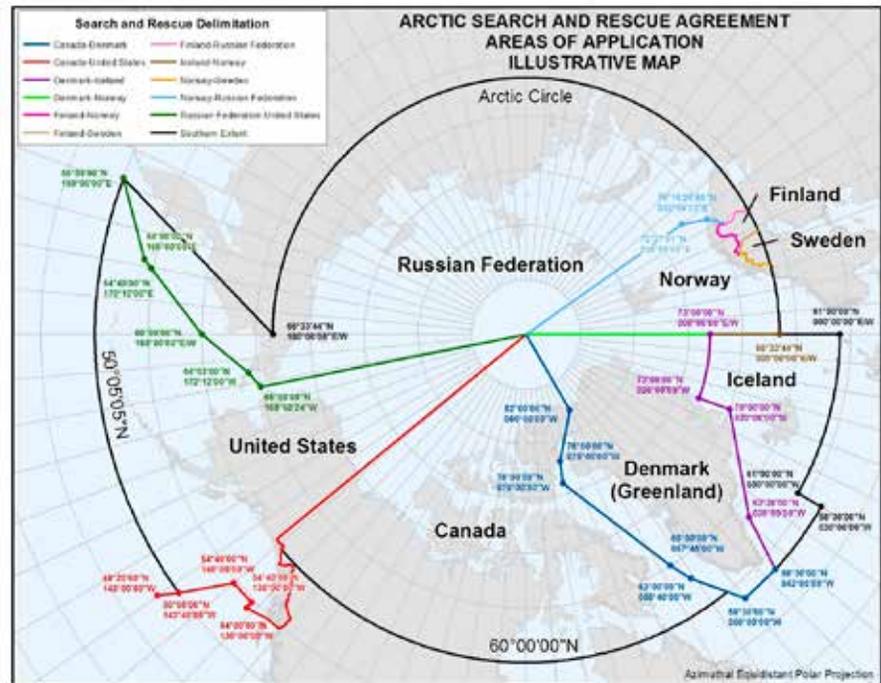


CLOSING THE US STRATEGIC GAP IN ICEBREAKER CAPACITY

By Craig H. Allen Sr.

An enterprise incurs strategic risk when the demands imposed by its missions (the ends assigned by the policy makers in the case of government entities) exceed the means available to meet those demands. For over three decades Coast Guard leaders have struggled to address the strategic risk to the nation and its Coast Guard created by the exhaustively-studied yet unresolved US “icebreaker deficit.” Creative adaptations in the ways in which the Coast Guard employs its limited means, including the Coast Guard’s annual Arctic Shield operations and re-deployment of patrol cutters from the already under-resourced drug interdiction operations supporting the Coast Guard’s Western Hemisphere Strategy to combat transnational criminal organizations, cannot begin to eliminate the risk of failure in the Arctic. However, in an era characterized by what the Coast Guard Commandant charitably refers to as “austere fiscal realities,” in which the national debt approaches \$20 trillion, building new icebreakers with an acquisition cost of some \$1 billion each will seem to some as an unaffordable extravagance, particularly because many have been led to believe that the Arctic will soon be “ice free.”

The competition for shipbuilding acquisition funds will be hard fought in the coming decade. The Navy is recapitalizing its super carriers and ballistic missile submarines, while also restoring fleet readiness and building toward an overall 355 vessel goal. For its part, the Coast Guard has already made building a twenty-five vessel class of 360 foot Offshore Patrol Cutters its highest priority (at a projected total program cost of \$12.1 billion), while still in the midst of its fifty-eight vessel



This map depicts the size of the Search and Rescue Sector assigned to the United States. Artwork courtesy of the Arctic Council.

Sentinel-class Fast Response Cutter and ten vessel Legend-class National Security Cutter acquisition programs. Finally, icebreaker construction would also compete with the Navy in the coming years for the nation’s dramatically shrunken shipbuilding capacity – and specialized expertise. Many have commented, for example, that no US shipyard has built a heavy icebreaker in over 40 years.

Coast Guard Polar Mission Demands

Blessed with the largest exclusive economic zone (EEZ) in the world, the United States is incontestably a maritime nation. It is also an Arctic nation, with vast equities in the region, including 1.45 million square miles of US territorial sea and EEZ waters off

the state of Alaska and an even larger extended continental shelf, along with vital navigation and overflight access requirements throughout the region.

The US Coast Guard is tasked with responsibility for providing maritime security, law enforcement and prevention and response activities for more than 4.5 million square miles of ocean, 95,000 miles of coastline (6,640 of that coastline in Alaska), 26,000 miles of commercial waterways, 361 ports, 3,700 marine terminals, and 25,000 miles of inland and coastal waterways – the largest system of ports, waterways, and coastal seas in the world. In doing so, the Coast Guard may be assigned tasking by the president, other executive branch agencies and the unified combatant

commanders. As a result, icebreaker construction, crewing and maintenance must compete for funding with other demands upon the service.

