for improved aids to navigation and other safety requirements. Additionally, and again with the assistance of industry, non-governmental organizations, and the private sector, the Coast Guard is also conducting a Bering Strait PARS, which is a preliminary analysis to evaluate vessel traffic management and appropriate ship routing measures. Information from this study, in coordination with other Arctic Nations, will inform recommendations to the International Maritime Organization (IMO).

Question#:	4
Topic:	Search and Rescue
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Question: The nearest Coast Guard air station to the Arctic is in Kodiak, some 820 miles away from the town of Barrow. The Coast Guard noted this distance as one of the primary barriers to effective search and rescues operations in its 2012 review of operations. In contrast, Russia is currently in the process of building 10 new search & rescue centers along its Arctic coast line. How do you explain such a wide divergence in investment levels?

Response: The Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (Agreement) was made in accordance with the 1979 International Convention on Maritime Search and Rescue (SAR) and the 1944 Convention on International Civil Aviation, both of which are established and widely recognized international law. The objective of the Agreement is, however, to further strengthen aeronautical and maritime search and rescue cooperation and coordination in the Arctic. In order for that to be clear, each member state was given a particular Search and Rescue area for which it is responsible for coordinating SAR response. The United States SAR Plan is sufficient to accomplish commitments made in the international agreement as well as meet current SAR demand in the U.S. Arctic Search and Rescue Region.

Question: How can we meet the funding gap between creating sufficient search and rescue capabilities within a limited budget?

Response: The Coast Guard's mobile and seasonal operational presence is sufficient to meet current SAR demands. Operational conditions (increased commercial traffic, economic development, etc.) may alter this mission profile in the future.

Question#:	5
Topic:	Oil and Gas
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Question: In Canada, the process for announcing, putting out for bid, and eventually awarding offshore leases or concessions is essentially built around Arctic considerations – timing, challenges, etc. Would extending Arctic OCS lease conditions better position the US for industry investment, and help foster long term commitments for public/private projects such as deep water ports and new vessel development?

Response: The Coast Guard takes no position on changes to the law and regulations governing lease requirements and conditions for the OCS in the Arctic region.

Federal law and regulations govern the process of selling leases to the mineral resources of the OCS. The Department of the Interior, (Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE)) has primary Federal responsibility for the conduct and oversight of such sales.

Question#:	6
Topic:	Oil and Gas
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Question: The Arctic contains one of the world's largest undiscovered reserves of oil and gas; much of it within US waters of the Chukchi and Beaufort Seas. What are some of the issues that have delayed the development of these resources?

Response: There are a number of political, legal, and environmental issues that factor into natural resource extraction. The Coast Guard takes no position on the factors associated with resource development.

Question: Is there coordination throughout the agencies to better position the US as an Arctic leader?

Response: Several policy initiatives are currently focused on international, federal, regional, state, tribal, and local level coordination across U.S. agencies and stakeholders.

The President signed the National Strategy for the Arctic Region on May 10, 2013. That document identifies strategic priorities for the U.S. Government to advance U.S. security interests, promote responsible Arctic stewardship, and strengthen international cooperation. The Administration issued an Implementation Plan in January 2014, with detailed action items for Federal agencies to pursue, many of them involving improved coordination.

The State Department recently named Admiral Robert J. Papp, U.S. Coast Guard (Ret.), who finished his career as Commandant of the Coast Guard in May 2014, as Special Representative for the Arctic. In announcing this appointment, Secretary of State Kerry noted the importance of "elevating these issues in America's foreign policy and national security strategy because the United States is an Arctic nation, and Arctic policy has never been more important, particularly as we prepare to Chair the Arctic Council in 2015."

Question#:	7
Topic:	Oil Spill Response
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Question: A report published by the U.S. Coast Guard noted that "commercial ventures in the Arctic have increased maritime traffic in the Bering Strait.... by 118 percent between 2008 and 2012 ." With that growth there is far greater likelihood of oil pollution coming from shipping. As vessel traffic continues to increase in the Arctic, what are we doing to improve vessel monitoring and spill response capabilities?

Response: In order to improve vessel monitoring, the Coast Guard is considering revising the applicability of the mandatory carriage requirement of Automatic Identification System (AIS) equipment. The current requirement captures vessels that are 300 gross tons and greater. To receive these reports, the Coast Guard will continue contracting with the Marine Exchange of Alaska for terrestrial AIS reports and a satellite AIS data provider, and is cooperating with the Canadian Coast Guard to share AIS data. Additionally, the Coast Guard is working with international partners to enhance Long Range Identification and Tracking (LRIT) data elements to form a special tracking region to encompass the Arctic. When adopted, this will provide all Arctic partners the capability to track most commercial vessels in the Arctic.

To protect the Arctic environment, the Coast Guard is engaged with industry and the private sector to ensure oversight of pollution prevention, preparedness, and response requirements. Pollution response is significantly more difficult in the Arctic region. The National Response Team Spill of National Significance (SONS) Executive Steering Committee is actively tracking progress of lessons learned from the 2013-2014 SONS Exercise Series, which included a scenario involving an oil spill response in the U.S. Arctic region.

In addition, the Coast Guard, under the auspices of the Interagency Coordinating Committee on Oil Pollution Research, is engaging stakeholders to address critical research and development needs and capabilities for pollution response. The Coast Guard is also engaging with the Department of Energy to examine oil spill prevention in the Arctic environment. We are also conducting joint contingency response exercises with Canada, and we maintain communications and working relationships with agencies responsible for regional operations for oil spill response.

In the last two years we exercised the Vessel of Opportunity Skimming System and the Spilled Oil Recovery System in Arctic waters. Both of these systems enable vessels to collect oil in the event of a discharge. Capability assessments included the deployment of a vessel of opportunity skimming system aboard the cutter SPAR and a Canadian Coast

Question#:	7
Topic:	Oil Spill Response
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Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Guard vessel. In September 2013, a multi-agency team of engineers and scientists led by the U.S. Coast Guard Research and Development Center performed testing and evaluation of oil spill detection and recovery technologies in sea ice aboard the USCGC HEALY in the Arctic Ocean.

Question: In particular, should we be looking to mirror the joint program that we have with Canada in the St Lawrence waterway, with something similar with Russia in the Bering Sea?

Response: The Coast Guard, along with other Federal agencies, confers and cooperates with the Russian Federation and other Arctic nations through various Arctic forums. We have attempted bilateral cooperation with our Russian counterparts to establish ship routing measures in the Bering Strait, but have been unsuccessful in gaining their cooperation.

Question#:	8
Topic:	General
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Question: According to the GAO's maritime infrastructure report, despite the fact that economic opportunities in the U.S. Arctic are considered to be "key drivers" for developing Arctic maritime infrastructure, "commercial industries currently have limited activity in the U.S ... and (have) similarly limited plans for activity over the next 10 years." What efforts have been made to engage the private sector in order to accelerate the Arctic region's economic development?

Response: The Coast Guard's role is to promote safety, security, and stewardship in the maritime waters of the United States, including those of Alaska, on behalf of all Americans. Coast Guard missions include enforcing U.S. laws and regulations, conducting search and rescue, assisting scientific exploration, fostering navigation safety, and protecting the marine environment.

To carry out its mission of protecting the Arctic marine environment, the Coast Guard is engaged with industry, non-governmental organizations, and other parts of the private sector to ensure oversight of pollution prevention, preparedness, and response requirements as development occurs.

The Coast Guard continues to work to improve awareness, contingency planning, and communications. The Coast Guard is also 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 of July 2011) to synchronize the efforts of Federal agencies responsible for overseeing the safe and responsible development by industry of Alaska's onshore and offshore energy development projects in Alaska.

The Coast Guard is employing a Waterways Analysis and Management System and Port Access Route Study (PARS) methodologies to assess vessel traffic density and determine if a need exists for improved aids to navigation and other safety requirements. The Coast Guard is currently conducting a Bering Strait PARS, which is a preliminary analysis to evaluate vessel traffic management and appropriate ship routing measures. Information from this study, in coordination with other Arctic Nations, will also inform recommendations to the International Maritime Organization (IMO). The Coast Guard is actively involved in the international effort to draft a mandatory Polar Code to improve standards for vessels operating in the Arctic region.

Question#:	8
Topic:	General
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Duncan D. Hunter
Committee:	TRANSPORTATION (HOUSE)

Question: Creation of a deepwater port, fabrication of new Arctic class vessels, and a commitment to establish public/private partnerships in new Arctic projects are critical to insure that the US stays competitive in the Arctic. How do you see the President's January 2014 Arctic implementation plan helping to accomplish this effort?

Response: U.S. strategy for the Arctic region is set forth in the National Strategy for the Arctic Region (May 2013) and its Implementation Plan (January 2014). The Coast Guard's Arctic Strategy (May 2013) aligns closely with these national-level policy documents. The Coast Guard's efforts to foster safe, secure, and environmentally responsible maritime activity in the Arctic advance the Nation's strategic objectives of advancing U.S. security interests, pursuing responsible regional stewardship, and strengthening international cooperation.

The Coast Guard worked within the interagency process to identify priority goals to include in the national Implementation Plan that were achievable and consistent with its strategic objectives. It also sought to ensure that the Implementation Plan was consistent with other efforts, such as those undertaken pursuant to the National Ocean Policy which Executive Order 13587 promulgated in July 2010. Among its nine priority objectives was a focus on responding to the challenges and opportunities presented by the changing conditions in the Arctic. The Coast Guard views all of these efforts as helping to promote improved stewardship of the U.S. Arctic.

The National Strategy for the Arctic Region (May 2013) noted that future infrastructure in Alaska would require innovative arrangements to support the investments needed in the Arctic region, including "new thinking on public-private and multinational partnerships." The establishment of public-private partnerships would be one way to provide the capital necessary to develop this infrastructure.

In August 2014, after close collaboration with the U.S. Coast Guard, DHS S&T announced the selection of the University of Alaska Anchorage (UAA) and Stevens Institute of Technology (SIT) as co-leads for a new Center of Excellence for Maritime Research. The University of Alaska Anchorage and partners at the University of Alaska Fairbanks and Maine Maritime Academy will focus on Arctic scientific and technology issues important to the Coast Guard's missions. This Center of Excellence will be guided by the President's Arctic implementation plan. The Arctic Center for Maritime Research will collaborate with S&T, the U.S. Coast Guard, DHS's other operational components, other federal agencies, industrial partners, local, tribal, state and international communities, and other Centers of Excellence to help the United States improve stewardship and address challenges posed by changing conditions in the Arctic.

Question#:	1
Topic:	POLAR SEA 1
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable John Garamendi
Committee:	TRANSPORTATION (HOUSE)
Name:	Vice Admiral Peter Neffenger – USCG Deputy Commandant for Operations
Organization:	U.S. Department of Homeland Security

Question: Reactivation of POLAR SEA

In the 2012 Coast Guard and Maritime Transportation Act, the Congress directed the Coast Guard to complete a business case analysis on the cost-effectiveness of refitting and reactivating the heavy icebreaker, POLAR SEA. The Coast Guard was also required to make a determination on whether it is, or is not, cost-effective to activate the POLAR SEA. The Coast Guard delivered its analysis but has deferred from making a final determination.

When can we expect Admiral Zukunft to make a final decision on whether or not to reactivate the POLAR SEA?

Response: The reactivation of the POLAR SEA is being examined along with other options to provide the Nation's heavy ice-breaking capacity into the future. Unlike POLAR STAR prior to reactivation, POLAR SEA has not had a caretaker crew. No maintenance has been performed on POLAR SEA since 2011 and the vessel's condition has deteriorated and reactivation costs have likely increased. A detailed engineering evaluation would be required to specify a current estimate for reactivation before a final determination is made.

Question: Please explain why it makes sense to invest any funds to preserve the POLAR SEA in the absence of a conclusive decision that commits the Coast Guard to reactivate the Vessel?

Response: No matter the final determination on POLAR SEA, the vessel must be dry-docked to seal through-hull fittings and drain systems to meet ship storage requirements and prevent environmental contamination during any storage period. This critical preservation work will also arrest further deterioration. Preservation for storage is a necessary step for either transfer into long-term storage prior to final disposal or short-term storage during assessment for reactivation.

Question#:	2
Topic:	Seasonal Arctic Operations
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable John Garamendi
Committee:	TRANSPORTATION (HOUSE)

Question: Seasonal Arctic Operations

The Coast Guard has commenced with its 2014 Arctic Shield operations. These operations will focus on increased maritime activity around the Seward Peninsula, the Bering Strait and the Northern Alaska Continental Shelf and allow the Coast Guard to continue to test capabilities and refine its Arctic resource requirements.

Does the Coast Guard intend to conduct seasonal operations in the Arctic region for the foreseeable future?

Response: Yes, the Coast Guard intends to conduct mobile and seasonal operations in the Arctic region for the foreseeable future.

Question: At what point will the Coast Guard make the determination that it is less disruptive to other Coast Guard District operations and more cost effective to maintain a permanent operational foothold above the Arctic Circle?

Response: The Coast Guard will continue to assess the need for a permanent operational presence in the Arctic as human activity increases in the region. This assessment includes evaluation of demand for services, risk analysis, and cost-benefit analysis of developing permanent Coast Guard infrastructure to support mission requirements.

Question#:	3
Topic:	Budget Request
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable John Garamendi
Committee:	TRANSPORTATION (HOUSE)

Question: Budget Request to Implement Coast Guard Arctic Strategy

The Coast Guard released its implementation plan for its Arctic Strategy in January, 2014 but nothing was requested in the Fiscal Year 2015 budget to support implementation. Will there be a request in the FY 2016 request?

Response: The Fiscal Year 2016 budget request is still in development.

While no new funds were requested in FY15, sufficient funding exists in the FY15 President's Budget to achieve a continued "mobile and seasonal" approach to operations in the Arctic. The Coast Guard can achieve a persistent command and control presence during summer months by deploying both the icebreaker HEALY in support of research missions and a National Security Cutter in support of Operation Arctic Shield. Over $3 million is intended to support Arctic Shield in FY15. Arctic Shield which is a multi-national and multi-mission exercise that employs Coast Guard air assets and cutters, including ice capable sea-going buoy tenders. Additional funds in the FY15 request will be used to test and enhance Arctic communication infrastructure, to carry out Arctic related Research, Development, Testing and Evaluation activities, and to continue the development and implementation of the International Maritime Organization (IMO) Polar Code. The Coast Guard is also continuing to engage both interagency partners and external stakeholders, such as involvement and support of the Arctic Council.

Question#:	4
Topic:	LORAN Station Property
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable John Garamendi
Committee:	TRANSPORTATION (HOUSE)

Question: Conveyance of Port Clarence, Alaska LORAN Station Property

Legislation has been introduced (H.R. 4668, the Point Spencer Coast Guard and Public Private Sector Infrastructure Development Facilitation and Land Conveyance Act) which would authorize the Coast Guard to convey to the State of Alaska or the Bering Strait Native Corporation (BSNC) the lands and facilities that constitute the Coast Guard's decommissioned Port Clarence LORAN station. Similar legislation was considered for inclusion in the final Coast Guard and Maritime Transportation Act of 2012. Ultimately, it was left out, principally because the legislation had not been considered through regular order and the views of the administration were unstated.

What are the views of the administration concerning H.R. 4668? Does the administration support conveying to the State of Alaska and BSNC the land and facilities found at the former Port Clarence LORAN station? Does this legislation adequately protect the interests of the Federal Government, in general, and the Coast Guard, specifically?

Is Port Clarence under active consideration as an Arctic deepwater port? If Port Clarence were identified as the future location of a Federal Arctic deepwater port, would this change the administration's views on H.R. 4668?

During the analysis of Port Clarence as a potential location for an Arctic deepwater port, has the Coast Guard or any other Federal agency conduct any cost analysis to determine the difference in cost between a.) Having to re-acquire or lease back properties conveyed to the State or BSNC under this bill as a precursor to redevelopment by the Federal Government, and b.) Retaining Federal ownership of the properties in question and redeveloping the area for the purpose of conducting permanent Federal agency operations?

Response: The Administration is still evaluating options and discussions are ongoing across multiple agencies, but no decisions have been made.

Question#:	5
Topic:	Polar Sea 2
Hearing:	Implementing U.S. Policy in the Arctic
Primary:	The Honorable Rick Larsen
Committee:	TRANSPORTATION (HOUSE)

Question: When will the Coast Guard come to a final decision on what to do with the Polar Sea?

Response: The reactivation of the POLAR SEA is being examined along with other options to provide the Nation's heavy ice-breaking capacity into the future. Unlike POLAR STAR prior to reactivation, POLAR SEA has not had a caretaker crew. No maintenance has been performed on POLAR SEA since 2011 and the vessel's condition has deteriorated and reactivation costs have likely increased. A detailed engineering evaluation to specify a current estimate for reactivation before a final determination is made.

No matter the final determination on POLAR SEA, the vessel must be dry-docked to seal through-hull fittings and drain systems to meet ship storage requirements and prevent environmental contamination during any storage period. This critical preservation work will also arrest further deterioration. Preservation for storage is a necessary step for either transfer into long-term storage prior to final disposal or short-term storage.

