CANADIAN GLOBAL AFFAIRS INSTITUTE
INSTITUT CANADIEN DES AFFAIRES MONDIALES

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POLICY PERSPECTIVE

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For the first time since the Second World War, the West is facing a disruption and upheaval to the security environment in the Arctic. With China's self-declaration as a "near-Arctic state" in January 2018 and Russia's illegal invasion of Ukraine in February 2022, the previously frozen North has rapidly developed into a theater for great power competition. While submarines can operate under the ice, and planes can fly high above, projecting naval presence into the high north requires fleets of icebreakers.

Designing and building icebreakers is hard. It is expensive, time-consuming work that demands a depth of specialized knowledge and an industrial shipbuilding base that is up to the challenge. Few countries in the world know the challenges better than the U.S. and Canada. After designing and building heavy icebreakers in the 1960s and 70s (LOUIS ST. LAURENT in Canada, and POLAR STAR and POLAR SEA in the U.S.), both countries went decades before returning to the table. As a result, both nations (which have substantial littoral Arctic territory) have found themselves exceptionally challenged to successfully replace these vessels on a reasonable timescale and budget. This challenge has persisted for decades.

Icebreakers are highly specialized ships that are indispensable assets for operating in Arctic and sub-Arctic waters. Such platforms are crucial for national defence and security purposes, but also for a myriad of other purposes that can be taken for granted in more temperate climates: search and rescue, scientific research, safe and efficient movement of commercial cargo. As Arctic nations, the U.S. and Canada clearly have equities in these areas. As do Russia, Sweden, and Finland. Finland, it happens, is the clear global leader in icebreaker design and construction. Historically, a significant majority of the world's major icebreaker fleet has been designed and built in Finland. This is owed in no small part to their geographic position as the only country in the world where every port freezes in an average winter.

Following Russia's illegal invasion of Ukraine, and Finland's application and accession to NATO, a new partnership would emerge between these new treaty allies. The U.S. and Canada turned to Finland for help. Leaders from Canada, the United States, and Finland met on the sidelines of the NATO Summit (July 11th) and agreed in principle on an effort to collaborate on design and construction of icebreakers. The West has had the luxury of underinvesting in Arctic capabilities for decades. Now, facing a dire strategic disadvantage, the U.S., Canada, and Finland are coming together and aligning national strengths to develop and field the needed icebreakers for national security far faster than any of the three could possibly have achieved alone. To understand why the ICE Pact is such a monumental agreement that will reset the balance of power in the Arctic, it is worth examining the history that led to it.

POLAR 8 and John Diefenbaker

One must look back at least as far as 1985 to uncover concrete actions by the Canadian Coast Guard to build a heavy icebreaker. These seem motivated in no small part by the POLAR SEA incident in 1985. When the U.S. Coast Guard sent the heavy icebreaker from Greenland to Alaska through the Northwest Passage without first seeking formal authorization from Canada, it raised understandable concern in Ottawa about Canada's ability to control seaways it considered internal waters. Under Prime Minister Brian Mulroney, Canada set out to build the POLAR 8 – a heavy icebreaker notionally capable of breaking through 8 feet of ice continuously.

As the POLAR 8 design began to take shape, it became a vehicle for requirements from every department of the government. The size, scope and scale of the project ballooned without constraint. The design grew into a huge 40,000 ton ship with more than 100,000 SHP (80MW) of power capable of year round operations in the Northwest Passage and Canadian Archipelago. It would carry three heavy lift helicopters and provide accommodations for nearly 100 supernumerary crew. As the design grew, it eventually reached a size of sufficiently deep draft that it would be too large to operate in shallower areas of the Arctic.

The program was eventually cancelled in 1990, a victim of program delays, ballooning costs, and the bankruptcy of the Yarrows shipyard in Esquimalt. The resources were diverted to extend the service life of LOUIS ST. LAURENT (LSL) - replacing the steam plant with diesel-electric propulsion, and to acquire the TERRY FOX as a stop-gap measure for CCG. Ottawa's interest in the Arctic waned as the Cold War ended. It would be another decade until Canada revisited the icebreaker question.

