The Cost of Success: Rebuilding the Coast Guard's Arctic Capabilities

Rob Huebert

Credit: Seaspan

A rendering of the polar icebreaker being built by Seaspan Vancouver Shipyards.

The Canadian Coast Guard (CCG) has traditionally been the neglected marine service within Canada.[1] It plays an essential role for Canada in a vast area of maritime safety and security functions, and it is best known as one of the Canadian government's most important means of providing stewardship over the Arctic – as evidenced by the appearance of the icebreaker CCGS *Amundsen* on Canada's $50 bill. However, while the CCG plays such a crucial role for Canada, it remains underfunded and ignored by Canadian governments, forced to operate an aging fleet.

This is about to change with the long-promised fleet recapitalization finally occurring under the National Shipbuilding Strategy.[2] Specific to the Arctic, the actual construction of two large Polar Class icebreakers began at Seaspan Shipyards in Vancouver on 3 April 2025 and at Helsinki Shipyard in Finland on 20 August 2025.[3] In addition, on 8 August 2023, Irving Shipbuilding began the construction of one of the two Arctic and Offshore Patrol Vessels (AOPVs) that the CCG will receive. Such an explosion in the construction of vessels needed for operations in the Canadian Arctic would seemingly be only good news; however, unfortunately, while the ships are all needed, the manner and timing of their construction will create significant difficulties and inefficiencies in the future. The frustrating element of this is that the government of Canada fully understands what it is doing but is still proceeding in this manner.

The current urgency to act is based on the recognition of two core threats to Canadian Arctic security and sovereignty.[4] The first is the long-term recognition of the impact of climate change. Specifically, the warming of the polar regions means that waterways that have been previously frozen and therefore inaccessible are now expected to be navigable as the ice melts, leading to increasing ship traffic. There is disagreement as to when this will occur and how the melting will take shape, but the political realization that it is occurring is now driving much of Canadian policy, as evidenced in both *Our North Strong and Free* and *Canada's Arctic Foreign Policy*. The second major threat comes from the rapidly devolving international security environment. While many Arctic scholars had seen the Arctic as a region of exceptional peace and cooperation, events since the Russian invasion of Ukraine in 2014 have now led to circumstances in which the Arctic is increasingly recognized as a region of escalating tension.[5] Unlike the Cold War era, when the two belligerents were the United States and its North Atlantic Treaty Organization (NATO) allies against the Soviet Union, the growing tension between the NATO alliance and Russia is compounded by an increasingly Arctic-oriented China.

There is considerable debate as to the actual intentions of China and whether it poses a security threat as opposed to a political/economic threat, but there is little dispute that China's involvement in the region is growing.

The net effect of the recognition that the Arctic waterways will become more navigable in the future, combined with the growing military tension in the region, has finally focused Canadian policy-makers' attention on the need to respond to the requirements of the Canadian Coast Guard.

This has resulted in the current building of a new fleet of icebreakers. Once the new ships are constructed, they will fill a growing deficit in Canada's Arctic capabilities, and the CCG will make excellent use of the vessels. But the way they will have been built underlines the unwillingness and inability of Canadian governments to manage the country's Arctic assets rationally, and especially those the CCG needs. Canadian governments may say they prioritize the protection of Canadian Arctic sovereignty and security, but the way the CCG Arctic fleet is being rebuilt demonstrates that this is not the case. Governments also say they understand the problems that a boom-and-bust building cycle creates,[6] but the construction of the two polar icebreakers and two AOPVs at the same time and in different shipyards demonstrates that they either do not know how to solve the problem or really do not care to do so.

Successive Liberal and Conservative governments have had a long time to come up with a rational plan to break the historical boom-and-bust cycle. Canadian governments have known for over 40 years that they needed to begin construction on a new large icebreaker. The decision only now to build all the ships needed will leave the CCG with an overly complex and ineffective means of maintaining and crewing them. Thus, despite acknowledging that the boom-and-bust cycles have been the core problem facing Canadian shipbuilding, the Canadian Coast Guard – after waiting 40 years – will have two Polar Class icebreakers, two AOPVs and the six smaller program icebreakers almost all built at the same time. The CCG will need to figure out how to service and maintain these vessels for a long time without any economies of scale. They will all have different service requirements, will demand different maintenance regimes, and will have different crewing needs. If the CCG had a history of being given an abundance of resources, this might not be a huge problem. But it has traditionally been starved of resources and, as such, the future will be challenging.