NOT FOR PUBLICATION
UNTIL RELEASED
BY THE SUBCOMMITTEE

Statement by

Rear Admiral Jonathan W. White

Oceanographer and Navigator of the Navy

on

Implementing U.S. Policy in the Arctic

Submitted to the

Subcommittee on Coast Guard and Maritime Transportation
House Committee on Transportation and Infrastructure
United States House of Representatives

July 23, 2014

NOT FOR PUBLICATION
UNTIL RELEASED
BY THE SUBCOMMITTEE

Chairman Hunter, Ranking Member Garamendi, and distinguished members of the committee, thank you for the opportunity to discuss the Navy's efforts to implement U.S. policy in the Arctic. I join my colleagues in supporting the President's National Strategy for the Arctic Region and its corresponding Implementation Plan.

This past February, the Chief of Naval Operations, Admiral Jonathan Greenert, approved the U.S. Navy Arctic Roadmap which aligns with the National Strategy for the Arctic Region. While the Arctic Region is an area that is expected to remain peaceful, stable, and free of conflict, the U.S. Navy's primary responsibility is to protect our nation's interests around the world. The Navy's challenge over the coming decades will be to balance the demands of current requirements with investments in the development of future capabilities.

In support of the National Strategy for the Arctic Region and the Department of Defense Arctic Strategy, the Navy will undertake deliberate and measured steps to achieve the following four strategic objectives in the Arctic Region over the near-term (2014-2020), mid-term (2020-2030), and far-term (beyond 2030) timeframes:

1) Ensure United States Arctic sovereignty;
2) Provide ready naval forces;
3) Preserve freedom of the seas; and
4) Promote partnerships

The Navy's existing posture is appropriate to address the near-term defense requirements of the United States in the Arctic Region. Over the course of the next few years the Navy will continue to develop our strong, cooperative partnerships with the Coast Guard, in addition to other interagency and international Arctic Region stakeholders to

address the emerging opportunities caused by the seasonal opening of the Arctic Ocean waters.

The Navy will continue to take deliberate steps to develop Arctic expertise through exercises, scientific missions, and personnel exchanges that provide Sailors with opportunities to learn best practices. In the near-term, the Navy will continue to provide capability and presence primarily through undersea and air assets. The Navy will limit surface ship operations to periods of projected peak activity associated with open water conditions. Even during open water operations, weather and ocean factors, including sea ice, must be considered when conducting operational risk assessments. The Navy will emphasize low-cost, long-lead time activities to match capability and capacity to future demands. The Navy will continue to study and make informed decisions on operating requirements and procedures for personnel, ships, and aircraft with interagency partners and allies. Through ongoing exercises, such as the Navy's Ice Exercise (ICEX), Scientific Ice Expeditions (SCICEX), as well as research and transits through the region by Navy submarines, aircraft and surface vessels, the Navy will continue to learn more about the evolving operating environment.

Current projections indicate that the reduction of sea ice cover in the Arctic will persist, resulting in the Arctic Region becoming increasingly accessible. As a result, exploitation of untapped natural resources may become more commercially attractive. However, the financial, technical, and environmental risks of operating in the Arctic Region create substantial challenges. In the mid-term (2020 to 2030), the Navy will likely be called upon to support the U.S. Coast Guard and other U.S. Government agencies by providing marine data collection, sea ice forecasting and predictions, and the forecasting of hazardous weather and

ocean conditions. The Navy may also be called upon to support the Coast Guard in search and rescue or disaster response missions, or to ensure freedom of navigation in Arctic waters. In the far-term, the Navy, based on informed requirements, may transition its periodic presence in the Arctic Ocean to operating deliberately in the Region for sustained periods in order to meet national security priorities.

By 2030, while balancing all of its global defense responsibilities, the Navy intends to have the requisite trained and equipped personnel, along with surface, subsurface, and air assets, to respond to national security contingencies and emergencies. The Navy will strive to improve its capabilities by participating in increasingly complex exercises and training with its regional partners. The Navy's Arctic Roadmap prepares the Navy to respond effectively to future Arctic Region contingencies and directs the actions to develop Arctic far-term capabilities and capacity in step with changing environmental conditions. The Navy will continually update its preparedness in response to changes in the Arctic environment or changes in the security environment.

The Arctic Region, with its vast expanse, severe climate, and rich natural resources, is a challenge and an opportunity for the Navy. Naval security and international naval cooperation have always been critical components of U.S. Arctic policy. The Navy's approach underscores the need to develop strong cooperative partnerships with interagency, especially the U.S. Coast Guard and international Arctic Region stakeholders. It acknowledges that changes in the environment must be continuously examined and taken into account. The key will be to balance potential investments with other Service priorities and leveraging partnerships extensively. By taking a proactive, flexible approach the Navy can keep pace with an evolving Arctic Region while continuing to serve as the vanguard of our global national security interests.

CHARRTS No.: HTICCGMT-01-001
Hearing Date: July 23, 2014
Committee: HTICCGMT
Witness: RADM White
Question: #1 from Congressman Hunter

Shipping / Icebreakers

Question: Icebreakers are essential equipment as it relates to the execution of a variety of Arctic activities, including the maintenance of US domestic security. Their growing importance is demonstrated by the investment programs undertaken by other Arctic nations; Russia has a fleet of eight service-ready nuclear powered icebreakers, with a ninth under construction. China owns the world's largest non-nuclear icebreaker and has just launched a second. Canada has committed $38 billion to build additional vessels. In contrast, the US has only two polar-class icebreakers, with a third chartered from the private sector. Do you believe that we have sufficient capability? Do you have a view on why we aren't we investing as much as other nations in what is an increasingly important area?

Answer: Yes, we have sufficient capability to meet near-term operational needs.

Polar Star's recent reactivation will provide the U.S. with heavy icebreaker capability for about another seven to 10 years. The Polar Star, along with the medium icebreaker, Healy, provide a minimum capability necessary to address the Navy's near term icebreaking needs in the Arctic and Antarctic, and will provide the Coast Guard time to assess longer term national needs and requirements.

Resource constraints and competing near-term mission demands require that naval investments be informed, focused, and deliberate. Projections about future access to and activity in the Arctic may be inaccurate. There is also uncertainty about future economic conditions, and the pace at which human activity will increase in the region. The challenge is to balance the risk of having inadequate capabilities or insufficient capacity when required to operate in the region with the opportunity cost of making premature and/or unnecessary investments. Premature investment may reduce the availability of resources for other pressing priorities, particularly in a time of fiscal austerity. The key will be to address needs in step with the rate at which activity in the Arctic increases while balancing potential investments in Arctic capabilities with other national priorities. The Department will mitigate this risk by monitoring the changing Arctic environment and geostrategic situation in addition to Combatant Commander warfighting requirements to determine the appropriate timing for future capability investments.

CHARRTS No.: HTICCGMT-01-002
Question: #2 from Congressman Hunter

Ports

Question: The Coast Guard, the Navy, the Arctic Council and the Army Corps of Engineers have all identified the lack of an Arctic deep-water port as one of our most pressing priorities in the region. The White House's January 'Implementation Plan for the National Strategy for the Arctic Region' aims to remedy this through the creation of a framework to guide future development, but this is not expected until the end of 2015. Given the very long lead-in time to build ports of this sort, how can we accelerate this process? Is enough being done to exploit the

expertise and knowledge of the private sector?

Answer: The Center for Naval Analyses (CNA) is currently conducting an in-depth study of all existing maritime infrastructure, to include U.S. and foreign government as well as privately-owned facilities. The intent of the study is to identify existing facilities that are capable of supporting potential U.S. maritime missions. In completing this study, we will identify the limitations of existing facilities in order to more accurately forecast future infrastructure requirements.

CHARRTS No.: HTICCGMT-01-003
Question: #3 from Congressman Hunter

Oil and Gas

Question: In Canada, the process for announcing, putting out for bid, and eventually awarding offshore leases or concessions is essentially built around Arctic considerations - timing, challenges, etc. Would extending Arctic OCS lease conditions better position the US for industry investment, and help foster long term commitments for public/private projects such as deep water ports and new vessel development?The Arctic contains one of the world's largest undiscovered reserves of oil and gas; much of it within US waters of the Chukchi and Beaufort Seas. What are some of the issues that have delayed the development of these resources? Is there coordination throughout the agencies to better position the US as an Arctic leader?

Answer: Arctic OCS lease conditions and resource development delays are outside of Navy's Title X responsibilities. On these topics, the Navy defers to the Bureau of Ocean Energy Management and their analysis of the expected effects of the OCS Oil and Gas Leasing Program.

The Navy maintains cooperative relationships across the Department of Defense and many U.S. government agencies. The Navy and Coast Guard have a decades-long history of cooperation and collaboration. The Navy works closely with the National Oceanic and Atmospheric Administration (NOAA) to conduct reviews of Arctic Ocean sea-ice projections. The Navy also works with interagency partners to improve maritime domain awareness (MDA), information sharing and communications.

CHARRTS No.: HTICCGMT-01-004
Question: #4 from Congressman Hunter

General

Question: According to the GAO's maritime infrastructure report , despite the fact that economic opportunities in the U.S. Arctic are considered to be "key drivers" for developing Arctic maritime infrastructure, "commercial industries currently have limited activity in the U.S ... and (have) similarly limited plans for activity over the next 10 years." What efforts have been made to engage the private sector in order to accelerate the Arctic region's economic development?Creation of a deep water port, fabrication of new Arctic class vessels, and a commitment to establish public/private partnerships in new Arctic projects are critical to insure that the US stays competitive in the Arctic. How do you see the President's January 2014 Arctic implementation plan helping to accomplish this effort?

Answer: They Navy supports the 2013 National Strategy for the Arctic Region and the desired end state of an Arctic Region where economic and energy resources are developed in a

sustainable manner. As presented in the Department of Defense's 2013 Arctic Strategy, the Navy supports the objective to engage public and private sector partners to improve domain awareness in the Arctic Region. The Navy's Arctic Roadmap Implementation Plan identifies the expansion of cooperative partnerships with private sector stakeholders to enhance Arctic security as an action item.

CHARRTS No.: HTICCGMT-01-005
Question: #5 from Congressman Larsen

Navy Arctic Center of Excellence

Question: Can you talk about what Center of Excellence will work on and what the Navy is looking for?

Answer: The Arctic Roadmap 2014-2030 Implementation Plan stipulates that the Navy start the process of identifying requirements to establish an Arctic Center of Excellence. While no formal requirements exist at this time, we envision the Center of Excellence (CoE) as a place that coordinates Arctic expertise (weather, ocean and ice prediction, navigation, ship handling, etc.) ensuring that Navy needs are met.

CHARRTS No.: HTICCGMT-01-006
Question: #6 from Congressman Larsen

Navy Arctic Center of Excellence

Question: When will the Navy make a decision on where this Center of Excellence will be headquartered?

Answer: At this time, the Arctic Center of Excellence is envisioned as a virtual organization, not a single structure, bringing together a variety of skill sets and capabilities to address the challenges of operating in the Arctic Region. As the formal requirements for an Arctic Center of Excellence mature the need for a permanent fixed site may be identified.

CHARRTS No.: HTICCGMT-01-007
Question: #7 from Congressman Garamendi

Navy and Marine Corps Icebreaking Requirements in Naval Operations Concept 10 (NOC-10)

Question: Has there been any change in this requirement?

Answer: No. The Navy transferred the responsibility for operating and manning icebreakers to the U.S. Coast Guard. Ice-breaking is not a Navy mission or requirement. The Navy will support initiatives of the Commandant of the Coast Guard to define future U.S. Coast Guard icebreaker requirements.

CHARRTS No.: HTICCGMT-01-008
Question: #8 from Congressman Garamendi

Navy and Marine Corps Icebreaking Requirements in Naval Operations Concept 10 (NOC-10)

Question: Does the successful fulfillment of the Navy's Arctic Roadmap strategy rely on this icebreaking capability being provided by the U.S. Coast Guard?

Answer: Not entirely. The Navy will continue to leverage U.S. Coast Guard, commercial and partner nation icebreakers in support of Arctic demands.

CHARRTS No.: HTICCGMT-01-009
Question: #9 from Congressman Garamendi

Navy and Marine Corps Icebreaking Requirements in Naval Operations Concept 10 (NOC-10)

Question: Has the Navy conducted any analysis of the costs and benefits of different options to provide an icebreaking capability should the Coast Guard be no longer able to fulfill this need? If so, what were the findings?

Answer: No. The Navy has not conducted any independent analysis of the costs and benefits of different options to provide an icebreaking capability should the Coast Guard no longer be able to fulfill this need. Icebreaking is not currently a Navy mission and the Navy has no existing requirement to conduct ice-breaking. The Navy turned over ice-breaking responsibilities to the U.S. Coast Guard in 1965. The Navy does, however, support the Coast Guard in its requests for modernization of the icebreaking fleet.

CHARRTS No.: HTICCGMT-01-010
Question: #10 from Congressman Garamendi

Use of Navy Hydrographic Survey Data

Question: Recognizing the huge need for hydrographic survey work above the Arctic Circle, how much of the hydrographic survey data gathered by the Navy could be de-classified and used by NOAA to accelerate the completion of hydrographic survey work in the Arctic?

Answer: While "hydrography" can include a variety of physical measurements of the ocean, we are interpreting this question to mean specifically Arctic bathymetric data as used in this context. The U.S. Navy has collected only minimal bathymetric data in the Arctic through shipboard sensors in recent years. Most of the Navy's modern Arctic bathymetric data was collected by submarines. In the early 1990's, the Navy defined a "data release box" in the Arctic Ocean within which it would release submarine-collected Arctic bathymetric data. This area includes Arctic waters outside foreign territorial seas and exclusive economic zones. Navy has already declassified and released as much submarine-collected Arctic Ocean bathymetric data from this Arctic data release box as it can. Bathymetric data collected through 2005 in the Arctic data release box by submarines has already been released. The Navy has also established an ongoing process through which additional Arctic bathymetric data will be released. Bathymetric data released publicly by the U.S. Navy continues to be a mainstay of the International Bathymetric Chart of the Arctic Ocean (IBCAO).

CHARRTS No.: HTICCGMT-01-011
Question: #11 from Congressman Garamendi

Use of Navy Hydrographic Survey Data

Question: Does the Navy have other science assets available that could provide data or other capabilities to assist Coast Guard Arctic operations?

Answer: The Office of Naval Research has a funded program to study the physical processes of the Arctic atmosphere and ocean, and the Naval Research Laboratory is engaged in developing

more accurate sea ice prediction models. These scientific efforts will increase knowledge of the Arctic environment and provide benefit to all national initiatives in the region. The Navy also participates in Science Ice Exercise (SCICEX) on regular basis during which numerous sensors are deployed in collaboration with DoD, research and academic partners.

CHARRTS No.: HTICCGMT-01-012
Question: #12 from Congressman Garamendi

Fitting a new Icebreaker into the Navy's Shipbuilding Program

Question: Please provide a concise discussion on the funding and construction history of the USCGC HEALY, including a discussion of other Navy shipbuilding programs that were delayed or displaced to accommodate the construction of the HEALY?

Answer: The Coast Guard initiated pre-acquisition activities for a new polar icebreaker in 1984 with the United States Polar Icebreaker Requirements Study, which assessed the long-term national needs for a polar icebreaking capability and icebreaking requirements, and recommended that four polar icebreakers would be required to meet national and program requirements through the year 2000. Later that year the Coast Guard developed a Mission Need Statement (MNS) and planned to initiate work on the contract design phase as the lead design agent. After identifying needs/requirements of several potential users (Department of Defense (DoD), National Science Foundation (NSF), United State Geological Survey (USGS), National Oceanic and Atmospheric Administration (NOAA) and others), the Coast Guard planned to acquire a medium icebreaker that would be able to break 4.5 feet of ice continuously at a speed of 3 knots (as compared to the *Polar Sea* and *Polar Star* – heavy icebreakers able to break 6 feet of ice continuously at that speed) and would be equipped with greater research capability. In response to a requirement enacted through the Coast Guard Authorization Act of 1988 (P.L. 101-165), the Coast Guard (with Department of Transportation (DOT), DoD, NSF and Office of Management and Budget (OMB)) submitted an updated report to Congress on polar icebreaker requirements in 1990.

The Administration proposed $243 million to fund a new icebreaker through the Department of Transportation and Related Agencies Appropriations Act, 1990; however, the Senate did not include this funding due to restrictions of the subcommittee's 302(b) allocation. The Senate Commerce, Science and Transportation Committee proposed to authorize funding for acquisition of a new icebreaker in fiscal year 1990 ($244 million out of $746 million annual Acquisition, Construction and Improvement (AC&I) budget).

In the end, due to budgetary constraints, the leadership of the Senate Appropriations Committee, Defense Subcommittee adopted an amendment during floor consideration to provide $488 million for acquisition of two Coast Guard icebreakers. The Department of Defense Appropriations Act, 1990 (Public Law 101-165) provided $329 million through the Shipbuilding and Conversion, Navy Appropriation for acquisition of one icebreaker (also included $84 million for acquisition of Coast Guard patrol boats). An amount of $54.2 million was later rescinded and re-appropriated for other purposes through the Dire Emergency Supplemental Appropriations Act.