A National Shipbuilding Strategy Emerges

Shortly after 2000, the CCG began work on a fifty-year outlook for shipbuilding. This project would evolve into the National Shipbuilding Procurement Strategy and eventually the National Shipbuilding Strategy. It would account for construction of combatant and non-combatant vessels. Two shipyards were included in the original plan: Irving in Halifax for combatants and Seaspan in Vancouver for non-combatants.

The CCG never wavered in their desire to build a heavy icebreaker. In 2007, the CCG team revisited POLAR 8 design, and having learned from earlier challenges, entered the process placing a premium on design and requirement discipline.

In 2008, Prime Minister Stephen Harper announced plans to build a heavy icebreaker. Named after Prime Minister John Diefenbaker, the ship would be completed in time to replace the LSL, scheduled for decommissioning in 2017. Work picked up where Polar 8 had left off. Urgent demands to recapitalize the Offshore Fisheries Science fleet (three ships) and the Offshore Oceanographic Science Vessel led to them jumping to the head of the line at Seaspan. The Joint Support Ship project for the RCN (two ships: PROTECTEUR AND PRESERVER) were also given higher priority.

By 2021, progress on the design resumed, including updates to the propulsion configuration, and the capability was formally incorporated into the National Shipbuilding Strategy. In 2022, Seaspan (Vancouver) was designated for the legacy DIEFENBAKER contract. In 2023, Davie Shipyard in Quebec was added to the NSS, and designated for construction of a second heavy icebreaker.

USCG POLAR SEA and POLAR STAR

The U.S. Coast Guard's Polar-Class icebreakers were already at the end of their design service life in 2006 when Congress shifted the budgetary authority for operating the ships to the National Science Foundation, their main user at the time. This funding arrangement was complicated by failure to account for the significant maintenance costs (not just operating costs), the overhead of training for the constantly rotating crew, and the Coast Guard's other statutory missions, apart from icebreaking. Facing a menu of bad options, the Coast Guard elected to place POLAR STAR into an *in-commission special* status, and focus resources on POLAR SEA. Less than two years later, POLAR SEA experienced catastrophic engine failures during a planned upgrade to those systems. The Coast Guard switched all resources back to POLAR STAR, and spent $75M and five years to reactivate the cutter. In the interim, the National Science Foundation contracted foreign icebreakers (Russian and Swedish) to perform the annual resupply mission in Antarctica. POLAR STAR returned to service in 2013 and completed Operation Deep Freeze in 2014.

Heavy Polar Icebreakers (HPIB)

In 2015, President Obama announced that the U.S. would accelerate the procurement of new heavy icebreakers. An unequivocal declaration of support from the White House was crucial to pushing forward with the project. Several previous USCG service chiefs expressed dismay that their funding priorities, including icebreakers, had been set aside by either DHS or the Office of Management and Budget. After several rounds of Industry

Studies (meant to jump start the design process across multiple bidders), the Coast Guard awarded the design and construction contract for the first HPIB (now designated Polar Security Cutter or PSC) in 2019. At that time, the expected delivery date was 2024.

The U.S. Coast Guard's Polar Security Cutter program has been plagued by costly delays and missed schedules. At the end of March 2025, the Coast Guard awarded a $951M modification to the 2019 contract, inherited by Bollinger Shipyards, having purchased the VT Halter facility, and orderbook for $15M in 2022. Originally agreed to deliver the first in class heavy icebreaker by 2024, it is now expected in 2030, at the soonest. As the Coast Guard grinds forward with the program to acquire three (or more) heavy icebreakers, their fleet mix analysis study also shows the need for up to six medium icebreakers (dubbed "Arctic Security Cutters").