Canadian governments have understood the need to build icebreakers for a long time. Following the voyage of the American icebreaker USCGC *Polar Sea* through the Northwest Passage in 1985, the Brian Mulroney government undertook an extensive review, under the leadership of Joe Clark, of what Canada needed to defend its Arctic sovereignty.[7] One of its more important findings was that it needed to build a Polar 8-class icebreaker.[8] This was announced to great fanfare in Parliament on 10 September

Credit: Canadian Coast Guard

A close-up of the prototype block built by Seaspan in early 2024 using the 60 mm-thick steel that will be on the polar icebreaker. The official first steel-cutting for the ship was in April 2025.

Credit: Canadian Coast Guard

Canadian government and Davie Shipbuilding officials at the 20 August 2025 steel-cutting ceremony for the 'Polar Max' polar icebreaker being built by Davie in its Helsinki and Quebec yards.

1985. This decision was cancelled by 1988 but successive governments have re-asserted the need to build the replacement for CCGS *Louis S. St-Laurent*, which was built in 1969 and is still being operated in 2025. Likewise, the existing fleet of medium icebreakers – built or acquired between 1978 and 1987, with the purchase of an additional vessel in 1991 – also need replacement.[9] In effect, Canada last built an icebreaker specifically designed for the Canadian Coast Guard 38 years ago. Both Liberal and Conservative governments have stated their intentions to build new vessels but seemed more interested in determining the names of the vessels than building them (e.g., *Diefenbaker* vs. *Arpatuuq* and *Imnaryuaq*). Both the Harper and Trudeau governments announced names well in advance of building them. There have also been numerous reports recognizing this problem, beginning with the 1990 *Osbaldeston Report*, which focused on better managing Canada's various fleets.[10] The Harper government promised to build three armed icebreakers when it was elected in 2005, but it later changed these to the six AOPVs built for the navy that have just been completed, and two to be built for the CCG.

Successive Canadian governments have also understood the problem that historically has plagued Canadian shipbuilding. Canada tends to build its ships in short time-frames. This boom-and-bust practice means that it has not been able to sustain the shipyards that build these vessels. When the government decides to build new vessels, there is inevitably the need to build a large number and to rebuild the shipbuilding capacity – often from scratch. Recognizing this problem in 2008, the Harper government decided to act and undertook an examination of the problems that Canada has faced in building vessels for its navy and coast guard.[11] This study resulted in the creation and release of the National Shipbuilding Procurement Strategy (later renamed by the Trudeau government as the National Shipbuilding Strategy). It is based on three pillars: (1) the construction of large vessels (more than 1,000 tonnes of displacement); (2) the construction of small vessels (less than 1,000 tonnes of displacement); and (3) vessel repair, refit and maintenance projects.[12] To implement this strategy, the government of Canada selected two shipyards to build the large vessels: Seaspan in Vancouver; and Irving Shipbuilding in Halifax. The government later decided that Halifax would be responsible for building warships, while Vancouver would build the large non-combatant vessels.

As an aside, the reluctance of Canadian governments to assess this problem publicly is demonstrated by the fact that once the strategy was created, it was never actually

The Arctic: People, Resources and Capabilities

EEZs and Territorial Claims: Source: Flanders Marine Institute, *World EEZ*, v. 12; and *World Extended Continental Shelves*, v. 2.