The Coast Guard later confirmed in 1990 that only one icebreaker was needed and that appropriated funds were sufficient to acquire the new asset. In 1991, the Coast Guard's original design package was converted to a contract design and provided to NAVSEA. In March 1991,

NAVSEA issued a solicitation for a Coast Guard Polar Icebreaker Replacement and in September of that year the Under Secretary of Defense approved a fixed price incentive type for the contract. After negotiations took place with two shipyards that submitted proposals, NAVSEA canceled the solicitation in March 1992 and with the Coast Guard began to develop new requirements, design package and acquisition strategy. In July 1993, NAVSEA awarded a contract to Avondale Industries Inc. (New Orleans, LA) for construction of the icebreaker *Healy*.

It is difficult to articulate the impact of *Healy* on delaying or displacing other Navy shipbuilding programs. The House and Senate Appropriations Defense Subcommittees also had similar budget restrictions based on its 302(b) allocations set forth by its respective Budget Committees; a similar issue faced by the Appropriations Subcommittee that maintained cognizance over the Department of Transportation. Presumably, funding for other Department of Defense programs were reduced to facilitate the inclusion of *Healy*, which was not requested in the President's Budget request for the Department of Defense for FY1990.

CHARRTS No.: HTICCGMT-01-013
Question: #13 from Congressman Garamendi

Fitting a new Icebreaker into the Navy's Shipbuilding Program

Question: Can such an acquisition program be accommodated with the Shipbuilding and Conversion (SCN) account? If not within the SCN account, would the National Defense Sealift Fund (NDSF) be an appropriate tool to fund a new icebreaker construction program?

Answer: Funding of Coast Guard icebreakers from the Navy's SCN account in the near future (a significantly more austere budget environment compared to 1990) would simply add stress to a pressurized account, which is already challenged fiscally with the construction of the Ohio Replacement (SSBN), the recapitalization of block obsolescence built into shipbuilding programs of the 1980s, and the potential limitations of the Budget Control Act.

Funding for an icebreaker could only be realized by moving planned warship acquisitions into the out years, delaying the Navy's ability to match fleet size with Combatant Command requirements.

Subject to a change in legislative language, as defined under the current law, Title 10 U.S.C. § 2218, the NDSF is not the appropriate tool to fund a new icebreaker construction program. The purpose of the NDSF appropriation is to provide funds for: A) Construction (including design of vessels), purchase, alteration, and conversion of Department of Defense sealift vehicles, B) Operation, maintenance, and lease or charter of Department of Defense vehicles for national defense purposes, C) Installation and maintenance of defense features for national defense purposes on privately owned and operated vehicles that are constructed in the United States and documented under the laws of the United States, D) Research and development relating to national defense sealift, and E) Expenses for maintaining the National Defense Reserve Fleet under section 11 of the Merchant Ships Act of 1946 (50 App. U.S.C. 1744), and for the costs of acquisition of vessels for, and alteration and conversion of vessels in (or to be placed in), the fleet, but only for vessels built in United States shipyards.

It should be noted that after 15 years of execution and several statutory changes to the makeup and definition of the Fund, the Department reevaluated the need for the account and realigned funding from NDSF to the Shipbuilding and Conversion, Navy (SCN), Research, Development,

Test, and Evaluation, Navy (RDTEN), and Operation and Maintenance, Navy (OMN) appropriations as part of the President's Budget Request for FY2015.

CHARRTS No.: HTICCGMT-01-014
Question: #14 from Congressman Garamendi

Fitting a new Icebreaker into the Navy's Shipbuilding Program

Question: What cost savings and efficiencies were gained by funding this construction through the SCN and by allowing the Navy to manage the construction program? Would similar cost-efficiencies be realized again should the Congress delegate to the Navy the responsibility for managing the construction of one or more new icebreakers?

Answer: There would be no savings or efficiencies gained by funding this construction with SCN or by allowing the Navy to manage the construction program. The USCG has a shipbuilding acquisition team in place that could execute this procurement. The Navy and USCG mutually benefit from each other's ship construction efforts. Delegating icebreaker construction to the Navy would have no positive impact to the design and construction of a new icebreaker.

Statement of
Ambassador David A. Balton
Deputy Assistant Secretary for Oceans and Fisheries
Bureau of Oceans and International Environmental and Scientific Affairs
U.S. Department of State

Before the Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation
U.S. House of Representatives

July 23, 2014

Introduction

Good morning Chairman Hunter, Ranking Member Garamendi and other Members of the Coast Guard and Maritime Transportation Subcommittee. I appreciate the opportunity to appear before you today to discuss how the Department of State is working to advance our security and economic interests in the Arctic region.

The United States has been an Arctic nation with important interests in the region since the purchase of Alaska from Russia in 1867. Significant changes in the Arctic Region, unimagined then, have created new challenges and opportunities for the United States and the other Arctic nations.

National Strategy for the Arctic Region

As the Department of State and other agencies seek to address these challenges and opportunities, we are guided by the National Strategy for the Arctic Region that builds on the National Security Presidential Directive-66/Homeland Security Presidential Directive-25 (NSPD-66/HSPD-25) on Arctic Region Policy, among

other important policy directives. The National Strategy for the Arctic Region, released on May 10, 2013, articulates three "lines of effort" to be pursued:

- Advancing United States Security Interests
- Pursuing Responsible Arctic Region Stewardship
- Strengthening International Cooperation

In advancing these priorities, we have drawn from our long-standing policy and approach to the global maritime spaces in the 20th century, including freedom of navigation and overflight and other internationally lawful uses of the sea and airspace related to these freedoms; security on the oceans; maintaining strong relationships with allies and partners; and peaceful resolution of disputes.

The Arctic Council

In promoting our economic, environmental and other interests in the Arctic region and strengthening international cooperation, we use the Arctic Council as the primary mechanism for multilateral engagement. The Arctic Council was created in 1996 as a "high-level intergovernmental forum of the eight Arctic States and the Arctic indigenous peoples to provide a means for promoting cooperation, coordination and interaction among the Arctic States, with the involvement of Arctic indigenous communities and other Arctic inhabitants on common Arctic issues." As the challenges and opportunities facing the Arctic have grown in volume and complexity, the Council has increased its workload and has created working groups to address emerging issues. Currently, the Council has six permanent working groups composed of Arctic State representatives that cover a broad range of issues such as emergency response, protection of the Arctic marine

environment, and the conservation of Arctic flora and fauna. In addition to the working groups, the Council has established task forces and expert groups, also composed of Arctic State representatives, for limited periods to address specific issues.

The United States has led or co-led many of the Council's important initiatives including the 2004 Arctic Climate Impact Assessment, the 2008 Arctic Oil and Gas Assessment, and the 2009 Arctic Marine Shipping Assessment. In addition, work under the auspices of the Arctic Council has resulted in the following two binding multilateral agreements: (1) the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic, signed in 2011; and (2) the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic, signed in 2013.

The United States will assume the Chairmanship of the Arctic Council in April 2015 for a two-year term. We are currently in the process of developing a robust program for our Chairmanship through regular meetings with federal interagency counterparts, the State of Alaska, including Alaska Native groups, NGOs and other interested stakeholders. While we have not yet finalized our program, it will be in line with the priorities laid out in the National Strategy for the Arctic Region and its subsequent Implementation Plan released in January 2014. Current areas we plan to highlight during the U.S. Chairmanship are climate change in the Arctic, improving economic and living conditions for Arctic residents, and responsible stewardship of the Arctic Ocean. Examples of projects in these areas might include improving access and availability of clean energy to remote Arctic communities, improving water sanitation, improving monitoring of black carbon

emissions, and pursuing an international framework to manage and protect the biological resources of the Arctic Ocean, to name a few.

We are still consulting with stakeholders on these ideas and others, which will include our fellow Arctic Council members after we have completed domestic consultations. The program will be finalized by the time we assume the Chairmanship from Canada in April 2015.

Special Representative for the Arctic Region

Recognizing the importance of the Arctic Region, and in line with the President's commitment to elevate Arctic issues in our nation's foreign policy, particularly as we prepare to Chair the Arctic Council, Secretary Kerry announced in February of this year his intention to appoint a Special Representative for the Arctic Region. We set out to find the right American official for this assignment, a distinguished and senior, high-level public servant with broad foreign policy experience and a passion for the Arctic.

Secretary Kerry was pleased to announce just this past week that Admiral Robert J. Papp, Jr. will lead our efforts to protect and advance U.S. interests in the Arctic Region as the State Department's Special Representative. We anticipate that he will soon travel to Alaska to consult with those on the front lines of our Arctic state.

Changing Arctic Environment

Pursuing responsible Arctic Region stewardship requires, among other things, enhanced scientific research and traditional knowledge. While the Arctic region

has experienced warming and cooling cycles over millennia, the current warming trend is unlike anything previously recorded. The reduction in sea ice has been both dramatic and abrupt. As portions of the Arctic Ocean become more navigable, there is increasing interest in the viability of shipping through the Northern Sea Route and other potential routes, including the Northwest Passage, as well as in development of offshore Arctic resources.

For all of the opportunities emerging with the increasing accessibility and economic and strategic interests in the Arctic, the opening and rapid development of the Arctic region presents very real challenges. We must, therefore, also recognize the negative effects that rising temperatures have on the Arctic region. Melting sea ice threatens marine mammal populations and the indigenous and local communities that depend on them. The warming also erodes the natural barrier of ice that seasonally shields Alaska's western and northern coast from significant storm events, causing serious erosion, with buildings literally falling into the sea. The thawing of the permafrost causes significant problems for roads and other infrastructure and has also led to increased Arctic wildfires. These and other challenges require the United States and our partners in the Arctic Region to help Arctic communities adapt to the changing environment and also to seek to prevent even more severe warming in the Arctic.

The United States is committed to doing our part. We have initiated efforts within the Arctic Council to mitigate so-called "short-lived climate pollutants" such as black carbon, methane, and tropospheric ozone. Recent studies have suggested that black carbon is a significant contributor to the observed, amplified Arctic warming. Unlike long-lived greenhouse gases such as carbon dioxide, black carbon's warming effects are short-lived, which means that reductions in emissions

will help mitigate Arctic warming in the near term. At the climate change conference in 2009, the United States launched the Arctic Black Carbon Initiative (ABCI) to help quantify emissions and impacts of black carbon from fossil fuel and biomass burning and to reduce black carbon emissions and the associated warming effects in and around the Arctic. To minimize the prospect of irreparable long-term harm to the Arctic – and the broader global impacts that such harm will have – we need to take sustained, effective measures to reduce global greenhouse gas emissions.

Law of the Sea Convention

The United States could significantly advance our national security and economic interests in the Arctic by joining the Law of the Sea Convention. Notwithstanding the strong support of past Administrations (both Republican and Democratic), the consistent backing of the military, and the support of all relevant industries and environmental groups, the Convention remains a key piece of unfinished international business for the United States. Further delay serves no purpose and deprives the United States of the significant economic and national security benefits we will gain by becoming a Party to the Convention.

The Law of the Sea Convention provides the basic legal framework applicable to the oceans, including the rules applicable to navigation, the determination of the outer limits of the continental shelf, fishing, environmental protection (including in ice-covered areas), and marine scientific research.

The Convention's provisions are highly favorable to U.S. national security interests, because navigational rights and freedoms across the globe for our ships

and aircraft are vital to the projection of sea power. In addition, the Convention's provisions are highly favorable to U.S. economic interests, in the Arctic and elsewhere:

- The Convention gives coastal States an exclusive economic zone (EEZ) extending 200 nautical miles offshore, encompassing diverse ecosystems and vast natural resources such as fisheries, energy, and other minerals. The U.S. EEZ is the largest in the world, spanning over 13,000 miles of coastline and containing 3.4 million square nautical miles of ocean—larger than the combined land area of all fifty states.
- The Convention also gives coastal States sovereign rights for the purpose of exploiting and managing resources of the continental shelf, which can extend beyond 200 nautical miles if certain criteria are met. The United States is likely to have one of the world's largest continental shelves, potentially extending beyond 600 nautical miles off Alaska. Only as a Party could we take advantage of the treaty procedure that provides legal certainty and international recognition of the U.S. continental shelf beyond 200 nautical miles.
- The Convention provides a mechanism for U.S. companies to obtain access to minerals of the deep seabed in areas beyond national jurisdiction.
- The Convention guarantees the ability to lay and maintain submarine cables and pipelines in the EEZs and on the continental shelves of other States and on the high seas.
- The Convention secures the rights we need for commercial ships to export U.S. commodities and provides legal protection for the tanker routes through which half of the world's oil moves.
- The Convention is the foundation upon which rules for sustainable international fisheries are based.

More broadly, U.S. accession is a matter of geostrategic importance in the Arctic, in terms of both symbolism and substance. We are the only Arctic nation that is not a Party. We are the only State bordering the Arctic Ocean that is not in a position to take full advantage of the Convention in pursuit of our national interest. We need to be a Party to the Convention to have the level of influence in the interpretation, application, and development of law of the sea rules that reflects our maritime status. We need to be a Party to the Convention to fully claim our rightful place as an Arctic nation.

Conclusion

The Arctic Region presents enormous and growing geostrategic, economic, environmental, and national security implications for the United States. The Department of State, in collaboration with other parts of the Federal Government, the State of Alaska, Alaska Natives, U.S. stakeholders and our international partners, is endeavoring to meet the challenges of the Arctic and to seize the opportunities within our grasp.

I very much appreciate the opportunity to appear before you today and I would be happy to answer any questions you may have.

Questions for the Record Submitted to
Ambassador David A. Balton by
Chairman Duncan D. Hunter
Subcommittee on Coast Guard and Maritime Transportation
Committee on Transportation and Infrastructure
July 23, 2014

Question:

1) According to the GAO's maritime infrastructure report[1], despite the fact that economic opportunities in the U.S. Arctic are considered to be "key drivers" for developing Arctic maritime infrastructure, "commercial industries currently have limited activity in the U.S ... and (have) similarly limited plans for activity over the next 10 years." What efforts have been made to engage the private sector in order to accelerate the Arctic region's economic development?

Answer:

The Department of State is aware that a number of other U.S. federal agencies routinely engage with the U.S. private sector to facilitate responsible development of the Arctic region. In carrying out the nation's foreign policy, the Department of State also interacts with a wide range of private sector groups as we try to understand and represent their interests and concerns.

In representing the United States in the Arctic Council, for example, we engage with the U.S. oil and gas industry and the U.S. shipping industry, among others. We also recently participated in the establishment of the Arctic Economic Council, a new forum which will seek to bring together private sector groups from around the Arctic region to foster responsible and sustainable development.

[1] The Government Accountability Office '*Maritime Infrastructure Report to Congress*'

Question:

2) Arctic waters are becoming more accessible to ship traffic and have spurred renewed interest in energy exploration. How will next year's U.S. chairmanship of the Arctic Council help coordinate best practices between countries to oversee this increase of Arctic offshore activity?

Answer:

We certainly agree that increased access to the Arctic has spurred renewed interest in energy exploration, not only in the United States but in many parts of the region. We also believe that the upcoming U.S. chairmanship of the Arctic Council presents a significant opportunity for the United States to exercise leadership on a wide range of pressing issues. While we are still in the process of developing proposed themes and initiatives for our chairmanship, we are grateful for your suggestion that one element could focus on the coordination of best practices in managing offshore energy development.

The nation that chairs the Arctic Council has significant influence over the Council's agenda and general direction. With that said, the Council operates by consensus of all its members. Ultimately, the United States will need to obtain the support of those other members for our proposed themes and initiatives.

Questions for the Record Submitted to
Ambassador David Balton by
Representative John Garamendi (1-2)
Subcommittee on Coast Guard and Maritime Transportation
House Committee on Transportation and Infrastructure
July 23, 2014

Arctic Council Priorities and Objectives

Next year the United States will assume the rotating chair of the Arctic Council and have the opportunity to lead the Council over the next two years.

Question:

1) What does the administration hope to accomplish during this two-year period? What are the Administration's priorities?

Answer:

We are currently in the process of developing a robust program for our Chairmanship through regular meetings with federal interagency counterparts and the State of Alaska, including Alaska Native groups, business community, academia, environmental NGOs, and other interested stakeholders. While we have not yet finalized our program, it will be in line with the priorities laid out in the National Strategy for the Arctic Region and its subsequent Implementation Plan released in January 2014. Current areas we plan to highlight during the U.S. Chairmanship are climate change in the Arctic, improving economic and living conditions for Arctic residents, and responsible stewardship of the Arctic Ocean. Examples of projects in these areas might include improving access and

availability of clean energy to remote Arctic communities, improving water sanitation, improving monitoring of black carbon emissions, and pursuing an international framework to manage and protect the fisheries and other important ecological marine resources of the Arctic Ocean.

Question:

2) Can we expect the Administration to include additional funding in its Fiscal Year 2016 budget request to support any new Arctic initiatives during the two year chairmanship?

Answer:

Our program, including any new Arctic initiatives, has not yet been finalized so it is not possible at this time to determine whether additional funding will be requested in the Fiscal Year 2016 budget request. Any budget activity will be finalized by the time we submit the Fiscal Year 2016 Congressional Budget Justification is submitted to Congress.