AIVIQ becomes STORIS

Acknowledging the delays of the PSC program, and recognizing the dire need for Arctic-suitable patrol assets now, the Coast Guard succumbed to a decade of pressure from Congress. Despite several studies finding the Aiviq to be poorly suited for Coast Guard missions, the Coast Guard purchased the Anchor Handling Tug Supply (AHTS) Ship *AIVIQ* from Edison Choest for $100M in 2024, planning to spend at least $25M to upgrade and missionize the ship. AIVIQ is classified by ABS as an Icebreaker A3. It was revealed with a fresh coat of red paint and bearing the name STORIS in December 2024. STORIS was the name of a World War II-era light icebreaker that served extensively in Alaskan waters before decommissioning in 2007. This bridging strategy (refitting Anchor Handlers to serve as Coast Guard icebreakers) had previously been used by the Canadian Coast Guard in 2018, with the purchase, refit, and commissioning of CAPTAIN MOLLY KOOL (2018), JEAN GOODWILL (2019), and VINCENT MASSEY (2023).

ICE Pact

This brings us up to the present day. The Icebreaker Collaboration Effort, or ICE Pact as it would be known, was formalized in Washington DC in November 2024 when senior representatives from each country signed a Memorandum of Understanding that established four lines of effort for the project. First, an exchange of technical information and collaborative development of designs. Secondly, the establishment of joint workforce development programs. Third, a pledge to work with allies and partners to identify and promote shipyards capable of building icebreakers. And lastly, the development of a framework to develop and share icebreaking research and development.

These four lines of effort steered the discussions at the first national coordinators meeting in Helsinki in early March. The group used the meeting as an opportunity to evaluate where each country stood, to set and agree on priorities, and set an action plan for upcoming activities.

In the following weeks, several big announcements made clear that all parties were committed to moving swiftly toward putting icebreakers in the water and leveraging the collective capabilities of the ICE Pact parties to make that happen.

Canada Wastes No Time

First came the announcement on March 7th that Seaspan would build one (of two new) heavy icebreakers in Vancouver. Shortly thereafter followed the announcement on March 8th that Davie would start construction of the new Canadian Coast Guard Polar Icebreaker at Helsinki Shipyard in Finland. This unconventional arrangement would include the training of Canadian tradesmen alongside Finnish experts. The hull and machinery of the icebreaker would be moved to Davie's domestic facility in Levis, QC for final construction and commissioning. An estimated 30% of the work will be completed in Helsinki before the hull is towed to Canada for completion.

The contracts were awarded to Seaspan and Davie to build one heavy icebreaker each. The Seaspan project, named ARPATUUQ, is an evolution of the Diefenbaker design, now 158 meters long, 27,000 tons and 47MW. It is expected to be commissioned by 2030. The Davie project, named IMNARYUAQ, is based on the Helsinki Shipyard POLAR MAX design on the Aker ARC148 hull form. The design is 138 meters long, will displace 22,800 tons and be powered by 40+ MW, and is similarly expected by 2030.

Thus the U.S. and Canada are embarking on a grand experiment, although perhaps one they never intended. They have awarded three contracts to three shipyards for three different heavy icebreaker designs. All are roughly similar in operational capabilities, and all are expected to be delivered in 2030. Yet, the contract terms and the construction strategies are vastly different. While Seaspan was awarded a fairly typical cost-plus $3.15B(cdn) contract for construction entirely in Canada, Davie's contract is a fixed price $3.25B(cdn) contract which will be shared between facilities in Helsinki Finland and Levis QC. The CBO estimates the cost of the U.S. Coast Guard's contract with Bollinger to be $1.9B(USD) for the first ship and $1.6B (USD) for additional hulls. As the ships enter into production, we will all learn which approach was the most economical and time constrained. It won't be until years from now, as sailors have the opportunity to put the

ships to the test in the harsh Arctic environment, that we will be able to assess which was the best bargain.