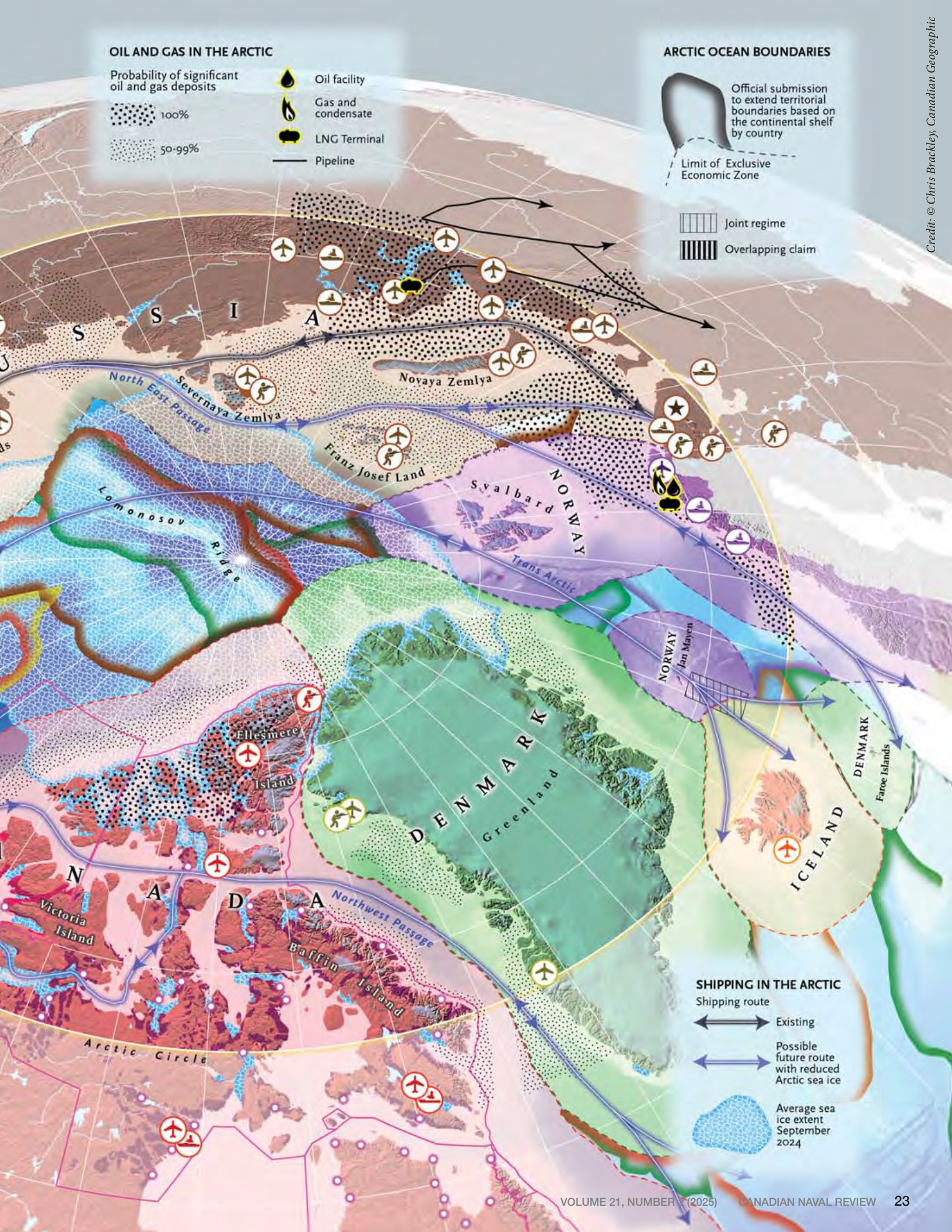
Oil and Gas Facilities: Current oil and gas production areas and probability of the presence of at least one undiscovered oil and/or gas field with recoverable resources greater than 50 million barrels of oil equivalent map. Source: "Marine Conservation in the Norwegian Arctic." Nicole Wienrich, 2022/08/31.

Oil Reserves and Pipelines: Source: "Resources in the Arctic," Nordregio.

Military Sites: Source: "Arctic Competition Part Two: Military Buildup and Great Power Competition," *Foreign Policy Magazine*, 14 December 2020.

Arctic Sea Routes: Arctic Sea Routes with main ports and EEZ map. Source: Arctic Portal. Updated August 2023.

Inuit Settlement Area Boundaries and Inuit Owned Lands: Source: Aboriginal Affairs and Northern Development Canada, Open Government Licence – Canada.


OIL AND GAS IN THE ARCTIC
Probability of significant oil and gas deposits
100%
50-99%
Oil facility
Gas and condensate
LNG Terminal
Pipeline
ARCTIC OCEAN BOUNDARIES
Official submission to extend territorial boundaries based on the continental shelf by country
Limit of Exclusive Economic Zone
Joint regime
Overlapping claim
Credit: © Chris Brackley, Canadian Geographic
S S I A
North East Passage
Severnaya Zemlya
Novaya Zemlya
Franz Josef Land
Svalbard
NORWAY
Lomonosov Ridge
Trans Arctic
NORWAY
Jan Mayen
DENMARK
Faroe Islands
Ellesmere Island
DENMARK
Greenland
ICELAND
N A D A
Victoria Island
Northwest Passage
Baffin Island
Arctic Circle
SHIPPING IN THE ARCTIC
Shipping route
Existing
Possible future route with reduced Arctic sea ice
Average sea ice extent September 2024

released to the public. The government released a summary of the strategy's findings,[13] and there have been annual reports,[14] but the actual strategy has never been released.