Questions for the Record Submitted to
Ambassador David Balton by
Representative John Garamendi (3-4)
Subcommittee on Coast Guard and Maritime Transportation
House Committee on Transportation and Infrastructure
July 23, 2014

GAO Arctic Council Audit

The Government Accountability Office recently concluded an audit of the Arctic Council and U.S. participation in the activities of the Council and offered some substantive recommendations to improve accountability and effectiveness.

Question:

3) Does the administration agree with these recommendations? What steps is the administration taking to implement them?

Answer:

The Department of State appreciates the GAO's useful insights into, and recommendations for, U.S. participation in the Arctic Council. The GAO report included three recommendations for Executive action, which call for the Department to: (a) develop a joint strategy for U.S. participation in the Council that outlines a clear direction for the agencies and identifies resources needed to sustain collaborative efforts and consistent participation in the Council; (b) develop a process to review and track U.S. progress in implementing existing and any future Arctic Council recommendations; and (c) work with other Arctic States to develop guidelines for producing clear recommendations with measurable actions and to prioritize the recommendations.

The Department of State generally supports the three proposed recommendations. The first two recommendations entail action to be taken by the U.S. Government to help strengthen U.S. participation in the Arctic Council and the third recommendation is intended to strengthen the Council itself by rationalizing its work products.

We are exploring how to implement the first two recommendations to enhance U.S. participation in the Arctic Council with our interagency partners and expect to make some progress in the months ahead. We have begun an important dialogue with representatives of other agencies to further enhance our coordination efforts and assess future resource needs for Arctic Council issues.

The third recommendation to work with other Arctic States to develop guidelines for producing clear, prioritized recommendations with measureable actions is compatible with one of our overarching goals we expect to achieve during the U.S. Chairmanship of the Arctic Council beginning in 2015: to strengthen the Council and leave it in a stronger position than when we took the chair. As we make preparations to assume the Chairmanship in 2015, we are considering how best to work with other Arctic nations to ensure the recommendations produced by the Council are measureable and effective.

Question:

4) Is there any need for a formal international treaty or convention to improve the effectiveness of the Council and strengthen the commitment of the Arctic nations that are members?

Answer:

We do not believe that a formal international treaty or convention is necessary for the Arctic Council to undertake meaningful and effective work or to strengthen the commitment of Arctic nations. The law of the sea, as reflected in the Law of the Sea Convention, already provides the applicable international legal framework for activities in the Arctic involving traditional uses of the seas. We are the only Arctic nation that is not a party to the Convention. Joining it would enable us to take full advantage of the Convention in pursuit of our national interest.

The structure of the Council provides a flexible framework for multilateral work on Arctic issues by the eight Arctic states and also provides Arctic indigenous peoples and other Arctic inhabitants – those most affected by our actions in the region – with a meaningful voice on the issues. Additionally, the current Council framework gives each Arctic state a significant stake in the Council and the work that it performs through factors such as the rotating chairmanship, consensus based decision making, and collaborative work on mutually important issues and initiatives.

Questions for the Record Submitted to
Ambassador David Balton by
Representative John Garamendi (5)
Subcommittee on Coast Guard and Maritime Transportation
House Committee on Transportation and Infrastructure
July 23, 2014

Ratification of the of the Law of the Sea Convention

The United States has yet to ratify the United Nations Convention on the Law of the Sea which came into force in 1994. Despite the obvious embarrassment, I am concerned that by not ratifying the convention we may be disadvantaging the interests of the United States in the Arctic, especially in extending U.S. sovereignty over portions of the Arctic continental shelf.

Question:

5) How critical is it to the interests of the United States, in general, to ratify the Law of the Sea Convention, and specifically, how important is ratifying the Convention to the successful implementation of the U.S. Arctic Strategy?

Answer:

It is critically important to the interests of the United States to accede to the Law of the Sea Convention. The Law of the Sea Convention provides the basic legal framework applicable to the oceans, including the rules applicable to navigation, the determination of the outer limits of the continental shelf, fishing, environmental protection (including in ice-covered areas), and marine scientific research. The Convention's provisions are highly favorable to U.S. national security interests, because navigational rights and freedoms across the globe for our ships and aircraft are vital to the projection of sea power. This is particularly

important as portions of the Arctic Ocean become more navigable, increasing the viability of shipping through the Northern Sea Route and other potential routes, including the Northwest Passage.

In addition, the Convention's provisions are highly favorable to U.S. economic interests, in the Arctic and elsewhere. The Convention gives coastal States an exclusive economic zone (EEZ) extending 200 nautical miles offshore, encompassing diverse ecosystems and vast natural resources such as fisheries, energy, and other minerals. The United States' EEZ is the largest in the world, spanning over 13,000 miles of coastline and containing 3.4 million square nautical miles of ocean. The Convention also gives coastal States sovereign rights for the purpose of exploiting and managing resources of the continental shelf, which can extend beyond 200 nautical miles if certain criteria are met. The United States is likely to have one of the world's largest continental shelves, potentially extending beyond 600 nautical miles off Alaska.

More broadly, U.S. accession is a matter of geostrategic importance in the Arctic, in terms of both symbolism and substance. We are the only Arctic nation that is not a Party. We are the only State bordering the Arctic Ocean that is not in a position to take full advantage of the Convention in pursuit of our national interest. We need to be a Party to the Convention to fully claim our rightful place as an Arctic nation.

While the United States is not currently a party to the Convention, we do support and observe principles of established customary international law reflected in the Convention. We are in a position to implement the strategic priorities set forth in the *National Strategy for the Arctic Region*. However, only by joining the Convention can we maximize legal certainty and best secure international recognition of our sovereign rights with respect to the U.S. extended continental shelf in the Arctic and elsewhere, which may hold vast oil, gas, and other resources. Additionally, we need to be a Party to the Convention to have the level of influence in the interpretation, application, and development of law of the sea rules that reflects our maritime status. Further delay serves no purpose and deprives the United States of the significant economic and national security benefits we will gain by becoming a Party to the Convention.

Questions for the Record Submitted to
Ambassador David Balton by
Representative John Garamendi (6)
Subcommittee on Coast Guard and Maritime Transportation
House Committee on Transportation and Infrastructure
July 23, 2014

Cooperation with Russia

The recent conflict in eastern Ukraine is the latest in a series of events that have strained U.S. - Russia relations. This raises the question of whether this could have a detrimental effect on U.S.-Russia cooperation in the Arctic or alter the geopolitics in the High North.

Question:

6) What is the status of cooperation in the Arctic between our country and Russia? Have these relationships also become strained? What is the prognosis for future collaboration?

Answer:

Our relationship with Russia has clearly been strained as a result of its actions in recent months. However, the United States and Russia do have common interests in the Arctic and we will continue to cooperate and collaborate with Russia when it is in our national interest to do so. This includes efforts to work through multilateral fora such as the Arctic Council, to promote safe passage of vessels and search and rescue capability throughout the Arctic, and to prepare for possible oil pollution incidents.

Questions for the Record Submitted to
Ambassador David Balton by
Representative Rick Larsen
Subcommittee on Coast Guard and Maritime Transportation
House Committee on Transportation and Infrastructure
July 23, 2014

Ambassador Balton, in May the Government Accountability Office issued a report that the United States has not prioritized its commitments to the Arctic Council and that a lack of an organizational Arctic head has limited the administration's efforts to coordinate the many agencies that deal with Arctic issues. The report also stated that the State Department only has two employees working on Arctic policy full time, which seems rather sparse given our chairmanship of the Arctic Council is coming up next year.

Question:

1) What is the administration doing to respond to the GAO findings?

Answer:

The Department of State appreciates the GAO's useful insights into, and recommendations for, U.S. participation in the Arctic Council. The GAO report included three recommendations for Executive action, calling for the Department to: (a) develop a joint strategy for U.S. participation in the Council that outlines a clear direction for the agencies and identifies resources needed to sustain collaborative efforts and consistent participation in the Council; (b) develop a process to review and track U.S. progress in implementing existing and any future Arctic Council recommendations; and (c) work with other Arctic States to develop

guidelines for producing clear recommendations with measurable actions and to prioritize the recommendations.

The Department of State generally supports the three proposed recommendations. The first two recommendations entail action to be taken by the U.S. Government to help strengthen U.S. participation in the Arctic Council and the third recommendation is intended to strengthen the Council itself by rationalizing its work products.

We are exploring how to implement the first two recommendations to enhance U.S. participation in the Arctic Council with our interagency partners and expect to make some progress in the months ahead. We have begun an important dialogue with representatives of other agencies to further enhance our coordination efforts and assess future resource needs for Arctic Council issues.

The third recommendation to work with other Arctic States to develop guidelines for producing clear, prioritized recommendations with measureable actions is compatible with one of our overarching goals we expect to achieve during the U.S. Chairmanship of the Arctic Council beginning in 2015: to strengthen the Council and leave it in a stronger position than when we took the chair. As we make preparations to assume the Chairmanship in 2015, we are considering how best to work with other Arctic nations to ensure the recommendations produced by the Council are measureable and effective.

Question:

2) Is it true that only two employees at the State department work on these issues? Does your agency have the resources necessary to engage in this work in a substantive way?

Answer:

Reflective of the broad geographic, economic, and strategic interests encompassing the Arctic region, officers from numerous bureaus of the Department have various Arctic region responsibilities as part of their broader portfolio. For example, country officers from the Bureau of European and Eurasian Affairs and the Bureau of Western Hemisphere Affairs carefully follow our fellow Arctic states' policies and activities with regard to the Arctic as part of their overall country profiles. This work is done in close coordination with dedicated Arctic officers within the Bureau of Oceans and International Environmental and Scientific Affairs, which has primary responsibility for Arctic diplomacy and implements many aspects of the Department's Arctic policy. By the end of Fiscal Year 2014, the Bureau of Oceans and International Environmental and Scientific Affairs will have six full time personnel exclusively dedicated to Arctic Council work and overall Arctic policy.

The Department was also pleased to announce on July 16, 2014, that Admiral Robert J. Papp, Jr. will lead and coordinate our efforts to protect and advance U.S. interests in the Arctic Region as the State Department's Special

Representative. The appointment of Admiral Papp, a distinguished and senior, high-level public servant with broad foreign policy experience and a passion for the Arctic, as Special Representative for the Arctic, recognizes the importance of the Arctic Region, and reflects the President's commitment to elevate Arctic issues in our nation's foreign policy, particularly as we prepare to Chair the Arctic Council.

Collectively, we have a very formidable team in place that allows us to meet the challenges and seize upon the opportunities of a rapidly changing Arctic region. This construct also enables the Department ability to utilize resources in an effective and efficient manner. We anticipate that we will have sufficient staffing to chair the Arctic Council in 2015.

WRITTEN TESTIMONY OF
DAVID WESTERHOLM
DIRECTOR, OFFICE OF RESPONSE AND RESTORATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

HEARING BEFORE THE
SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

July 23, 2014

Introduction
Good morning Chairman Hunter, Ranking Member Garamendi, and Members of the Subcommittee. My name is David Westerholm, and I am the Director of the Office of Response and Restoration at the National Oceanic and Atmospheric Administration (NOAA), within the Department of Commerce. Thank you for inviting NOAA to testify before you today on NOAA's work to implement U.S. policy in the Arctic.

For over two hundred years, NOAA and its predecessor organizations have provided foundational data, products, and services to support safe, efficient maritime commerce, which is a cornerstone of our Nation's economy. Today, as sea ice retreats and interest in Arctic economic use grows, NOAA is working hard to increase its presence in the Arctic, which includes the Aleutian Islands, Bering Sea, Chukchi Sea, Beaufort Sea, and vast terrestrial areas of northern and western Alaska as defined by the Arctic Research and Policy Act of 1984. NOAA has a long history of Arctic science, service, and stewardship, including weather and climate services, nautical charting and other navigation services, natural resource management, and spill preparedness and response. NOAA has issued an Arctic Report Card every year, starting in 2006, providing a clear, reliable, and concise source of environmental information on the current state of the Arctic. In 2011, NOAA issued its Arctic Vision and Strategy to define the substantial role that it plays in the region and to provide direction for the future. The NOAA Arctic Action Plan released this year builds on the Vision and Strategy by providing information on NOAA's Arctic activities in 2014-2015.

NOAA is using state-of-the-art technology and innovative partnerships to improve Arctic marine navigation, provide ocean and coastal observations and weather forecasts, deliver hazard assessment, preparedness, and response, promote environmental stewardship, and provide other information and expertise to communities, the maritime industry, and navigation interests in and around Alaska. These efforts directly support NOAA's Arctic Vision and Strategy and are described in NOAA's Arctic Action Plan. NOAA envisions an Arctic where decisions and actions related to conservation, management, and use are based on sound science and support healthy, productive, and resilient communities and ecosystems. The agency seeks a future where the global implications of Arctic change are better understood, predicted, and managed.

Arctic Marine Navigation

Under its authorization to provide nautical charts covering the U.S. Exclusive Economic Zone, NOAA is responsible for charting the U.S. Arctic and provides other foundational data and services that support safe marine navigation and domain awareness. Accurate and up-to-date nautical charts are critical to safe marine navigation and require not only bathymetric data, but also data on shoreline features, water levels, seafloor characteristics, precise positioning, and other observations and measurements of value to mariners. NOAA is continuing to make progress in charting and mapping the Arctic region's ocean and coasts, so long obscured by perennial ice, according to reliable, modern standards. Given the vast expanse of water and coastline to be charted and mapped, NOAA is prioritizing and synchronizing charting efforts to make more effective use of resources and attain faster progress. To this end, NOAA is investing in hydrographic surveys in the Arctic as well as shoreline mapping missions and tide and current surveys in order to enhance its provision of navigation products and services in the region. For example, over the past three years, NOAA has acquired, using both NOAA ships and private sector survey assets, 1,330 square nautical miles of charting data in the Arctic.

In 2013, NOAA issued an update to its Arctic Nautical Charting Plan, which identifies regions where inadequate chart coverage should be improved, given available resources. This update was informed by consultations with maritime interests, the public, and other federal, state, and local agencies, in order to keep pace with the rapidly changing Arctic environment and the associated increase in maritime commerce and energy development activities. One such example is the Arctic's Delong Mountain Terminal, a shallow-draft port that services the Red Dog Mine on Alaska's northwest coast. This month, NOAA published a new chart for the terminal area, which fills in historically sparse depth measurements using recently acquired survey data. The Red Dog Mine is one of the world's largest producers of zinc concentrate, a fact that further underscores the economic value of a new chart for this Arctic port. The terminal's shipping season lasts only about 100 days, so shipping efficiency is vital. This is the third new Arctic chart that NOAA has issued in the past three years, the others being for Kotzebue Harbor in 2012 and Bering Strait North in 2013.

NOAA is working with partners to augment its capacity to provide a stronger geospatial foundation and the data needed for safe navigation, science, and more-informed coastal decision-making in the Arctic. This approach will leverage existing coordination by agencies involved in integrated ocean and coastal mapping and the predecessor groups to the new Alaska Geospatial Council. Partners with echo-sounder equipped vessels such as the U.S. Coast Guard, U.S. Navy, the academic fleet, and private industry may be able to collect depth data en route between Dutch Harbor and the Arctic Ocean for analysis and possible charting by NOAA. The highest priority focus of this effort will be 40,000 square nautical miles in need of surveys in order to reduce transit risks from the Aleutian Islands through the Bering Strait and to/from Alaskan coastal communities. Employing this integrated mapping concept will result in more accurate data and charts along the most-utilized Arctic open water routes, allowing NOAA to focus its resources on the more challenging coastal areas for harbors of refuge, port access, and coastal community resilience.

Land elevation data in Alaska currently has errors of up to a meter or more. To fix this and establish a highly precise vertical positioning framework for the U.S., NOAA is collecting airborne gravity data across the Nation. Under its Gravity for the Redefinition of the American Vertical Datum initiative, NOAA has completed about 50 percent of the Alaskan Arctic and expects the data collection effort in Alaska to be completed by the end of 2019.

During the past decade, NOAA – in close collaboration with the U.S. Coast Guard and other federal partners – has gathered and analyzed data and seafloor samples to determine the outer limits of the U.S. Extended Continental Shelf (ECS) in the Arctic. The data collected to make these shelf extension determinations will provide a rich baseline for understanding the diversity of this maritime zone and for setting future exploration, research, and resource management priorities. The data acquisition phase for this effort in the Arctic is essentially complete. NOAA continues to work with the State Department, U.S. Geological Survey, U.S. Coast Guard, and other partners on ECS delineation. The focus has shifted to analyzing the extent of the U.S. continental shelf under the provisions of Article 76 of the Law of the Sea Convention, as well as conducting the exploration and research necessary to identify and evaluate potential new marine resources, and to identify and characterize marine ecosystems and habitats in this changing environment. While the widespread benefits are not limited to the continental shelf and its resources, the only way we can maximize legal certainty and best secure international recognition of our sovereign rights with respect to the U.S. extended continental shelf in the Arctic and elsewhere is through accession to the Law of the Sea Convention.

Coastal and Ocean Observations

NOAA's coastal and ocean observations, when combined with up-to-date nautical charts and precise positioning information, provide mariners with a clearer picture of potential dangers that may threaten navigation safety.

