

The Arctic Submarine Narrative

The Value of Using Arctic Sovereignty and Security in Strategic Messaging

Adam Lajeunesse | September 2024

Executive Summary

Canada's submarine procurement program has been launched with the aim of replacing the Victoria-class fleet by 2035. At the heart of the government's messaging about these new boats is the concept of Arctic sovereignty and security. This commentary suggests that this narrative approach, focused on sovereignty and resource security, is too simplistic and may even be detrimental to the program. Instead, it offers a more nuanced messaging approach.

Introduction

This summer, the Government of Canada confirmed its intention to procure up to 12 conventionally powered submarines to replace the Royal Canadian Navy's (RCN) aging Victoria-class fleet. The final design and fleet size remain to be determined; however, government messaging has been consistent in noting the need for submarines to patrol and defend the Arctic. That task was given policy cover in the April 2024 defence update, *Our North, Strong and Free* (ONSF), which promised to “explore options for renewing and expanding our submarine fleet to enable the Royal Canadian Navy to project a persistent deterrent on all three coasts, with *under-ice capable*, conventionally powered submarines.” [italics added]¹

When the submarine procurement program advanced from the ‘explore’ stage, its Arctic element expanded. In July 2024, the Department of National Defence (DND) announced the procurement program in a seven-paragraph press release, which mentioned the Arctic six times. Indeed, a discussion of the melting ice in the Arctic led the announcement, rhetorically underpinning the entire rationale for the submarines. Public Services and Procurement Canada's press release was, likewise, framed by the same Arctic-centric message.² The government's formal Request for Information (RFI) for consideration by industry, also listed an “Arctic capability” as critical.³ Simply put, as DND, the government, and even many outside commentators discuss this future capability, the Arctic seems always to be at the centre.

Concerningly, much of the Arctic rhetoric implies the need to defend against attacks *in* and *against* the Arctic itself (rather than simply those passing through it).⁴ In a July press release, DND announced that “Canada’s Northwest Passage and the broader Arctic region are already more accessible, and competitors are seeking access, transportation routes, natural resources, critical minerals, and energy sources through more frequent and regular presence and activity.”⁵ Rather than looking at the Arctic as a transit route that needs to be monitored, DND appears to be talking about regular patrols across the Northwest Passage itself, to surveil the region and ‘defend’ Canadian resources and sovereignty.

This is an exaggeration of a conventional submarine’s capability and certainly an overreach of what can be reasonably and cost-efficiently accomplished. This is not to say that the RCN and DND do not understand the dynamics of Arctic submarine operations. They certainly do (and far better than this author). Rather, what appears to be happening is that the government and DND are employing Arctic defence as a narrative tool to demonstrate the value of these assets and, in essence, sell the program.

There is nothing unusual in this approach. All major procurement programs require a justification, and the more straightforward the better. The danger is that much of this oversimplified messaging will gradually become accepted wisdom for both the public and politicians. Once entrenched, the idea that submarines can and should be patrolling the Northwest Passage and defending Canadian sovereignty will be hard to shake. As the program progresses, it is easy to see influential actors pushing to realize some of that oversimplified sales pitch. This may mean pressuring the RCN to incorporate design elements that will add cost or slow the build – or outright demanding that it do so. Likewise, the vessels’ concept of operation may eventually be skewed to incorporate political ‘sovereignty’ tasks that would see key assets misused.

Arctic Submarine Operations

While Canadian public statements envision RCN submarines operating regularly in the Arctic, the nature of those operations is never spelled out. Just as importantly, the definition of ‘the Arctic’ remains elusive. These are important considerations given the vastness of the region and the nature of the tasks envisioned.

To state that Canadian submarines will engage in Arctic operations without qualification is misleading. American nuclear attack submarines (SSNs) have operated in the Arctic since 1958 and have built a robust operational capability. At the heart of this is the unlimited range and power provided by the nuclear reactor. Canada’s conventional submarines will never have that true Arctic capability. As such, assumptions that the RCN will patrol the Northwest Passage or project power deep into the region are misguided.

Canadian submarines will be able to poke under the ice. However, this will not be their natural operating environment. New non-nuclear Air Independent Propulsion (AIP) technology does allow a submarine to operate submerged for several weeks and over a long range, yet even these new systems remain insufficient for the harsh requirements of the Arctic environment. They are fairly low power and incapable of propelling submarines faster than five knots (after which they must rely on battery power), making their increased endurance more suitable for extended loitering missions within a relatively small area, rather than oceanic transits and distant-water patrols.⁶ A

true under-ice capability also requires the ability to remain submerged much longer than planned. Finding an appropriate spot to surface can be difficult and is impossible to schedule with any accuracy. SSNs work so well under the ice precisely because they do not have that critical need to surface.

Comments on Canada's new submarines, from both government and media, tend to ignore the technical requirements of an Arctic boat. If the Arctic truly is the focus of operations, the vessels acquired by Canada will have to be customized – and far more expensive. Surfacing a submarine through ice, for instance, requires that the vessel be hardened for contact. Historically, this meant adopting measures to reduce ice damage. In particular, surfacing through ice requires a robust sail. In the American experience, this manifested in both extra room on top of the sail to protect the fragile periscopes, communication antennas, radars, and electronic support measures mounted there, as well as the use of stronger steel. Exemplifying the former, the Flight III Los Angeles-class sails are 12 inches taller than those of their predecessor, and even the first nuclear-powered submarine, USS *Nautilus*, had its sail modified to provide an extra 8–12 inches of recessed room for its masts. In terms of extra strengthening, USS *Skate*, one of the first SSNs, had its sail hardened with HY-80 steel, which was adapted from World War Two-era armour that the US Navy's Arctic Submarine Laboratory estimated could break through 15–18 inches of ice.⁷

A submarine designed for Arctic operations also requires a series of alterations. Perhaps the most obvious and visible measure taken by navies has been adjusting the forward hydroplanes, which are used for angling the submarine up or down underwater. Starting with the Flight III variant of the Los Angeles-class SSNs, these planes were moved from their previous position on the sail to the forward hull. These could then be retracted into the hull, providing a degree of protection when surfacing through thicker ice.⁸ Earlier submarines, like the Sturgeon-class, were able to surface through ice despite sail-mounted fairwater planes, but this was accomplished by rotating those planes to the vertical position so as to punch up through the ice with their edges, thereby minimizing damage.