U.S. Leans into ICE Pact

In April 2025, the U.S. Coast Guard issued a Request for Information (RFI) seeking details on any Arctic Security Cutter designs that are ready for construction. The parameters set by the RFI are:

VESSEL PRELIMINARY CAPABILITY PARAMETERS	
Length	360ft or less
Beam	78ft or less
Draft	23ft or less
Icebreaking	Vessel shall be capable of independently breaking through ice with a thickness of 3ft at a continuous speed of 3 knots.
Range	6,500 nautical miles at 12 knots
Endurance	60 days
Aircraft	Flight deck and hangar to accommodate ONE (1) HH-60

Notably, the RFI seeks information on "current capabilities and availability of ***global shipyards*** that could support the construction and subsequent launch of an existing icebreaking capable vessel design within THIRTY-SIX (36) months of a contract award date." (emphasis mine)

It comes as no surprise, then, that following a round of golf in Florida with Finnish President Alexander Stubb, President Trump posted on social media "President Stubb and I look forward to strengthening the partnership with Finland, and that includes the

purchase and development of a large number of badly needed Icebreakers for the U.S., delivering Peace and International Security for our Countries, and the World."

In a less-publicized action, the Coast Guard issued a similar RFI for domestic icebreakers, omitting the language concerning "global shipyards," however still seeking information concerning "the maturity of… allied nation maritime industrial base vessel designs." This is clearly a tacit acknowledgement of ICE Pact and the opportunities to leverage Canadian and Finnish icebreaker designs and technology.

At the CANSEC defence conference in Ottawa in late May, three exhibitors were displaying their candidate designs for the ASC, submitted in response to the RFI. Irving Shipbuilding proposed a version of the AOPS design currently in production for the RCN. Davie proposed the "Multi-Purpose Polar Support Ship (MPPS)" based on an update to the 2005 Aker Arctic *Fesco Sakhalin* hull form and propulsion. Seaspan proposed their Multi-Purpose Icebreaker (MPI) Flight 1 concept, designed for future construction for the Canadian Coast Guard. Aker Arctic touts the *Sakhalin* as the "first modern icebreaker" and notes that the hull form was the basis of the ARC146 design used for the Canadian MPI. In addition to these three, Rauma Shipbuilding in Finland was expected to respond to the RFI, as well as some U.S. based shipbuilders. Ultimately, the designs proposed by the Canadian yards may be of less significance that their capacity to insert new ship builds into their contract books amidst the already promised hulls in support of the National Shipbuilding Strategy.

What about Finland?

In May 2025, the Finnish Transportation Infrastructure Agency awarded a contract to Aker Arctic for the design of a next-generation Baltic icebreaker. The concept is expected to be delivered in 2026. Aker will continue to lead and innovate in designs that will set the standard for future platforms. Considering the urgency of the U.S. request, and their emphasis on existing designs that are ready for production, these advancements will not be seen soon in U.S. waters.

Legal Barriers?

Building the ships in Finland will almost certainly deliver icebreakers to the U.S. Coast Guard sooner and at lower cost than domestic production. Current U.S. law (14U.S.Code§1151 - Restriction on construction of vessels in foreign shipyards) prohibits

the construction of Coast Guard vessels overseas. Doing so will require legislative changes by congress, or policy exceptions from the President. Both of these seem likely.

In February, Senator Mike Lee (R-UT) and Senator John Curtis (R-UT) introduced bill S.407, the "Ensuring Coast Guard Readiness Act" If enacted, this legislation would amplify 14USC1151, adding requirements from congressional notification and strictly limiting overseas construction to NATO allies and Indo-Pacific partners, while specifically excluding shipyards owned or operated by China.

U.S. Department of Homeland Security Assistant Secretary Sohan Dasgupta is the U.S. national coordinator for ICE Pact. He has vociferously declared that "inertia and lethargy are in the past, and the U.S. must meet adversaries with presence and strength by building icebreakers at speed and at scale." He further clarified that the onerous bureaucratic procurement processes that have held vessel procurement back are all open to waivers. This seems to signal a willingness by the administration to exercise the exception in 14USC1151 for the President to authorize foreign construction "in the national security interest of the United States".