NOAA operates and maintains nine long-term National Water Level Observation Network (NWLON) stations in the Aleutian Islands and northward in Alaska that provide real-time water level data and the vertical reference for tidal datums along the coast. All existing NWLON stations measure water levels on one-minute intervals and provide the data to NOAA's Tsunami Warning Centers to help improve tsunami warnings, forecasts, and inundation models. In the Arctic, NOAA is focusing its efforts on improving water level datum coverage as well as obtaining better data on currents. Short-term water level gauges are being deployed to support hydrographic surveying, and the NOAA VDatum modeling project is working to seamlessly transfer between tidal and geodetic datums. NOAA is also developing water level measurement technology that can endure the harsh climate of remote Arctic areas.

The U.S. Integrated Ocean Observing System regional partner, the Alaska Ocean Observing System (AOOS), is working to improve information collection and dissemination by providing easy access to a network of critical ocean and coastal observations, data, and information products. AOOS' primary activities include centralizing data with web-based tools and products, working with marine users to improve ocean monitoring, and fostering collaborations to meet multiple stakeholder needs. AOOS focuses on four areas: safe marine operations, coastal hazard mitigation, tracking ecosystem and climate trends, and monitoring water quality.

Weather and Sea Ice Forecasts to Support Marine Navigation
NOAA provides forecasts, warnings, and information for marine, aviation, and other weather interests, which are critical for maritime domain awareness in the Arctic. Major stakeholders and partners, including the U.S. Coast Guard and the State of Alaska, require weather, water, and sea ice information for planning and decision-making, to serve communities and to manage the region's many resources. People in the Arctic rely heavily on aviation, marine weather, and sea ice information for safe transportation and access to goods and services. Forecasts and warnings are delivered through a number of media, from the Internet to high-frequency radio broadcasts.

Increasing air and ocean temperatures, thawing permafrost, loss of sea ice, and ecosystem shifts are evidence of widespread growing change in the Arctic. Critical environmental, economic, and national security issues are emerging that may have significant impacts on human lives, livelihoods, and coastal communities. Meeting the information needs for Alaska, with its vast size, remote population, and cultural diversity, presents NOAA with unique challenges. Partners, emergency managers, and communities in the Arctic deal with extremes in temperature, darkness, and sea ice, further complicating decisions and possible actions.

There is limited physical infrastructure for emergency response needs for the 34,000 miles of Alaska's tidal shoreline. Extreme travel distances, a lack of available logistics, and fluctuating maritime surface and air assets in the region, including a U.S. Coast Guard scalable presence, dramatically increases response times, in addition to the noted seasonal and extreme weather challenges. For example, a decision to deliver heating fuel to a coastal community in the Arctic may require weather and sea ice outlooks weeks in advance to ensure safe navigation. Evacuation of coastal communities that might take several hours in Connecticut, for example, may take several days in remote Alaska during the winter, when daylight hours are fewer and emergency response is hindered by darkness. These unique challenges make NOAA's decision support services vitally important to Arctic communities.

NOAA's polar-orbiting satellites (NOAA-15/18/19) provide diverse environmental data collection capabilities with the Argos Data Collection and location System (DCS), in partnership with others. Globally, more than 21,000 active Argos platforms are being tracked by over 1,900 users in 115 countries, with 957 of these operating in the Arctic (41 in the Antarctic). The Argos system consists of in-situ data collection platforms equipped with sensors and transmitters and Argos instruments currently operational aboard three NOAA, two European, and one Indian polar-orbiting satellites. A unique capability of the Argos DCS is independent geolocation, which permits applications such as drifting ice and ocean buoys for collection of meteorological and oceanographic observations, wildlife studies, and tracking fishing vessels and larger ships.

To achieve weather and sea ice forecasts, the State of Alaska utilizes polar-orbiting satellite data in addition to conventional ground observations which are made difficult because of Alaska's vast and complex terrain. Because it is so far north, Alaska also cannot take advantage of the Geostationary Operational Environmental Satellite (GOES) coverage used by the lower 48 states and Hawaii. The Suomi National Partnership Program satellite (Suomi NPP), the first of the next generation polar-orbiting satellite, Joint Polar Satellite System (JPSS), is therefore paramount for space-based observation to support weather forecasts and environmental assessments necessary for maritime domain awareness in the Arctic. NPP sounders and imagers continuously survey the

globe with the most frequent update across the poles, and sounders provide the critical atmospheric observations needed to forecast severe weather events out to seven days so that effective planning to safeguard lives and property can take place.

Weather and sea ice forecasting are closely linked, and forecasts are often provided together. Weather conditions affect the development and movement of sea ice, and the loss of sea ice in the Arctic impacts the weather and climate. The present rate of sea ice loss, with its regional and global impact, creates an urgency to improve sea ice predictions at all time scales, from the short term (i.e., daily to weekly) to seasonal and decadal time scales. NOAA provides Arctic sea ice analysis and forecast services from local to regional scales through the National Weather Service, and at basin to global scales through the U.S. National Ice Center in collaboration with the U.S. Navy and Coast Guard. The National Ice Center participates in a close international relationship and data exchange with the Canadian Ice Service and the Canadian Meteorological Centre of Environment Canada. The National Snow and Ice Data Center archives much of the National Ice Center data and makes these data available for initializing weather and ocean models which are used for research and long term status and trends of sea ice.

Accurate weekly sea ice information is important for many stakeholders to operate in the marine environment, including the U.S. Coast Guard, Arctic coastal communities and Alaska Native populations, the oil and gas and fishing industries, first responders to emergencies, and scientific researchers. To improve weekly sea ice forecasts, NOAA is developing and refining higher spatial resolution regional sea ice models for Alaska. Increased temporal and high resolution remote-sensing data are also being pursued to enhance monitoring of ice conditions and to provide accurate current conditions critical for safety and efficiency of coastal transportation in Arctic regions, and in support of response and mitigation activities during environmental and man-made hazards, disasters, and emergencies.

The ability to provide accurate advanced sea ice predictions of the seasonal timing of the freeze-up and melt-out of sea ice has direct implications for U.S. commerce and industry. For example, in 2012, the Bureau of Ocean Energy Management asked NOAA to assist in reviewing an oil and gas industry request to extend the drilling season in the Chukchi Sea based on the possibility of a late freeze-up of sea ice. NOAA provided a probability-based sea ice forecast indicating an unusually rapid freeze-up. The resulting decision to deny the extension request mitigated risks for offshore drilling operations.

Weather analysis and prediction capabilities are currently less skillful in the Arctic than in other parts of the United States. Major challenges for long-term modeling being addressed by NOAA include the lack of good physical data regarding winds and clouds. Although accurate forecasts and models depend upon the availability of observations, existing observations in the Arctic are very limited in both geographic scope and frequency. NOAA will continue to improve Arctic marine weather, storm surge, and sea ice forecast services. Forecast improvements will be made by enhancing and integrating different types of observations of the atmosphere, sea ice, and ocean, and by directly combining sea ice and climate models with weather forecast models. Improved sea ice and marine weather forecasting would assist the energy, maritime shipping, and transportation industries as well as infrastructure planning, economic development, and ecosystem stewardship.

Hazard Assessment and Response

Decreased summer sea ice is already leading to marginal growth in Arctic commerce, tourism, and oil and gas exploration. The chances of oil spilling from either a vessel or exploratory drilling facility are likely to increase in the future, and NOAA has a role in the readiness and effectiveness of spill response capabilities in the Arctic. NOAA is responsible for delivering scientific support to the U.S. Coast Guard for marine hazards, including oil spills and marine debris. In addition, the Oil Pollution Act of 1990 established NOAA as a trustee for natural resources and outlined a framework for conducting natural resource damage assessment and restoration of natural resources that have been contaminated by the discharge or threatened discharge of oil. The Comprehensive Environmental Response, Compensation and Liability Act provided similar authorities for hazardous substances, pollutants, or contaminants that could endanger human health and/or the environment.

Under the National Oil and Hazardous Substances Pollution Contingency Plan, NOAA provides scientific support in chemistry, trajectory modeling, natural resources at risk, and data management to the federal On-Scene Coordinator for oil and hazardous material spills. NOAA's Alaska regional Scientific Support Coordinators would provide scientific support to USCG in the case of any spills in Alaska waters. In addition to spill response software and mapping tools, NOAA provides standard techniques and publishes guidelines for observing oil and assessing shorelines.

NOAA participates in interagency cross-training exercises for emergency responders, including response to oil in sea ice. NOAA is involved in joint training and workshops with other Arctic nations on oil spill response activities in the Arctic, such as the use of mechanical recovery, dispersants, and in situ burning following transboundary spill events.

To support preparedness for spill response and natural resource damage assessment in the Arctic, NOAA has been compiling and developing baseline information on natural resources in the Arctic and preparing Arctic injury assessment sampling guidelines. NOAA has also engaged Alaska communities in preparing for spill response and natural resource damage assessment and restoration. For example, NOAA is working with partners at all levels of government and with Alaska Native organizations to develop an Arctic marine mammal disaster response plan to outline protocols for responding to marine mammal strandings and protecting species that local communities rely upon for subsistence. NOAA also works actively with the Department of the Interior to ensure that NOAA's expertise is applied in reviewing oil spill response plans and applications for exploratory drilling permits.

In 2012, NOAA launched the Arctic Environmental Response Management Application (Arctic ERMA®). ERMA® is a web-based tool that assists both emergency responders and environmental resource managers in dealing with incidents that may harm the environment. This system integrates and synthesizes data into a single interactive map, providing quick geo-spatial visualizations and improving communication and coordination. ERMA® brings together all of the available information needed for an effective emergency response in the Arctic's distinctive conditions, such as the extent and concentration of sea ice, the locations of ports and pipelines, and the presence of vulnerable cultural and environmental resources. Arctic ERMA® was tested

during the 2013 Arctic Shield, an operational exercise conducted by the U.S. Coast Guard's 17th District, which highlighted the Coast Guard's plans to protect the maritime community in the Arctic and to strengthen partnerships with federal, state, local, tribal and community members. This operation gave the Coast Guard and its partners an opportunity to exercise capabilities to ensure the organization has the right resources to conduct Arctic operations. Arctic ERMA® provided the Common Operational Picture for the scientific studies taking place, including the operational tests where there was an oil proxy as a target for multiple sensors and unmanned aerial and Remotely Operated Vehicle systems accomplished at the edge of the receding Arctic ice aboard the Coast Guard's icebreaker HEALY. Arctic ERMA® will be used again on Arctic Shield in 2014. NOAA appreciates the opportunity and looks forward to participating in this important effort.

As the Arctic becomes more accessible to maritime traffic (e.g., cargo and tanker vessel traffic through the Bering Strait and Unimak Pass, commercial fishing traffic, and increased cruise and recreational vessels), the potential for incidents will also grow. As noted earlier, accurate charts and other aids to navigation are essential for safe navigation, and for response to spills and other marine hazards. Accurate charts and aids to navigation are also key spill prevention tools and critical to selecting places of refuge for a stricken vessel, as well as staging of marine assets for any large response or salvage efforts.

Stewardship: Natural Resource Management and Regulatory Activities
NOAA is responsible for research on marine species and their habitats in the coastal oceans of the Arctic region. These waters support some of the most important commercial fisheries in the world, as well as rich, productive ecosystems. NOAA protects Arctic living marine resources and their habitats under the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act, and the Endangered Species Act. NOAA is committed to furthering the goals of fishery sustainability, including taking a precautionary management approach where necessary. For example, in 2009, under the Magnuson-Stevens Act, the Secretary of Commerce approved the Arctic Fishery Management Plan, which covers U.S. federal waters of the Chukchi and Beaufort seas. The plan prohibits commercial fishing north of the Bering Strait until more information is available to support sustainable fisheries management.

Partnerships in the Arctic
NOAA participates in international and interagency groups that unite various stakeholders around common causes in Alaska and the Arctic, including the Committee on Marine Transportation, the Interagency Arctic Research Policy Committee, the international Arctic Council and World Meteorological Organization. The objective of these partnerships ranges from enhancing science to promoting safe navigation and emergency response. NOAA works closely with several of its sister agencies on Arctic issues, notably the U.S. Coast Guard. NOAA and the U.S. Coast Guard have also improved ties on common mission areas relating to navigation safety, pollution prevention and cleanup, and fishery enforcement in the Bering Sea through development of the 2013 U.S. Coast Guard and NOAA Cooperative Maritime Strategy. NOAA is also an active member of both the national and regional components of the Interagency Working Group on the Coordination of Domestic Energy Permitting in Alaska. This group leads federal agency coordination on regulating and permitting energy development in Alaska, including offshore oil and gas drilling and renewable energy efforts.

NOAA's partnerships in the Arctic region with the private sector are also growing. An excellent example is the 2011 data-sharing Memorandum of Agreement between NOAA, Shell, ConocoPhillips, and Statoil. This precedent-setting document is advancing Arctic science and improving operational safety by making valuable data on weather, sea ice, ocean, and environmental studies available to researchers, planners, industry operators, and the public through the AOOS Arctic Data Portal funded by NOAA and Arctic ERMA®.

NOAA also has longstanding partnerships through the Geographic Information Network of Alaska (GINA). GINA is a mechanism supported by the University of Alaska for sharing data and technical capacity among Alaskan, Arctic, and world communities. Established in 2001 as an initiative of the President of the University of Alaska, GINA promotes collaboration at the local, state, and federal levels by increasing community-wide participation in the discovery and use of geospatial data. GINA's products and services greatly expand the range of available analysis capabilities in order to better address research and management requirements. Earth Observing satellite data from NOAA, NASA, and foreign satellites that downloaded at the NOAA Fairbanks Satellite Operations Facility is shared with many state, federal, and private sector users through GINA.

NOAA is always seeking productive ways to strengthen its partnerships with the State of Alaska and the Alaska Native community. NOAA values its long-standing partnerships with Alaska Native groups, and NOAA and the State of Alaska are working together on oil spill response logistics and education and water quality and contaminants surveys. Currently, the State of Alaska is accepting public comment on its own Arctic strategy, and NOAA is looking forward to coordinating with the State on its implementation once the strategy is finalized.

Conclusion

NOAA plays a unique and important role in providing critical informational infrastructure to support safe, reliable, and efficient marine navigation in the Arctic. Local, state, federal, and international partnerships are critical to achieving successful Arctic operations in a unique and challenging environment. Thank you for the opportunity to discuss some of those efforts with you. We would welcome the opportunity to provide the Committee with greater detail on any of NOAA's Arctic activities and services.

QUESTIONS FOR THE RECORD
FROM THE
HEARING BEFORE THE
SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

July 23, 2014

DAVID WESTERHOLM
DIRECTOR, OFFICE OF RESPONSE AND RESTORATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

Navigation & Communications

A recent GAO report on maritime infrastructure[1] found that less than one percent of "navigationally significant" Arctic waters have been surveyed. Taking into account the fairly expansive nature of the US Arctic coastline, and the Federal Government's limited resources in this area, what can we do to resolve this problem and ensure that vessels have the up-to-minute, high-resolution data necessary to operate effectively in the region?

Response:

NOAA has identified approximately 240,000 square nautical miles of U.S. Arctic waters as "navigationally significant" and has worked with stakeholders to identify 40,000 square nautical miles of this as highest priority for hydrographic surveying. NOAA is using a multi-faceted approach to address its surveying and charting mission in the Arctic. NOAA has developed and continues to explore partnerships with federal, state, and nongovernmental entities in order to maximize the availability of bathymetric and other hydrographic data through an integrated ocean and coastal mapping approach. NOAA is leading an international effort, through the Arctic Regional Hydrographic Commission, to assess the adequacy of hydrographic and charting data throughout the Arctic, which is helping prioritize its surveying resources. NOAA also solicits input from its maritime stakeholders to help identify mapping needs and prioritize survey missions.

In recent years, NOAA has spent between $6 million and $11 million annually to survey in Arctic waters while balancing survey priorities throughout the entire United States Exclusive Economic Zone. NOAA is capable of surveying approximately 500 square nautical miles per year in the Arctic between its fleet and contract assets. In 2015, for example, NOAA plans to survey at Barrow, Point Hope, Kotzebue, the Bering Strait, and Port Clarence, which were identified as priorities for navigation safety via interactions with stakeholders, such as the U.S. Coast Guard and Alaska Natives, among others. NOAA has made mapping and charting in the U.S. Arctic a priority; however, the brief field season creates logistical challenges for data acquisition.

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[1] The Government Accountability Office *'Maritime Infrastructure Report to Congress'*

Oil Spill Response

A report published by the U.S. Coast Guard noted that "commercial ventures in the Arctic have increased maritime traffic in the Bering Strait.... by 118 percent between 2008 and 2012[2]." With that growth there is far greater likelihood of oil pollution coming from shipping. As vessel traffic continues to increase in the Arctic, what are we doing to improve vessel monitoring and spill response capabilities? In particular, should we be looking to mirror the joint program that we have with Canada in the St Lawrence waterway, with something similar with Russia in the Bering Sea?

Response:

With the receding sea ice and expanded shipping, energy exploration, and other commercial activities in the Arctic, the threat of oil spills in the region is increasing. Not only do Arctic nations share these risks, but responding to an oil spill in the U.S. Arctic presents unique logistical, environmental, and cultural challenges unparalleled in any other U.S. body of water.