Activity in the US Arctic region is certain to grow, but the rate of growth is uncertain. Two key drivers in the level of Arctic maritime activity are commercial fishing and offshore oil and gas exploration and production. The indefinite moratorium on commercial fishing in the US Arctic exclusive economic zone (EEZ) and President Barack Obama's decision to withdraw the Chukchi and Beaufort Seas from the 2017-2022 outer continental shelf oil and gas lease plan lessen the sense of urgency in the need for Arctic infrastructure and patrol resources.

The White House's 2014 Implementation Plan for the National Strategy for the Arctic Region lists as its first priority the need to protect the American people, our sovereign territory and rights and the natural resources and other interests of the nation by, among other things, sustaining the federal capability to conduct maritime operations in ice-impacted waters. In 2014, Congress directed the Secretary of Homeland Security to develop, by the end of 2017, long-term plans to be able to physically access the Arctic with sufficient capability to support US interests. As a founding member of the North Atlantic Treaty Organization (NATO), with collective defense obligations that might well entail Arctic operations, Russia's apparent revanchist ambitions and its decision to build up its Arctic armed forces and resume Cold War era exercises and overflights, along with China's plans to include Arctic sea routes in its "21st Century Maritime Silk Road" concept, have heightened US security concerns in the Arctic and its approaches.

Homeland defense, civil support and security cooperation responsibilities in the Arctic region and surrounding waters out to approximately 500 miles are assigned to US Northern Command, while homeland security is assigned to the Department of Homeland Security and its Coast Guard component. The Coast Guard's Atlantic and Pacific Area



Deputy Secretary of Defense Bob Work visits Keflavik Air Base in Iceland on Sept. 7, 2015. Photo by Glenn Fawcett, US Department of Defense.

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commanders also serve as Commander of Defense Forces East and West respectively, in support of the Department of Defense and the unified combatant commanders. Together with fellow NATO member Canada, the United States jointly operates the North American Aerospace Command ("NORAD"), which is co-located with US Northern Command in Colorado Springs and under the command of US Air Force General Lori Robinson.

Congress has assigned eleven missions to the Coast Guard, including domestic and Polar icebreaking. Nine of those missions require a Coast Guard presence in Arctic waters. As a member of the Arctic Council, the United States entered into international agreements that impose on the nation and its Coast Guard Arctic region search and rescue and marine environmental protection and response obligations that extend to the North Pole (see map below). The Coast Guard's Arctic mission demands were refined and expanded by President Obama in 2013, when he promulgated the National Strategy for the Arctic Region (NSAR), and again the following year when he promulgated the Implementation Plan for that strategy. Currently, however, no Coast Guard vessels or aircraft are stationed north of the Aleutian Island chain, and maritime infrastructure in the Arctic is severely limited. Given the extensive demands on the Coast Guard and the limited resources available, it should not come as a surprise that Coast Guard performance reviews suggest that the service is underperforming.

US security interests in the Arctic extend well beyond the coast of Alaska, as demonstrated by the US Air Force Thule, Greenland Air Base, the return of Navy P-8 Poseidons to the Keflavik Air Base in Iceland, and the year-long deployment of more than 300 US Marines to Norway in 2017 for cold weather warfare training.

The Commandant of the Coast Guard and the Chief of Naval Operations jointly promulgated an updated National Fleet Plan in 2015, and (along with the Commandant of the Marine Corps) the periodically refreshed Naval Operations Concept (NOC), to implement the Maritime Strategy. To meet the president's demand to maintain "sovereign United States maritime presence in the Arctic in support of essential United States interests," the 2010 NOC calls for a year-round icebreaker presence in both the Arctic and the Antarctic, and notes that Coast Guard icebreakers are the only means of providing assured surface access in those waters – a key enabler for NATO operations. The Navy has no ice-capable surface ships, yet the Navy's Arctic Roadmap calls for it to "remain prepared to operate in the Arctic Region." The Roadmap also pledges that the Navy will "support initiatives of the Commandant of the Coast Guard to define future USCG icebreaker requirements," while implicitly affirming that icebreaking responsibility is no longer a Navy mission.

Coast Guard Polar Mission Resources

The Coast Guard icebreaker "fleet" includes three Polar class icebreakers and ten domestic icebreaking vessels. All thirteen vessels were built to serve as Coast Guard cutters under the command of a commissioned Coast Guard officer,

crewed by uniformed Coast Guard officers and crew members and – unlike their Canadian counterparts – qualify as "warships" under the UN Convention on the Law of the Sea and exercise law enforcement authority at sea.

The US Coast Guard's domestic icebreaking fleet includes the 240-foot, 3,500-ton *Mackinaw* (WLBB-30), commissioned in 2006 (the same year her 290 foot, 62 year old namesake was decommissioned) and wholly dedicated to the Great Lakes, and nine 140-foot, 662-ton Bay-class icebreaking tugs that were commissioned between 1979 and 1988 and stationed in the Great Lakes and along the northern Atlantic coast. In addition, the Coast Guard's sixteen 225-foot Juniper-class seagoing buoy tenders were designed as ice-strengthened vessels and perform domestic icebreaking support missions. None of the shipbuilding legislation currently under consideration focuses on the domestic icebreaking fleet.