Cutting Steel and the ability to pay for it

The biggest icebreaker news to come out of the US in the past weeks has been the start of full production of the Polar Security Cutter at Bollinger's shipyard in Pascagoula. Late last year, "prototype" modules had been started, but were approved for construction on a conditional basis. The green light from the Department of Homeland Security on May 1st 2025, is a major milestone that puts the program into full production. The other story that deserves attention is the supplemental funding bill sponsored by House Republicans that would bring an ***additional*** $22.5B to the Coast Guard for ships, aircraft and shore infrastructure. This figure dwarfs the $1B that the CG received in the FY24 budget, and represents a figure far in excess of the CG's ***total*** $13.8B FY25 budget request. Republicans believe they have a viable path to fund the supplemental bill through the reconciliation process. This would be a huge block of funds to ensure that funding will not be the limiting factor for icebreaker acquisitions.

What's Next?

As all three heavy icebreakers enter full production (in Helsinki, Vancouver, and Pascagoula), everyone will be watching closely to assess if progress seems to adhere to expected timelines (and budgets). On the administrative front, the ICE Pact national

coordinators will be meeting in Ottawa in June. This would present an opportunity for public announcements of any forthcoming collaboration. Finally, as the U.S. Coast Guard has the chance to review and assess the responses to the Arctic Security Cutter RFI, we will learn if the urgency of icebreaker construction outweighs President Trump's desire to reinvigorate the domestic shipbuilding industry in the U.S.

About the Author

William Woitytra *is a 2025 CFR International Affairs Fellow in Canada and a 2018 Fulbright Scholar in Finland. He is a 1999 Coast Guard Academy graduate, with a Bachelor of Science degree in Electrical Engineering. Advanced degrees include a Master of Science in Oceanography from the University of Rhode Island, an MBA from Chancellor University, and an Advanced Diploma in Maritime Law from the IMO International Maritime Law Institute. He was an MIT Seminar XXI National Security Fellow in 2018-2019.*

A career icebreaker sailor, CAPT Woitytra spent more than 12 years breaking ice at sea. As Commanding Officer, he led POLAR STAR to set world records for extreme navigation in the Arctic and Antarctic regions. As Operations Officer, he led CGC HEALY on five Arctic research missions, including her historic 2015 expedition to the North Pole, the first time an unaccompanied U.S. surface vessel had reached the top of the world. He served for three years as Commanding Officer of CGC NEAH BAY in Cleveland OH. He served as Executive Officer on CGC THUNDER BAY out of Rockland ME and previously on POLAR STAR as Marine Science Officer, where he made one Antarctic and two Arctic deployments. He also served as a research fellow on the 2017 Arctic 100 Northwest Passage Expedition aboard the Finnish icebreaker NORDICA, and the 2022 North Pole Expedition aboard the French icebreaker LE COMMMANDANT CHARCOT.

Captain Woitytra's previous shore assignment was on detail to the Department of Defense as Director for Oceania Policy at U.S. Indo-Pacific Command (J53) where he led a team of ten to manage bilateral military relationships with Australia, New Zealand, and 14 Pacific Islands. He previously served at Coast Guard Headquarters (CG-WWM) as Program Manager for Coast Guard icebreaking, where he set priorities to establish where, when, and why the Coast Guard breaks ice, worldwide. In this capacity, he visited the South Pole twice, in 2017 and 2019. He served two years as Coast Guard Attaché to Malta, where he advised the U.S. Ambassador and Armed Forces of Malta on maritime concerns and taught Search and Rescue Coordinator classes at the Maritime Safety and Security Training Centre. He also served at the International Ice Patrol, tracking North Atlantic icebergs threatening shipping on the Grand Banks of Newfoundland.

During his time in Command of POLAR STAR, the unit was honored as the SNA Capt. Hopley Yeaton Cutter of the Year and won the ASNE Lucas Plaque for accomplishments in Naval Engineering. Captain Woitytra's personal awards include the Defense Superior Service Medal, Defense and Coast Guard Meritorious Service Medals, Department of State Meritorious Honor Award, and other decorations. He was honored as Distinguished Alumnus of the Year by his high school, and received the Alumni

Achievement Award for Character, Courage and Leadership from the Coast Guard Academy. He is a permanent Cutterman and has earned the Aviation Mission Specialist and Navy Craftmaster designations. In 2019, he was admitted as a National Fellow of The Explorers Club, and in 2022 he was named as an honorary USCG Chief Petty Officer.

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