NOAA's Office of Response and Restoration (OR&R) has increased its attention and staff presence in that region, a trend we plan to continue. ORR experts are actively engaged in the Arctic, participating on the Alaska Regional Response Team and Alaska Joint Assessment Teams, furthering research, and planning for and responding to spills in the region. For example, this August a team of NOAA scientists was onboard the U.S. Coast Guard Cutter Healy testing Unmanned Aerial Systems (UAS) technology for oil spill response and the Arctic Environmental Response Management Application (ERMA®), a mapping tool that integrates data into a single interactive map to enhance coordination among responders and environmental stakeholders. Normally a web-based tool, a special internet-independent version of ERMA® served as the common operational picture for scientific data on the voyage. In addition, NOAA personnel assimilated the UAS data collected into the Arctic ERMA®.

While NOAA has made advances and improvements, there remains much work to do for safer and more effective response in the region. NOAA's OR&R is developing an Arctic safety strategy to provide a broader assessment and list of specific recommendations for staff training and equipment needed to work safely in the Arctic region.

NOAA is also committed to furthering the science of spill response in Arctic waters. Under NOAA's Arctic Action Plan, NOAA is continuing to compile and refine data sets in Arctic ERMA®, improving natural resource maps and oil spill modelling, developing plans and technology for response in ice-covered Arctic seas, and finalizing and testing contingency plans to ensure adequate response equipment, personnel training, and nearshore protection strategies.

Partnerships have been a successful tool in spill preparedness, with Canadian and U.S. agreements presenting a strong model. Under the bilateral Joint Marine Pollution Contingency Plan, Canada and the U.S. have established several partnerships to better respond to a spill in shared waters. CANUSLANT, the joint response partnership between U.S. and Canada governing the Atlantic boundary waters of the U.S. and Canada, including the St. Lawrence

[2] US Coast Guard: '*Arctic Operations and Training exercises Alaska Report*'

Seaway, has been one of the most successful. Travel through the St. Lawrence Seaway requires ships to cross the border several times in order to navigate the Thousand Islands. As a result, the risk of a cross-border spill is high and requires close coordination in terms of response planning, equipment, emergency related cross-border travel, wildlife response, and more. In addressing these challenges, CANUSLANT has developed solutions that could be a model for other bilateral partnerships. Other regions have similarly applied these techniques to their unique situations. For example, CANUSNORTH is the U.S.-Canadian response partnership for the Arctic, under which NOAA participated in a bilateral exercise from September 9-11. Furthermore, NOAA engaged in the Arctic Council's negotiation of an Agreement on Cooperation on Marine Oil Pollution, Preparedness and Response in the Arctic (2013) and is currently contributing to the development of an Action Plan under the Arctic Council's Task Force on Arctic Marine Oil Pollution Prevention.

Other international partnerships have made scientific advances, particularly in the Arctic. NOAA has developed close working relationships within the Arctic Council and with Canada to further response, research, and data sharing. Through a Memorandum of Understanding with Environment Canada, NOAA has worked closely with Canadian counterparts to improve oil fate and behavior models under Arctic conditions and to share data sources in Arctic ERMA for a cross-border response. NOAA is also a member of the Arctic Council's Emergency Prevention, Preparedness and Response working group to develop Arctic spill response techniques and planning for spills in Arctic waters. Currently, the group is piloting Arctic ERMA as a platform for sharing international datasets.

Weather forecasting

The operational network of meteorological observations in the Arctic, which is essential for the accurate weather and wave forecasting needed, has been described by the Arctic Council as extremely sparse[3]. As a result forecasts in the Arctic are not as accurate as in the rest of the United States. How can we address this problem to create a robust and comprehensive metrological system?

Response:

NOAA is addressing this issue through a number of avenues, including in-situ observations, remote sensing, and general research. Details on each are provided below:

In-situ: Where possible, NOAA deploys automated land and water-based observing platforms to observe and to provide ground-truthing for calibrating remote means (e.g., satellite and radar) of obtaining weather information. However, observational platforms require maintenance, and the prolonged harsh weather and darkness, as well as the extreme remoteness in the Arctic, make maintenance much more costly and challenging than for the rest of the continental United States. Increasingly, environmental observations from external interests (e.g., researchers, commercial shippers, and oil and gas industry) are contributing to improving the resolution of real-time in-situ weather data.

[3] The Arctic Council *'Arctic Marine Shipping Assessment 2009 Report'*

Remote sensing: Low-Earth Orbit (LEO) polar orbiting satellite coverage, which is essential in the high latitudes where dedicated geostationary orbit (GEO) satellite coverage is inadequate, provides critical information for all aspects of Alaska forecast operations. Remotely-sensed atmospheric profiles of temperature and moisture data from the LEO satellites is proving essential to the improvement of Numerical Weather Prediction (NWP) models and Alaska Region forecasts. NOAA is also leveraging data from a number of non-NOAA satellites, such as NASA research spacecraft, as well as Department of Defense, Japanese, Canadian, and European operational satellites. These data are invaluable for supporting weather forecasting and are made available to users throughout the Arctic region.

Unmanned Aircraft Systems (UAS) are also playing an increasingly vital role in remotely observing the atmosphere and ocean in the Arctic. UAS's are providing critical validation of the Arctic Ocean and atmospheric properties. They also provide the opportunity to target specific geographic locations with multiple sensing platforms at a specific time, a capability neither satellites nor fixed platforms provide.

Research: The scientific community has recognized subtle differences in the behavior of the atmosphere, especially in the Arctic boundary layer, that are in need of additional investigation. Even more acute is the need for an improved understanding of sea ice dynamics, to inform future research and operations in the Arctic. NOAA is moving forward with federal and international partnerships as well as with the general research community to address these scientific gaps. One such initiative is the implementation of the NOAA Arctic Test Bed, where new scientific research and techniques can be evaluated and transitioned into operations to support operations in the Arctic. Another initiative is the International Arctic System for Observing the Atmosphere (IASOA), which is also led by NOAA. The mission of IASOA is to advance coordinated research objectives from independent pan-Arctic atmospheric observatories by strategically developing a comprehensive observational capacity and facilitating access to socially-relevant data. One component of IASOA is the NOAA operated manned Atmospheric Baseline Observatory near Barrow, AK. Established in 1973, this observatory conducts hundreds of sustained Arctic environmental measurements and supports cooperative research and monitoring activities from other federal and academic partners.

MINORITY QUESTIONS FOR THE RECORD
FROM
RANKING MEMBER JOHN GARAMENDI (D CA-3) AND
REPRESENTATIVE JOHN LARSON (D CT-1)

FOR THE
HEARING BEFORE THE
SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
U.S. HOUSE OF REPRESENTATIVES

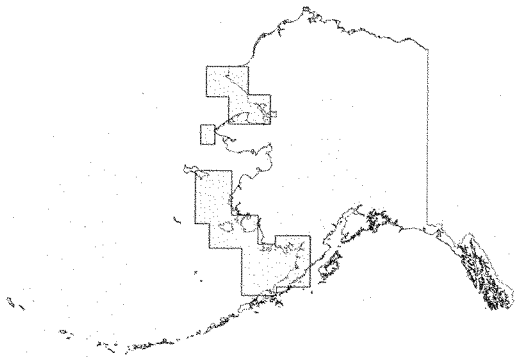
July 23, 2014

DAVID WESTERHOLM
DIRECTOR, OFFICE OF RESPONSE AND RESTORATION
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

Arctic Hydrographic Survey/Navigation Services Work
NOAA has identified the need to conduct extensive hydrographic survey work, as well as shoreline mapping missions and tide and current surveys above the Arctic Circle to allow for safe navigation.

- **In the 2013 update to NOAA's Arctic Nautical Charting Plan, how large was the total area identified as having "inadequate chart coverage"?**

  The 2013 update recommended the creation of 14 new charts in U.S. Arctic waters. These new charts are at larger scales (i.e., more zoomed in) than the smaller scale charts that currently cover these areas. Some of the proposed charts overlap. The total area (excluding land) of the 14 new charts is 94,380 square nautical miles. The map below shows the new Arctic chart coverage areas to be included when these charts are completed.



- **What specific regions were the most critical survey priorities, and does NOAA have the assets available to conduct this survey work?**

  The highest priority survey areas in the Arctic include the route from the Aleutians through the Bering Strait, areas that are known to be dangerous for navigation, and the approaches to the Alaskan villages and coastal communities that currently have some capacity for maritime transportation, or that may have more capacity in the future. These include Nome, Port Clarence, Barrow, Kotzebue, the area around Red Dog Mine, and Nunivak Island. NOAA's available assets for conducting surveys in the Arctic include the NOAA Ship *Rainier* and NOAA Ship *Fairweather*, contractors, and partnerships with sister agencies, such as the U.S. Coast Guard, that have some capacity for reconnaissance surveying. NOAA is capable of surveying approximately 500 square nautical miles per year in the Arctic between its fleet and contract assets.

- **Under present funding scenarios, how long would it take NOAA to complete its survey work and have nautical charts and other navigation products available for navigation in the Arctic?**

  NOAA has designated approximately 40,000 SNM of the US Arctic Exclusive Economic Zone as the highest priority survey areas in the Arctic. As noted above, NOAA is capable of surveying approximately 500 square nautical miles per year.

Recapitalization of NOAA Hydrographic Survey Fleet

At present, NOAA has four hydrographic survey vessels, (excluding the BAY HYDROGRAPHER which is limited to the Chesapeake Bay) to conduct survey work in the U.S. EEZ. The two survey vessels that conduct survey work in the Gulf of Alaska and Bering Sea regions, RAINIER and FAIRWEATHER, each were commissioned in 1968. While still operational and productive, the vessels lack ice-hardened hulls and are ill-equipped to conduct survey work above the Arctic Circle.

- **Does NOAA intend to recapitalize its hydrographic survey fleet to provide new vessels capable of operating above the Arctic Circle?**

  The Department of Commerce and NOAA have made a commitment to recapitalize the survey fleet. In 2008, NOAA submitted a Ship Recapitalization Plan to Congress (http://www.omao.noaa.gov/publications/08_ship_recap_plan.pdf), which is a comprehensive plan designed to systematically replace or upgrade the fleet in order to meet the ever-changing and evolving demands of the scientific community. Specifically, the plan examines 10 of the fleet's 19 ships that will reach the end of their useful service life over the next 15 years, reducing the average age of the fleet by 9.6 years by 2025. Since delivering the plan, Congress has appropriated funding via ARRA for construction of Fisheries Survey Vessel 6 and Major Repair Periods on the NOAA Ships *Rainier* and *Oregon II*.

  For the past six years, the Ship Recapitalization Plan served as a guide for planned investments.

  NOAA Ships *Fairweather* and *Rainier* are capable of working in the Arctic during summer months and will continue to do so in executing NOAA's Arctic Nautical Charting Plan through at least 2028.

- **If not, how does NOAA intend to gather hydrographic survey data in the Arctic region?**

  The NOAA Ship *Fairweather* has operated above the Arctic Circle during previous seasons, and both the NOAA Ships *Rainier* and *Fairweather* may conduct work above the Arctic Circle during the 2015 season. Additionally, NOAA survey contractors have operated above the Arctic Circle in prior seasons, and NOAA plans to continue these activities . Ultimately, NOAA intends to continue its balanced approach of using both in-house and contractor assets to fulfill its requirements in the Arctic.

Testimony of
Dr. Kelly Kenison Falkner
Division Director, Division of Polar Programs
National Science Foundation

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

"Implementing U.S. Policy in the Arctic"

July 23, 2014

Chairman Hunter, Ranking Member Garamendi and distinguished members of the Subcommittee, I am pleased to appear before the Subcommittee to speak in my capacity as the Division Director for the Division 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 (IARPC) under the President's National Science and Technology Council that coordinates key research activities in the Arctic. NSF is also responsible for managing the U.S. Antarctic Program on behalf of the Nation. I appreciate the opportunity to provide information on the types of vessels that NSF requires in order to most effectively meet its icebreaking needs for research in the Arctic, as well as for the research and operations of the U.S. Antarctic Program.

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 that not only dominate the surface area of the earth but that are also vital to life as we know it.

Polar Marine Science Objectives

While polar oceans comprise only about ten percent of global ocean area, they exert a disproportionate influence on our climate and global carbon cycling. Thanks in part to access to an array of ice-capable assets, the U.S. research community has led discovery in polar marine science and has led the world in identifying, and understanding key issues of importance extending well beyond the poles. Globally relevant research areas for which the U.S. polar marine research community requires icebreaker support include the following:

- *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 field 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 on land 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 understood. Well-described configurations of global conditions at key junctures in the past are needed to test and develop better confidence in the capabilities of coupled climate models, which can then be used to improve predictions.

- *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 we have observed 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 apparent 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 degrees F). In addition, warm circumpolar deep waters are making their way further up onto 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 in both the north and south polar regions. 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.

Polar Marine Research Platforms

As an indication of the strong international interest in research on the polar oceans, a substantial number of countries – Australia, Canada, China, Germany, Korea, Japan, Norway, Russia, South Africa, and the United Kingdom – have, through their own research enterprises, recently constructed or are in the process of bringing into operation new ice-capable research ships. The ships range from light to heavy ice breaking capability, with several capable of both research and resupply support.

Arctic

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. NSF has been a strong supporter and partner in the ongoing interagency process of coordinating Arctic Region policy. For example, the National Arctic Strategy and its Implementation Plan are underpinned by enhanced scientific research efforts through IARPC. The interagency research efforts are those best advanced through interagency coordination and are aimed at helping to inform decision-makers regarding Arctic changes. The Arctic is an ocean surrounded by land, so our ability to conduct marine research is critical to understanding the Arctic system and its interaction with the global system. What follows is a summary of our current approaches to providing access to the marine science community.

NSF funded construction of an important new ship, the SIKULIAQ, [si KU lee ak], to be operated by the University of Alaska, that will begin supporting scientific research from its homeport in Seward, Alaska in early 2015. As a highly science-capable vessel, , 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 and ocean processes in the Gulf of Alaska and southern Bering Sea. In addition to being scientifically interesting, these waters host among the most productive fisheries in the world. In summer, the SIKULIAQ will provide access as far north as the edge of the permanent ice (nearly 80 degrees N at the minimum in September) and further into the ice when escorted by a more ice-capable ship.

Through Memoranda of Agreement with the U.S. Coast Guard (USCG), NSF has made use of USCG icebreakers to meet NSF's research needs. The 15-year-old medium-duty USCG Cutter HEALY, designed nearly 25 years ago, is a U.S.-government owned research icebreaker currently capable of operating in the Arctic during the summer. HEALY can operate continuously at 3 knots in sea ice up to 4.5 feet and up to 8 feet thick via backing-and-ramming.

Thus, the HEALY is primarily useful for summer but not winter work within the Arctic. The Arctic science community tasking for the HEALY varies from year to year depending on funded research proposals. Within the constraints of the USCG operations model, the Arctic science community has productively used approximately 90 days per year. Under current arrangements, NSF reimburses the USCG for operations costs and for the cost of fuel to transit to/from Seattle and while in the area of interest.

NSF coordinates with the USCG for scheduling, scientific technical support, and co-hosting a science community forum (the Arctic Icebreaker Coordinating Committee) regarding vessel operations. HEALY and SIKULIAQ could continue to serve as ice-capable primary research vessels for NSF and other agency supported researchers over the next two decades. While focused on scientific support, HEALY is a commissioned military vessel, capable of executing all USCG missions. As we look beyond the coming decades, we are concerned about competing demands on the USCG.

Due to the costs of positioning vessels and science demands, NSF also engages extensively with the University-National Oceanographic Laboratory System and international partners to supplement access by U.S. researchers to the Arctic and Southern Oceans. Depending upon the nature of the science program to be supported, specific arrangements range widely. NSF strives to match the most cost-effective and appropriately capable assets to meet merit-worthy science objectives. This can entail international coordination of vessels to obtain broader geographical coverage for a specific science program or more reliable access to challenging ice-covered target areas. Arrangements can be as simple as supporting U.S. investigators participating in a program organized by another nation and as complex as organizing multi-vessel charters such as a highly capable icebreaker escort of specialized science capabilities like drilling vessels. Such arrangements leverage our ability to support quality science but do not replace the need for an ice-capable primary research vessel, such as SIKULIAQ. It is the latter that ensures that U.S. scientists can drive and lead essential aspects of the polar marine research agenda.

Antarctic

In the Southern Ocean, NSF-supported researchers rely primarily on two leased vessels, the NATHANIEL B. PALMER and the LAWRENCE M. GOULD, both owned and operated by Edison Chouest Offshore under a subcontract to NSF's prime contractor for Antarctic logistics support (currently Lockheed-Martin). Both of these ships were designed and built to the specifications of the U.S. science community nearly 25 years ago. The PALMER's capability in ice is somewhat greater than that of SIKULIAQ while the GOULD is designed to operate in the more benign one-foot-thick ice regimes typical of the Antarctic Peninsula. The charter of these vessels has resulted in numerous ground-breaking discoveries that enabled U.S. world leadership in the Southern Ocean.