The strategy was based on the premise that such an approach would allow companies both to build up the necessary expertise and have an ongoing flow of contracts to ensure that they remain sustainable over time. This would also mean that both the Canadian Coast Guard and the Royal Canadian Navy (RCN) would receive new vessels on an ongoing basis, allowing for a more easily managed acceptance process. Not unexpectedly, efforts to implement the shipbuilding strategy ran into several challenges, and some of the contracts developed delays. The Auditor General noted that these delays meant that many of the necessary vessels were not going to reach either the CCG or the RCN within the time-frame in which they were needed.[15]

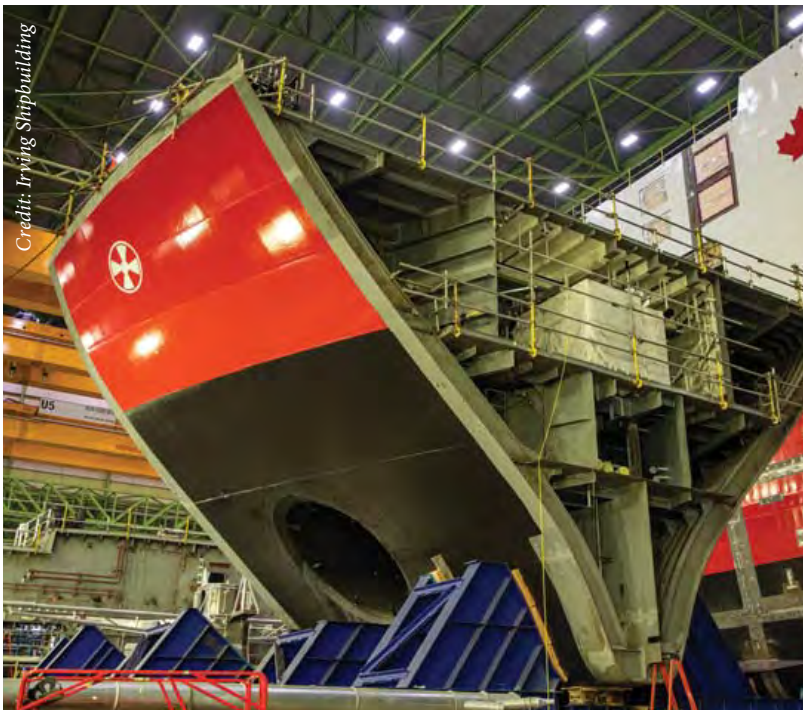
Responding to these challenges, the Trudeau government made the decision to add a third shipyard to the National Shipbuilding Strategy in order to speed up the construction of the vessels. In August 2019, Public Services and Procurement Canada (PSPC) announced that there would be a competitive process to select a third shipyard to build icebreakers for the CCG. In December 2019, the government announced that Chantier Davie Canada Inc. in Levis, Quebec, was to become the third shipyard.[16]

The recognition that the aging fleet cannot meet the growing threats of climate change and a deteriorating geopolitical environment has compelled the Canadian government to act. Both the Conservative Harper government and the Liberal Trudeau governments acted on rebuilding the CCG's Arctic capability, as is the Carney government. But they have done so in a manner that guarantees the continuation of the boom-and-bust cycle. All the new icebreakers are now being built at the same time. This is despite knowing, since 1985, that there was a need to build new large icebreakers. Furthermore, because recent governments came to feel such an urgency, they are building the icebreakers in four separate yards. 'Polar Max' – the icebreaker that Davie is building – is itself being constructed in two different yards. The hull will be constructed in Finland and will then be brought over to the shipyard in Quebec for completion.[17]

Future scholars now have the exact dates of when the current boom-and-bust cycle for Canadian icebreakers commenced: 8 August 2023 to 20 August 2025. It is within this time period that Canada began building two polar icebreakers and the first of two AOPVs for the CCG. These will soon be followed by the six program icebreakers that Davie will build. This procurement timeline has also provided the answer as to whether Canada can solve the boom-and-bust cycle that it has historically faced. Evidently, the answer is no – when it comes to icebreakers. All these vessels will come into operation in the early 2030s. Per tradition, Canada will use these vessels for a long time, so it is not unreasonable to assume that all of them will require replacement at the same time – probably between 2070 and 2080. During that time period, the future Canadian government will again face this problem.