The three Polar class icebreakers include the 420-foot "medium" icebreaker *Healy* and two "heavy" icebreakers, the *Polar Star* and the currently inactive *Polar Sea*. Given the extensive shipyard availabilities necessary to maintain icebreakers between their deployments to the poles, the situation presents what has been called the "one deep" dilemma: should one of the two active icebreakers require assistance while operating in the ice, the only other US icebreaker would likely be laid up in a shipyard, thus the Coast Guard would lack a self-rescue capability.

US Coast Guard Cutters *Polar Star* (WAGB-10) and *Polar Sea* (WAGB-11) were built in the 1970s by Lockheed Shipbuilding and Construction Company in Seattle. *Polar Star* was commissioned in 1976 and *Polar Sea* in 1977. The vessels have long since passed their projected 30-year service life. Both vessels are single-crewed and have been homeported in Seattle since commissioning. Each measures 399 feet long and displaces more than 13,000 tons fully loaded. A combined diesel-electric or gas turbine main propulsion plant producing up to up to 75,000 horsepower drives three controllable pitch propellers. The designed crew is 155 (24 officers, 122 crewmembers and a 9-person aviation detachment). These Polar class icebreakers have operated in both the Arctic (executing Arctic North Patrol and Arctic West Science operations) and the Antarctic (Operation Deep Freeze), where they have supported science and research missions, facilitated the resupply of remote stations and conducted treaty verification operations. Polar icebreaker missions also include resupply of the Thule, Greenland Air Base and Polar Region freedom of navigation transits. Designated "heavy" icebreakers, the two Polar class vessels are capable of breaking through sea ice up to 21 feet thick by backing and ramming, and can steam continuously through 6-foot thick sea ice at 3 knots.

After 33 years of service *Polar Sea* was deactivated in 2010, when the vessel suffered major engine failures. She was placed in inactive commission status the following year. In late 2015, she was towed to Vigor Industrial's Portland, Oregon shipyard to undergo a three-month preservation drydocking. Following years of debate over the feasibility

of refitting her for a return to service, the Coast Guard ultimately concluded in 2017 that it would be too costly, and designated the ship a “parts donor” for the aging **Polar Star**.

Polar Star was deactivated and placed in “caretaker status” in 2006, but was reactivated on December 14, 2012, filling the three-year gap in heavy icebreaker availability between 2010 (when **Polar Sea** was deactivated) and the end of 2012 (when **Polar Star** was reactivated). **Polar Star’s** two-year long, \$57 million refitting by Vigor Industrial’s Seattle yard will reportedly extend her service life an additional 7 to 10 years.

US Coast Guard Cutter **Healy** (WAGB-20) was funded through the Navy’s Shipbuilding and Conversion account (SCN) and built by Avondale Industries in New Orleans (later a part of Huntington Ingalls Industries) and has been stationed in Seattle since she was commissioned on August 21, 2000. At 18 years old, **Healy** is the newest and most technologically advanced US Coast Guard Polar class icebreaker. Her original 30-year projected service life was officially extended to 40 years. She is scheduled to undergo an extensive mid-life drydocking beginning in 2021. The 420-foot, 16,000-ton vessel is designed to operate with a crew of just 85 (19 officers and 66 enlisted crewmembers, in addition to an embarked aviation detachment of up to 12). Her four-engine diesel-electric propulsion system delivers up to 30,000 horsepower to her two fixed blade propellers. Designated by the Coast Guard as a “medium” icebreaker, **Healy** is capable of breaking sea ice up to 4.5 feet thick at a continuous speed of three knots or up to eight feet thick by backing and ramming. **Healy** primarily operates in the Arctic and is generously outfitted to facilitate her scientific research support mission. At times working with a Canadian Coast Guard icebreaker, **Healy** has conducted extensive Arctic surveys to determine the extent of the extended continental shelf. She gained national attention in early 2012 when she was recalled to the Arctic to break a path for the tanker **Renda**, to enable **Renda** to deliver

critically needed fuel to the 3,600 residents of Nome, Alaska. In doing so, **Healy** navigated through more than 300 miles of pack ice ranging up to 4.5 feet thick. On September 5, 2015, **Healy** again made news when she became the first surface ship to navigate unaccompanied to the North Pole (her third voyage overall to the North Pole).

Any discussion of the resources required by the Coast Guard to carry out its Arctic mission set must acknowledge the paucity of Arctic ports and infrastructure, the added risks the lack of infrastructure creates, and the constraints it imposes on the Coast Guard. Both the Arctic Council’s Arctic Marine Shipping Assessment

and the federal Committee on the Marine Transportation System have documented the lack of infrastructure in the US Arctic region. One area of particular concern is that the Coast Guard’s capacity to meet the national and international mandate to respond to marine casualties and combat oil spills in Arctic waters is severely limited by the dearth of response resources commonly found in the lower 48 states.

The country’s deficit of icebreakers is indisputable, as the demands imposed by missions in polar waters are rapidly exceeding the means available to meet those demands. Next month, we’ll look at options on closing that icebreaker deficit. **PM**

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