That said, these research ships cannot provide access on their own 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, in 2011, 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. One domestic alternative to ODEN would require the Coast Guard to re-deploy HEALY from current operations in the Arctic, where it is in full demand by researchers. Under its current arrangements, using 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 own Arctic missions. POLAR STAR, or its modern replacement, could conceivably perform ice escort of more science capable vessels.

Geographic Scope of Polar Marine Research

The charts below illustrate research vessel tracks supported by NSF over the last 8-10 years for Arctic and Southern Ocean research. It should be clear that multiple classes of vessel are successfully employed to meet U.S. polar marine research community needs. Going forward, we anticipate the need to utilize both primary research icebreakers and supplemental icebreaking capability for access to both north and south. We are actively engaged with the science community to define requirements and possible approaches that will keep them at the cutting edge of polar marine science as the current fleet ages. NSF expects that autonomous underwater vehicles, surface buoys, and moorings with innovative sensor systems will increasingly provide cost-effective and wide-reaching Arctic and Southern Ocean marine observations. These will not, however, remove the need for ice-capable polar vessels.

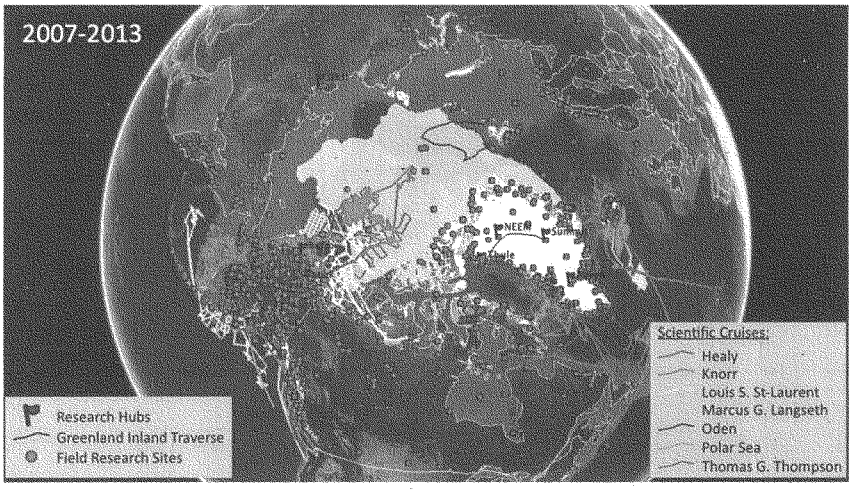


Figure 1. Research Vessel Tracks, Arctic Ocean

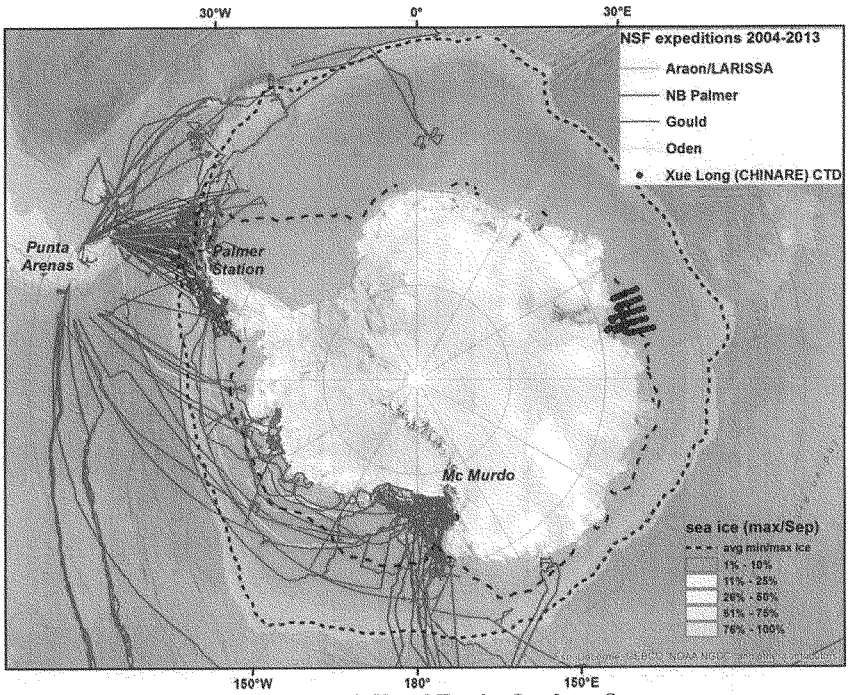


Figure 2. Research Vessel Tracks, Southern Ocean

Antarctic Operations Requirements

NSF must also rely on icebreakers for logistics in Antarctica. 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: McMurdo and Palmer Stations on the coast and an in-land station at the geographic South Pole. The Memorandum assigns NSF the responsibility for managing the U.S. Antarctic Program, including support for those stations. The stations support forefront research while simultaneously maintaining a presence deemed essential to U.S. geopolitical and diplomatic interests on the 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 performed the Antarctic mission with distinction, annually opening a seasonal channel in the ice so that a tanker and cargo vessel could deliver fuel and supplies to McMurdo Station. In most years, this resupply mission requires only about four to six weeks of ice breaking services on-site each year. Without icebreaker support, both

McMurdo and South Pole stations would have to close or sharply curtail activities for lack of supplies. As the Coast Guard's heavy icebreakers – POLAR STAR and POLAR SEA – approached the end of their design lifetimes, NSF found it necessary to contract for icebreaker support from other countries, first in 2005 with Russia (KRASIN as a back up to POLAR STAR), again in 2006 (KRASIN with POLAR STAR as back up), then with Sweden (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 then for two years, 2012 and 2013, by the IGNATUYK of the Russian Murmansk Shipping Company.

Last year, after a seven-year hiatus, the USCG successfully performed icebreaking services for Antarctic operations via the 38-year old refurbished POLAR STAR. Barring unforeseen circumstances, the Coast Guard anticipates it will continue to meet this mission requirement for at least the remainder of POLAR STAR's projected life of six to nine more years. We are now, however, at a critical juncture in planning how to meet this national need beyond this timeframe.

In considering how best to fulfill our responsibilities for the U.S. Antarctic Program, NSF operates in accordance with the U.S. policy and instructions contained in Presidential Memorandum 6646 that, "Every effort shall be made to manage the program in a manner that maximizes cost effectiveness and return on investment." Going forward, NSF must secure cost-effective, reliable and, ideally, long-term icebreaking services for the resupply mission that is critical for supporting the broad goals of the U.S. Antarctic Program. Ideally, such services would be supplied by a modern, highly efficient icebreaker that meets the International Maritime Organization's Polar Code. In the absence of a U.S. asset of appropriate capability, NSF would have to seek to meet its needs via the international community.

It is largely for this reason that we have actively participated in Coast Guard efforts in the last few months to define requirements and concepts of operations for a new Polar Class icebreaker. We believe that an efficient, capable, and reliable icebreaker whose design is not compromised by science requirements would best meet NSF's *icebreaking services* requirement of approximately six weeks (in January to February) per year in Antarctica and intermittent ice escort of science vessels. NSF looks forward to welcoming the SIKULIAQ into the mix of assets and continuing to benefit from the HEALY, PALMER and GOULD over the intermediate term to serve our science mission. We will continue to work with the science community and our sister agencies in planning for science-dedicated ice capable vessels as these other vessels approach their expected lifetimes over the next few decades.

We join others experienced in Arctic marine operations in warning that diminished sea ice conditions in the Arctic now and through the next several decades do not equate to diminished need for highly ice-capable assets. Our research community has provided clear evidence that storm activity is on the rise in the Arctic and movement of unconsolidated ice on heavy stormy seas can be highly dangerous. Of course, that situation pertains to all of the increasing human activity in the Arctic marine environment.

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

– NSF –

United States House of Representatives
Subcommittee on Coast Guard and Maritime Transportation
Hearing on Implementing U.S. Policy in the Arctic
July 23, 2014
National Science Foundation Responses to Questions for the Record

Duncan Hunter

Shipping / Icebreakers

Icebreakers are essential equipment as it relates to the execution of a variety of Arctic activities, including the maintenance of US domestic security. Their growing importance is demonstrated by the investment programs undertaken by other Arctic nations; Russia has a fleet of eight service-ready nuclear powered icebreakers, with a ninth under construction. China owns the world's largest non-nuclear icebreaker and has just launched a second. Canada has committed $38 billion to build additional vessels[1]. In contrast, the US has only two polar-class icebreakers, with a third chartered from the private sector.

Do you believe that we have sufficient capability? Do you have a view on why we aren't we investing as much as other nations in what is an increasingly important area?

ANSWER: The National Science Foundation's (NSF) primary mission is to fund basic scientific research. In the Polar Regions, NSF's need for icebreaker capabilities is thus determined by the demand for scientific research and its related support. To date, NSF has been able to meet the demand for polar scientific research and its related support using available icebreaker capabilities.

In the Arctic, NSF funded-research projects require the services of ice-capable research vessels. NSF draws services from a network of potential vessel providers. These include the U.S. Coast Guard (USCG), which provides medium icebreaking capability and ship-based research support through the USCGC HEALY. Additionally, vessels are scheduled through the University-National Oceanographic Laboratory System (UNOLS), including the new NSF ice-capable research vessel SIKULIAQ that is scheduled to commence operations in 2015 out of Seward, AK. Services likewise are drawn through the Coast Guards of other countries, charters of foreign vessels, and arrangements with international partners.

Icebreaking is needed for both research and logistics in the Antarctic. Currently, research needs are being met predominantly via the light icebreaking research vessel NATHANIEL B. PALMER and the ice-reinforced LAURENCE M. GOULD (both leased by NSF's Antarctic Support Contractor). Additional research support is provided via UNOLS vessels and foreign vessels of international partners through a variety of arrangements.

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[1] Alaska House of Representatives *'Arctic Planning & Infrastructure Investment study'*

On the Antarctic continent, success of NSF-funded scientific research depends fundamentally on the annual resupply system. Resupply of Palmer Station is completed with the ice-reinforced LAURENCE M. GOULD. Resupply of McMurdo and South Pole Stations requires significantly more powerful icebreaker services capable of cutting a channel through sea ice in McMurdo Sound, thus allowing a fuel tanker and the cargo vessel to deliver vital fuel and materials. Historically, the USCG has provided heavy icebreaker services on a cost reimbursable basis as stipulated in Presidential Memorandum 6646 (*To ensure that the United States has the necessary flexibility and operational reach in the area, the Departments of Defense and Transportation shall continue to provide, on a reimbursable basis, the logistic support requested by the National Science Foundation and to develop, in collaboration with the Foundation, logistic arrangements and cost structure required for effective and responsive program support at minimum cost.*). NSF requires these more powerful icebreaker services for only about 2-4 weeks annually (exclusive of the time required for transit which is about 30 days each way under current arrangements). Between 2005 and 2013, ice conditions in Antarctica and the condition of the USCG's polar icebreakers made it necessary for NSF to lease foreign vessels to break the channel through McMurdo Sound, either alone or with a USCG vessel. In 2014, the refurbished USCGC POLAR STAR completed the break in mission on its own and can be expected to do so for the next 6 to 9 years.

To address potential uncertainty in the availability of U.S. icebreaker assets, NSF has developed practices for securing back-up icebreaker services. These practices are now part of a comprehensive and continuous contingency planning process. Information on worldwide icebreakers, including their Operational, Cost and Policy considerations, is kept up-to-date. NSF will continue for the foreseeable future to preserve a range of options for obtaining cost-effective and reliable polar icebreaking services and ship-based research support.

General

Over 100 years of established science has been conducted in the Arctic, much of it funded by the energy industry. If we do not encourage oil and gas development in the Arctic, who do we expect will support the research and development necessary to spur future economic development? Should we expect those costs to be borne by the taxpayer instead?

ANSWER: In the Arctic, NSF's primary mission is to fund basic scientific research. NSF principally promotes understanding of the Arctic's physical, biological, geological, chemical, social and cultural processes; the interactions of oceanic, terrestrial, atmospheric, biological, social, cultural, and economic systems; and the connections that define the Arctic. Additionally, NSF's polar programs support projects that contribute to the development of the next generation of researchers and scientific literacy for all ages through education, outreach, and broadening participation in science, technology, engineering, and mathematics.

United States House of Representatives
Subcommittee on Coast Guard and Maritime Transportation
Hearing on Implementing U.S. Policy in the Arctic
July 23, 2014
National Science Foundation Responses to Questions for the Record

John Garamendi and Rick Larsen

Antarctic Breakout Needs

The National Science Foundation (NSF) has relied on an assortment of icebreakers to conduct the annual break-out to resupply research stations on the Antarctic continent. Nevertheless, you seem to imply in your written statement that you prefer to have the Coast Guard provide this capability.

- *Why? Do you feel institutionally bound to utilize an asset from another Federal agency before looking elsewhere?*
- *Are there features on the Coast Guard icebreakers that better address the needs of NSF?*
- *What have been the disadvantages to NSF in having to contract out with foreign governments or private contractors to acquire icebreaking services?*

ANSWER: Historically, the U.S. Coast Guard has provided heavy icebreaker services on a cost reimbursable basis as stipulated in Presidential Memorandum 6646 governing the U.S. Antarctic Program: "*To ensure that the United States has the necessary flexibility and operational reach in the area, the Departments of Defense and Transportation shall continue to provide, on a reimbursable basis, the logistic support requested by the National Science Foundation and to develop, in collaboration with the Foundation, logistic arrangements and cost structure required for effective and responsive program support at minimum cost.*"

Between 2005 and 2013, there were several years when the USCG's polar icebreakers were unable to conduct the mission on their own. NSF then leased foreign vessels to break the channel through McMurdo Sound, either alone or with a USCG vessel on standby. In 2012, when the Swedish government decided that the icebreaker ODEN would not be available to complete the Antarctic break-in mission, NSF found alternative arrangements. Regardless of the arrangement, mission requirements have always been met. Ideally, the critical resupply of the U.S. national program would be under U.S. control and be cost effective.

In 2014, the refurbished USCGC POLAR STAR completed the break in mission on its own and is expected to do so for the next 6 to 9 years, although ice conditions or maintenance problems could require additional assets.

Icebreakers as Research Platforms

The Coast Guard has expressed concern that one of the principal factors driving up the cost of building a new heavy icebreaker are the mission requirements of other Federal agencies, including the requirements of NSF, that add to the complexity and cost of a new vessel.

- *What specific features does NSF need in an icebreaker other than to have the vessel break ice to reach remote, inaccessible area? Are icebreakers suitable platforms for science research?*

- *Does NSF really need the services of a heavy icebreaker just for the resupply of its Antarctic stations? Are the other two vessels that NSF charters, the NATHANIEL B. PALMER and the LAWRENCE M. GOULD sufficient to address NSF's research needs?*

ANSWER: NSF has been clear that any new USCG vessel should be optimized for heavy icebreaking and not for supporting science. The design for any such vessel should also ensure efficient, economical, and reliable operations and would not, for example, have a requirement to ballast with fuel that must be taken from McMurdo Station's fuel farm in order to conduct icebreaking activities.

In the Arctic, NSF funded-research projects require the services of ice-capable research vessels. NSF draws services from a network of potential vessel providers. These include the U.S. Coast Guard (USCG), which provides medium icebreaking capability and ship-based research support through the USCGC HEALY. Additionally, vessels are scheduled through the University-National Oceanographic Laboratory System (UNOLS), including the new NSF light icebreaking research vessel SIKULIAQ that is scheduled to commence operations in 2015 out of Seward, AK. Services likewise are drawn through the Coast Guards of other countries, charters of foreign vessels, and arrangements with international partners.

In the Antarctic, research needs are being met predominantly via the light icebreaking research vessel PALMER and the ice-reinforced GOULD (both leased by NSF's Antarctic Support Contractor). Both ships are outfitted with state of the art equipment and technical support for science. The GOULD also serves to resupply and move personnel for Palmer Station that is only accessible by sea and can only accommodate a shallow draft vessel at the pier. Additional research support is provided via UNOLS vessels and foreign vessels of international partners through a variety of arrangements. Note that neither PALMER nor GOULD alone or in concert is sufficiently ice-capable to conduct the break-in of the channel necessary for resupplying McMurdo station. The break-in of the channel requires a significantly more powerful icebreaker.

NSF has a long history of supporting science at sea on board NSF-owned research vessels outfitted with the latest oceanographic instrument and equipment. NSF also funds scientific endeavors onboard vessels of opportunity (VOP), as described below.

Observations from VOP are particularly important in under sampled regions such as the Arctic and Southern Oceans. Polar Programs at NSF is highly experienced with and remains committed to partnering with our sister agencies and international partners to achieve observations of opportunity. We would welcome the opportunity to continue to join forces with the USCG to ensure appropriate and quality observations are made from their vessels in polar regions within the constraints of their primary mission drivers.