But coming back to the current time, what are the ramifications for the Canadian Coast Guard as these vessels come into operation in the early 2030s? First, it must be assumed that the challenges Canada will face will not diminish. In other words, we must assume that the instability and danger posed by Russia, China, and increasingly the United States, will remain below the threshold of armed conflict. Should war break out with Russia or China, all such concerns about icebreakers will be fundamentally altered. Likewise, a Donald Trump administration that makes good on its threat to assimilate part or all of Canada would render the concern over icebreakers meaningless. But assuming these dire predictions do not occur, what are the issues that the Canadian Coast Guard will face as it accepts all these vessels in a relatively condensed time-frame?

First, the CCG will welcome the addition of two Polar Class icebreakers, two AOPVs and, subsequently, the six program icebreakers. Maintaining the aging fleet has always been demanding. The existing vessels require a tremendous amount of repair and upkeep to meet the rigours of operating in the Arctic. The new vessels will not face such issues, while also providing the coast guard



This August 2025 photo shows painted blocks for the first Canadian Coast Guard Arctic and Offshore Patrol Vessel at Irving Shipbuilding's Halifax Shipyard.

Credit: Davie Shipbuilding

A 2022 graphic shows a program icebreaker being built at Davie Shipbuilding.

with much-needed technical advancements, as all of them will be built with state-of-the-art equipment.

However, several problems will arise that the CCG will need to manage. First, as noted earlier, is that the timing of the build means that the boom-and-bust shipbuilding cycle will be repeated. This will not be a problem at first, but in time, it will require the same effort that is now being made to maintain the existing fleet. As the years advance, the CCG will need to figure out how to deal with the aging of the entire fleet. If it is well funded, such problems could be manageable, but the Canadian government's historical record is not promising on this point.

Second, the choice to build the two polar icebreakers and the AOPVs in four different shipyards will exacerbate what the Auditor General calls "the first-in-class problem."[18] This is a problem all countries face when they build a new warship or specialized government vessel such as an icebreaker. Building these vessels is very challenging, and there are often lessons learned from such efforts. For example, the Americans are facing very significant problems with their new *Ford*-class aircraft carriers and *Columbia*-class ballistic missile submarines (SSBNs).[19] As time progresses, the shipyards building these ships will learn how to address these problems, but they will need to learn how to do this. By having the polar icebreakers built in three yards, instead of the one yard that the National Shipbuilding Strategy originally called for, the government ensures that the first-in-class problem will be experienced twice. Presumably, most of the first-in-class problems that the AOPVs faced have been resolved, so at least the construction of those two vessels should proceed with fewer problems.[20]

Third, there will be extended problems with maintenance and upkeep. The greater the variety that exists among any fleet, the more challenging it is to maintain each different ship. For the same class of vessels, there can be a commonality in spare parts, and the training of the crew who repair and maintain the vessels can be better organized. Different ships will require different repair capabilities. This is one of the main reasons why the Royal Canadian Air Force (RCAF) opposes operating a mixed fleet of fighters and prefers to have one class of aircraft.[21]

Fourth, there will be additional pressures with respect to training CCG personnel to operate the vessels. While there will be commonalities between the various classes of vessels that can provide for some overlap, there will also be specific elements that require specialized training on each vessel.

There is no question that Canada needs new icebreakers. Its current fleet is aging and has a limited time left before most ships need to be retired. The twin threats of climate change and a deteriorating geopolitical Arctic environment do not allow Canada to be without icebreakers. Thus, the decision to rebuild the fleet is welcome. But the government's determination to build the new vessels in different shipyards and at the same time ensures that the problems associated with boom-and-bust building cycles will remain. In 2070, when the next fleet will be needed, these problems that the CCG now faces will return.

Undoubtedly, the current government will contend that it had no choice, since it needs to have the new icebreakers now, and that the fault lies in the inaction of previous governments. It is right in this regard. The sense of urgency

Credit: Mass Communication Specialist 3rd Class Angel Thuy Jaskulski, US Navy

*A sailor on USS **Gerald R. Ford** operates one of the ship's advanced weapons elevators during a post-delivery test and trial period in April 2021. **Ford**'s elevators have required extensive troubleshooting as they utilize new technology and are emblematic of the first-of-class issues with the **Ford**-class.*

is understood and real. Canada does need an icebreaker fleet to meet the new Arctic demands and threats. But this is a problem that has been understood to exist for almost 40 years. Furthermore, the determination to break the boom-and-bust shipbuilding cycle was part of the motivation behind the formulation of the National Shipbuilding Strategy.