Science aboard VOPs tends to have limited impact on the day-to-day operations and does not interfere with the overall design of the vessels. In many cases, data collection can occur through small, non-intrusive sensors and data loggers mounted on vessel masts or bridge decks. Some scientific systems can be fully contained in portable, modular containers mounted on vessel decks. In other cases, non-recoverable instruments can be hand-deployed off a ship's stern, in some cases without even requiring the vessel to slow down. Examples of science that is performed aboard vessels of opportunity include:

- Automated collecting and transmitting real-time atmospheric and weather data to include in global weather monitoring and forecasting (http://samos.coaps.fsu.edu/html/mission.php);

- Automated atmospheric O_2/CO_2 measurements that can also be relayed in real time (http://www.pmel.noaa.gov/co2/story/Volunteer+Observing+Ships+%28VOS%29)
- Launch of floats for climate variability studies throughout the world's oceans (http://www.argo.ucsd.edu/);
- Launch of expendable temperature and conductivity probes (XBT/XCTD), and other disposable sampling equipment;
- Launch of gliders and other autonomous vehicles;
- Marine mammal and/or bird observations;
- Scientific diving to collect marine fauna and perform under-ice studies;

Depending on the equipment already installed, some VOPs are able to support more moderately complex scientific efforts. For vessels equipped with cranes, technical personnel can be deployed aboard the vessel to perform mooring or autonomous vehicle recoveries and/or turn-arounds. In addition, vessels equipped with helicopters and/or small boats can further assist science by deploying scientific personnel to ice camps or remote field locations.

The National Science Foundation has continued to work closely with other ship-operating US Government agencies to identify and maximize the types of science that can be performed from a wide range of vessel types. Most recently, NSF contributed to the 2013 OPNAV document, *Arctic Science Accommodation Mission (SAM): Surface Ships*, which identified mission package components for Navy Arctic S&T Modules that could be easily deployed aboard Naval vessels of opportunity.

TESTIMONY BEFORE U.S. HOUSE COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE

SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION

"IMPLEMENTING U.S. POLICY IN THE ARCTIC"

JULY 23, 2014

SUBMITTED BY EDMUND FOGELS,
DEPUTY COMMISSIONER FOR ALASKA DEPARTMENT OF NATURAL RESOURCES,
ON BEHALF OF THE STATE OF ALASKA

Introduction

Chairman Shuster, Ranking Member Rahall, and distinguished members of the Committee, especially Congressman Young.

For the record, my name is Ed Fogels, and I serve as Deputy Commissioner of Natural Resources for the State of Alaska in the administration of Governor Sean Parnell. I am honored to be here today representing the State of Alaska, and appreciate the opportunity to provide input on a matter of such importance to Alaska and Alaska's people.

The State has closely followed the work of the White House and numerous federal agencies through the development and release of the National Strategy for the Arctic Region, the accompanying Implementation Plan, and the work that has followed. We appreciate the efforts of numerous federal officials to include the State in the process and deliberations, and the invitation of the Governor's Cabinet to participate as part of the U.S. delegation to Arctic Council meetings. It will be of utmost importance to ensure that the State is welcomed as an active, collaborative partner in these proceedings in coming months. The United States is an Arctic nation only because of Alaska's vast Arctic holdings, and the implementation of U.S. Arctic policy will have profound ramifications for U.S. citizens who reside in Alaska and are entitled to the same protections, opportunities, and rights as all U.S. citizens.

It is important to define the Arctic region. The Arctic Research and Policy Act (ARPA) defines the Arctic as an area extending far south of the Arctic Circle, encompassing much of northern and western Alaska,

including the Aleutian Chain. This area is home to well over 50,000 Alaskans – a sizeable proportion of one of the least populous states in the U.S. – and is an important area for several advanced industries critical to the nation as well as the State, including the oil and gas industries, mining, shipping and transportation, and fishing and hunting activities that provide food, direct employment, and ancillary employment to entire communities and regions. At the same time, Arctic Alaska is mainly remote, presenting challenges that few non-Alaskans could comprehend. Everyday essentials such as food, fuel, healthcare supplies, energy infrastructure, and the maintenance of water and wastewater are all dependent on the ability to transport people and supplies across either water or vast, roadless distances of land that may be frozen for large portions of the year, or impassable because of melting ice conditions. Because of the broad reach of the Arctic and the need to treat Arctic residents on a par with all Alaska residents, the Parnell Administration considers Alaska State policy to be Arctic policy. We do not see an "Arctic boundary line" running through our state where we treat people differently, or apply different environmental standards depending on which side of the line you are standing on. As the Committee envisions the future of Arctic transportation and infrastructure, and considers the role of the federal government in that future, the needs and challenges of Alaska's citizens must be kept at the forefront and on par with what all Americans can expect from government.

Unless Congress directs otherwise, federal and State policies and investments must respect existing laws and regulations, rather than creating new regulatory burdens through extra-legal policies. In addition to Alaska's Constitution, well-known laws such as the Alaska Statehood Act, the Alaska Native Claims Settlement Act, and the Alaska National Interest Lands Conservation Act already dictate the management of State and federal land, water, and natural resources in the Arctic, and should be consulted as the guidelines for federal Arctic involvement. Despite these Alaska-specific laws, we have noted a consistently slower, more complicated application of broad national laws. The State is concerned about the opportunistically heavy-handed interpretation we have seen of certain laws and systems over natural resource management in Alaska, particularly those pertaining to resource development permitting, such as the National Environmental Policy Act, the USACOE 404 permitting system, the Clean Water Act, the Clean Air Act, the Marine Mammal and Protection Act, and the Endangered Species Act. We request that Congress review the executive branch's burdensome, inefficient, scientifically dubious, and overly-broad application of these laws which can place additional weight on the individuals, businesses, and communities that drive the well-being of Alaska. Congress alone has authority over the exercise of these congressionally-established laws and systems. It is inappropriate for such systems to be applied in new ways by presidential executive order or administrative actions. The people of Alaska's Arctic have a right to seek a better future for themselves through the development of regional economic opportunities, which are abundant in this unique part of the world, but are hampered by extraordinary regulatory hurdles that seem to be growing on almost a daily basis.

The State also requests that Congress be mindful of the increasingly international nature of U.S. Arctic affairs. International coordination is needed to conserve marine resources while leveraging infrastructure through enterprise. Alaska directly borders Canada, and shares significant maritime interests with Russia and Japan, among many other nations. Foreign-flagged vessels, above and beneath the surface, transit Arctic waters and the Bering Strait regularly, presenting economic opportunities and new challenges to the marine and coastal environments and homeland security, which must be the U.S.'s primary mission in the Arctic, as it relates to air, land, and sea. While the Arctic region is immediately pertinent to Alaskans, we also recognize the region's significance to the nation, both from a security and economic standpoint. And while the

executive branch may set a vision and objectives, none of this is possible without funding and support granted by Congress.

With these challenges and opportunities in mind, I present on behalf of the State of Alaska the specific interests we have in national policy in the Arctic as it relates to transportation and infrastructure.

The Role of Arctic Transportation and Infrastructure in Homeland Defense and Security

The U.S. has recognized Alaska's strategic global position for well over 100 years. The State supports the expanded use of Alaska's existing military bases, and believes these bases and their assets are critical to security in the Pacific and Arctic. Joint Pacific Alaska Range Complex (JPARC) has been the site of some of the world's most advanced joint-force training, combining the rigors of Alaska's northern conditions with unparalleled space and opportunities for exercises in demanding environments. Joint Base Elmendorf Richardson (JBER) and Eielson Air Force Base can easily accommodate additional aircraft to support training and response capability in this remote region, including F-35s at Eielson, as well as P-8s and the C-27 Spartans, which are excellent support vehicles for the Arctic.

While I am confident other witnesses will detail icebreaking capability in greater depth, it is worth briefly pointing out that, according to the United States Coast Guard's *2013 Review of Major Icebreakers of the World*, Russia possesses 37 icebreakers of varying design, has four under construction, and eight planned for construction. Canada has six, with one planned. Even non-polar nations, such as China, and Japan, possess icebreakers. By contrast, the U.S. currently has only two active icebreakers, with one, *USCG Healy*, being classed as polar-capable, primarily suited to small-scale scientific research needs, and the other, *USCG Polar Star*, being classed as polar-class. The *Polar Star* was commissioned in 1976 and was recently retrofitted for at most only another ten years of service.[1]

The Coast Guard has requested funding for additional icebreakers, among other Arctic infrastructure assets, and the State strongly urges the Committee to support the appropriation of funding to fulfill these requests. The need for increased icebreaking capability was demonstrated in the winter of 2011-12, when the *USCG Healy* broke sea ice blocking a critical shipment of fuel to the city of Nome, Alaska. Nome is typical of many Alaskan cities, including the State capital, in that it is accessible only by air or sea. Many coastal cities are cut off by sea ice for much of the year preventing any sea transportation in and out. Governor Parnell personally requested the *Healy*'s service of then-Coast Guard Commandant Admiral Robert J. Papp, who graciously rerouted the *Healy* to assist in this vital operation. Many who watched the news at the time are familiar with this incident, but unaware of the fact that, earlier that winter, the *Healy*'s services had also been requested in Antarctica to break out a science station in McMurdo Sound when a Swedish-flagged icebreaker that had been leased for the purpose was recalled to perform a Swedish sovereign mission. The Coast Guard declined the request in case an icebreaker was needed in the Arctic, which is exactly what happened, demonstrating the need for year-round icebreaking capability in the Arctic.

An important element of Coast Guard presence in the U.S. Arctic will depend on expanded aviation facilities above the Arctic Circle. Although Alaska National Guard aviation facilities can be shared with the

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[1] U.S. Naval Institute, *U.S. Coast Guard's 2013 Review of Major Icebreakers of the World* (USNI News, July 24, 2013), http://news.usni.org/2013/07/23/u-s-coast-guards-2013-reivew-of-major-ice-breakers-of-the-world.

Coast Guard in Kotzebue, Barrow's airport requires federal investments to accommodate a larger Coast Guard presence. As you very well may know, Barrow is the largest community north of the Arctic Circle and is situated at the land point demarcating the separation of the Chukchi and Beaufort Seas. At this point, conflicting and unnecessary federal policies, as well as limited financial means appear likely to delay this necessary expansion. Fortunately, Alaska Native Corporations and the State are willing partners to expedite this expansion.

Among many competing budget and legislative obligations, assets such as icebreakers and deep-water ports are not extraneous items, but necessities for international and homeland security in the far north. Such assets will be critical in the future support of search and rescue missions as maritime traffic continues to grow in this region. The State is confident that economic opportunities and backstops will develop in the wake of necessary homeland security projects, as much of modern Alaska blossomed around the path of the Army-constructed Alaska Canada Highway following the Second World War.

Although public-private partnerships are much discussed today in Washington, no serious evaluation of this partnership to fund icebreakers has been undertaken. The Governor once again commits to participate in this evaluation to see if the State can contribute to the partnership.

Data and Research Needed for Arctic Transportation and Infrastructure

It has been said many times over the last decade and regretfully it is still true - the surface of the planet Mars has been mapped more accurately than America's Arctic. The fact that huge swaths of Alaska have never been mapped at the 1:24,000 scale restricts resource management and ancillary community development, and limits the ability to assess landscape and ecosystem changes of an unpredictable climate. The State is leading the way in the effort to obtain more accurate mapping with excellent collaboration from the federal agencies. The Governor has requested and received appropriations totaling $16.8 million to underwrite the State's share of this effort, and the federal agencies have contributed $21.5 million to date. An additional $30 million of State and federal funding is needed to finish the mapping. The Alaska Geospatial Council, whose formation was announced by the Governor just weeks ago, was established to coordinate State agencies data collection efforts and build upon the work of the Statewide Digital Mapping Initiative. The State is also collaborating with some federal agencies in this effort. I would like to recognize the efforts of the Department of the Interior, especially Assistant Secretary Anne Castle, who has led the Alaska Mapping Executive Roundtable, an ad hoc effort to coordinate federal agencies.

Much data is needed to meet the demands of increasing maritime traffic, including improved bathymetric mapping and baseline topography. Other data needs include enhanced vessel tracking and communication infrastructure, forecasting of sea ice and marine weather conditions, and more complete charting data for Arctic waters to respond to decreasing sea ice and more extreme weather events. The collection of real baseline data for environmental monitoring should also be a priority as ships bearing potentially hazardous materials transit this area, although this should be applied to existing authorities, rather than resulting in redundant layers of authority based on precautionary principles. The collection of data essential for transportation on the uttermost borders of this nation is part of the development of our national transportation infrastructure, and a valid exercise of Congress's powers to promote through legislation and funding.

Unlike the rest of the United State, most of Alaska is not a part of the Coast Guard's National Automatic Identification System (NAIS). In 2000, the State of Alaska provided startup funding for the Marine Exchange of Alaska (MXAK), to fill the void of vessel tracking in and around Alaska's waters. Since its inception, the MXAK has diversified its funding and now supports itself mostly through federal contracts and the maritime industry. Currently, the State funds about 13 percent of the MXAK operations. Now heavily used and funded by the federal government through contracts, this is a perfect example of how the State of Alaska is committed to projects that produce tangible benefits to its citizens, namely safe and secure operations and passage of vessels in and around Alaska's waters, while the federal government is late to the party and is dependent on work that the State already put money and resources toward its development.

The Role of Arctic OCS Development in Oil Spill Response Infrastructure
As has been demonstrated in Prince William Sound and Cook Inlet, the nation's best oil spill response systems have been underwritten by oil and gas companies' activity. The United States has highly prospective oil and gas basins in the Chukchi and Beaufort Seas that will provide for the necessary private sector investment in oil spill response systems that will also be able to serve ships in innocent passage.

If Arctic OCS development is delayed or stopped, the response system will also be delayed or stopped. No other economic activity in the Arctic, including Congressional appropriations, could equal the positive investments in oil spill response that the private sector can bring to bear.

The Role of Arctic Transportation and Infrastructure in Socio-economic Health
The State of Alaska understands that economic wellbeing and social issues are inextricably linked. This link is particularly clear in the context of the Arctic, which sees some of the highest rates of poverty, suicide, and domestic, sexual, and substance abuse in the nation. The State of Alaska understands that government aid programs can only function as a bandage to communities suffering from these social epidemics. One of the priorities of the Parnell Administration has been enhanced public safety through stronger laws and higher public awareness to increase prevention. The Parnell Administration is also invested in clearing pathways of economic opportunity wherever possible to allow these communities to take control for a better future. The State understands that where tangible hope is lacking, abuse and despair follow.

The State seeks federal partners to address long-identified infrastructure needs in the Arctic, rather than developing redundant or overlapping regulations on already burdened activities in infrastructure-poor areas. This includes infrastructure for public and industry access, such as road access, deep water port facilities, navigation aids, support for shipping, towing, and search and rescue (SAR), and much baseline data.

In tandem with the U.S. Army Corps of Engineers, the State is already far along in the civil works process of investigating the development of possible Arctic deep-water port sites along Alaska's western and northern coasts. We would like to see expedited analysis, planning, and permitting for development projects that would make State port investments more economically feasible. As the shipping industry grows in this region, ports are an important part of ensuring that they are able to fulfill their regulatory requirements for oil spill response and readiness.

At a more human level, the State has joined a legal challenge to Department of Interior Secretary Sally Jewell's decision not to allow the construction of an access road from Cold Bay to King Cove, which is located in the Aleutian Chain. The terrain surrounding King Cove is not suitable for an all-weather airport,

nor are marine alternatives to King Cove feasible. As such, the State has supported the community's conclusion to construct a 25 mile, 13-foot-wide emergency medical evacuation road to the community of Cold Bay. The road would allow access to the 10,000 foot runway of Cold Bay. The road is a necessary life-saving measure, but has repeatedly been blocked by the Department of Interior due to concerns about imagined potential impacts to certain migratory bird species. We cannot think of a more appalling example of federal indifference to the essential needs of Alaskans in the ARPA Arctic region due to a capricious and misapplied interpretation of federal laws.

For over half a century, the State of Alaska has been at the forefront of natural resource management, employing some of the world's most accomplished scientists and technical specialists to manage wildlife and fish stocks, lands, waters, and habitat areas across an area one-fifth the size of the contiguous U.S. As a result, America's Arctic is a model for responsible resource stewardship among Arctic nations, and more environmentally sound management than in most of the United States. The State supports sensible environmental protections, but does not support management guided by non-statutory precautionary environmental principles based on dubious scientific forecasts. This includes overly-broad application of the ESA, the Clean Air Act, the Clean Water Act, and focusing on setting aside vast maritime areas for environmental protection without a clearly defined objective.

The best opportunities for Alaska residents in the Arctic region will come from enhanced economic opportunity, which requires improved transportation and infrastructure. Federal initiatives, legal interpretations, regulatory actions, and new standards have consistently blocked the economic development Alaskans need to create a better future. The State is committed to fulfilling the mandates of the Alaska Constitution with regards to providing services to its citizens, and asks that Congress bear in mind its responsibility to also protect these U.S. citizens from federal overreach, and promote economic opportunity for them through the furtherance of our nation's transportation and infrastructure system.

Conclusion

Congress's vital role in the future of the Arctic is clear: support the State's sovereignty, maintain control of congressional legal authorities, and support the funding that is critical to the implementation of national policy in the Arctic for homeland security and defense, the extension of our nation's transportation and infrastructure system into the far north, and the opening of economic opportunity for some of the nation's most remote citizens.

Thank you for the opportunity to testify; I welcome any questions from the Committee.

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