Two questions therefore remain. First, why, despite having time to act and knowledge of the problem, have successive Canadian governments been unable to break the boom-and-bust cycle when it comes to building icebreakers? Why is Canada repeating the decisions that lock itself into this system? Second, how can the Canadian Coast Guard best prepare to respond to the problems that this will create for itself? How can it ensure that it is able to take the best advantage of what will be a very powerful new presence in the Canadian Arctic, while best remedying the challenges that come from receiving all of these different ships at once? These questions are not easy to answer but will require careful consideration.

Notes

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2. Government of Canada, Canadian Coast Guard, "National Shipbuilding Strategy and the Canadian Coast Guard," last modified 19 August 2024.
3. For details, see Seaspan, Media Release, "Built in Canada for Canada: Seaspan Begins Construction on Heavy Polar Icebreaker, the Most Capable Ship in the Canadian Coast Guard's Fleet," 3 April 2025; and "Work Begins in Finland on a New Canadian Icebreaker for Arctic Defence," CTV News, 20 August 2025.
4. Both sets of threats are identified in Government of Canada, Global Affairs Canada, *Canada's Arctic Foreign Policy*, 2024; and Government of Canada, Department of National Defence, *Our North, Strong and Free: A Renewed Vision for Canada's Defence*, 2024.
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6. Boom-and-bust cycles refer to when a large number of ships are built in a short period, meaning that the shipyard that builds them will have a flurry of activity and then no succeeding business. For a discussion, see Elinor C. Sloan, "National Shipbuilding Strategies in Australia, Britain, and Canada," *International Journal*, Vol. 80, No. 1 (2025), pp. 5-22; Jeffrey F. Collins, "Overcoming 'Boom and Bust'? Analyzing National Shipbuilding Plans in Canada and Australia," Canadian Global Affairs Institute, January 2019.
7. As discussed in Rob Huebert, "Polar Vision or Tunnel Vision: The Making of Canadian Arctic Waters Policy," *Marine Policy*, Vol. 19, No. 4 (July 1995), pp. 343-363.
8. See Adam Lajeunesse and Rob Huebert, *From the* Polar Sea *to Straight Baselines: Arctic Policy in the Mulroney Era*, Documents on Canadian Arctic Sovereignty and Security (Calgary and Waterloo: Centre for Military, Security and Strategic Studies/Arctic Institute of North America/Centre on Foreign Policy and Federalism, 2017).
9. CCGS *Pierre Radisson*, 1978; CCGS *Sir John Franklin/Amundsen*, 1979; CCGS *Des Groseilliers*, 1982; CCGS *Henry Larsen*, 1987; CCGS *Terry Fox*, 1991. See Charles D. Maginley and Bernard Collin, *The Ships of Canada's Marine Services* (St. Catharines: Vanwell Publishing, 2001), pp. 154-158.
10. Government of Canada, Treasury Board, *All the Ships that Sail: A Study of Canada's Fleets, Report of the Study on the Utilization of the Federal Government's Marine Fleets* (*Osbaldeston Report*), 15 October 1990.
11. See Dave Perry, "A Narrative History of the NSS from Conception to the CSC RFP," Naval Association of Canada, March 2021.
12. Government of Canada, Public Services and Procurement Canada, "About the National Shipbuilding Strategy," last modified 8 May 2025.
13. Government of Canada, Media Release, "Government of Canada Announces National Shipbuilding Procurement Strategy," 3 June 2010.
14. Government of Canada, Public Services and Procurement Canada, *Canada's National Shipbuilding Strategy: 2020 Annual Report*, 2021.
15. Office of the Auditor General of Canada, *Reports of the Auditor General of Canada to the Parliament of Canada, Report 2: National Shipbuilding Strategy*, 2021, pp. 4-14.
16. House of Commons, *National Shipbuilding Strategy: Report of the Standing Committee on Public Accounts*, June 2021, 43rd Parliament, 2nd Session, p. 2.
17. Davie, Media Release, "Polar Max Steel Cutting Launches Construction Phase for Canada's Flagship Polar Max Icebreaker," 20 August 2025.
18. Office of the Auditor General of Canada, *Reports of the Auditor General of Canada to the Parliament of Canada, Report 6: Arctic Waters Surveillance*, p. 2.
19. See Hope Hodge Seck, "First Columbia-Class Sub, Two Aircraft Carriers Face Delivery Delays, Navy Officials Tell Senate," USNI News, 9 April 2025.
20. There have been some first-in-class problems. See David Pugliese, "Leaks, Ineffective Anchors, Mechanical Breakdowns Among Ongoing Problems Facing New Arctic Patrol Ships," *Ottawa Citizen*, 14 February 2024.
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