Such designs are likely not much more expensive when designing from scratch; however, in Canada's case, this requirement could create a critical danger. The Spanish, Korean, Swedish, and German/Norwegian submarine offerings that the RCN is considering all have diving planes on the sail that may need modification. The ability of those designs to surface through Canadian Arctic ice, with its old ice inclusions, is also uncertain. If a foreign design has to undergo structural modification to meet Arctic requirements, it will dramatically extend Canada's already tight timelines and add considerably to the cost.

Deep Arctic patrols, either through the Northwest Passage or into the Arctic Ocean, require far more capability than a conventionally powered submarine will offer. The Navy fully recognizes this fact; indeed, the Director General Force Development's remarks at Navy Outlook in April 2024 made it clear that the RCN does not see its submarines routinely busting through ice.⁹ The danger is not that the Navy is confused about these capabilities, but that elements of the government, press, and public will take DND statements at face value and expect more ambitious capabilities than anyone in DND and the RCN is actually envisioning. Those expectations may, over time, lead to both mission and design creep, pushing against the RCN's desire to limit (or prevent) structural design changes in its chosen submarine.

In Defence of Sovereignty?

At the root of the desire to operate submarines *in* the Arctic to *defend* the region is the persistent Canadian concern over Arctic sovereignty. This stems from a longstanding and problematic narrative told by successive Canadian governments: that a stronger military presence is essential to secure Canada's tentative ownership over the region. Today, that notion has clear policy coverage in ONSF, which states that "the most urgent and important task we face is asserting Canada's sovereignty in the Arctic and northern regions."¹⁰

In reality, the question of Arctic sovereignty is not about military capability; instead, it relates to a long-running dispute over the legal status of the Northwest Passage. The United States believes that the waters running from the Atlantic to the Pacific represent an international strait, while Canada considers the waters within the Arctic Archipelago to be historic, internal waters – over which it enjoys complete sovereignty. This is a legal and political disagreement which has been well managed since the early Cold War. The presence of submarines cannot alter that fundamental dispute, nor would a submarine presence buttress Canada's legal title, which rests on historic occupation by the state (since the early 1900s) and Indigenous peoples from time immemorial. In brief, sovereignty is a question for lawyers and diplomats and not an issue that will be resolved by more ships in the water.

Despite this, the sovereignty nexus offers a useful tool to sell the submarine program, given the Canadian public's longstanding and widespread interest in, and support for, 'defending sovereignty.'¹¹ This makes sense from a public relations perspective; however, as a core justification for a major defence project, it presents serious dangers. A focus on sovereignty risks future mission creep as politicians seek to 'guard sovereignty' with presence, deploying submarines on the kinds of 'show the flag' operations that were common in the 1970s and 1980s. Those missions were best summed up by Admiral Robert Falls, Chief of the Defence Staff from 1977–1980, who wrote that "[w]e sent ships into the north and damaged their hulls, they weren't made for that type of action. It was a complete waste of time, but it satisfied the politicians."¹² After years of framing submarine procurement around Arctic sovereignty, it would be difficult for DND or the RCN to push back against political demands that vessels be taken from vital operations in the Atlantic or Pacific to sit idle, showing the flag in Lancaster Sound.

A Better Framework for Arctic Defence

If sovereignty is the driver of the RCN's presence in the North, then it also stands to reason that that effort must be undertaken unilaterally – with the US Navy and Coast Guard framed as potential dangers. This adversarial perspective would be a natural result of a defence policy framed by sovereignty considerations. This is not the best path forward, nor has it ever really been the way Canada has done business. Historically, Arctic defence has been deeply integrated and defined by cooperation rather than competition. This is a tradition that must continue and even expand.

A better and more accurate way of framing submarine deployments to the Canadian Arctic is to understand them as one part of a larger, alliance-driven, continental defence system. The chief defence threat *from* the Arctic is hostile (likely Russian) submarines moving *through* the region from the Arctic Ocean to the Atlantic or Pacific. Arctic defence does not entail the protection of the region itself but rather the use of the Arctic as a means of projecting power into the open oceans.

As such, Canada's submarines will have to operate at the edge of the Arctic ice, guarding the choke points to the Arctic Archipelago.

In the West, access to the Arctic Ocean is through the narrow Bering Strait, while in the East, it is through Davis Strait. These strategic gateways are along the ice edge and require no bespoke Arctic capability. Submarines looking to transit the Canadian Arctic must travel through these narrow passages, where surveillance can be undertaken with relative ease. This is a less dramatic use case than deep Arctic operations to defend national sovereignty; however, it offers real strategic value. A presence along the ice edge would give Canada the ability to deny its enemies the use of the archipelago as a transit route, while also providing reliable surveillance of ships entering (or exiting) the region. Even if that capability was transient, the capability would still carry strategic weight, with enemies forced to take it into consideration when deciding whether to move their own high-value assets through shallow choke points in times of conflict.

Critically, submarines would only be part of a future Canadian Arctic maritime defence. The Cold War offered an example of how this should play out. While Canadian submarines will be able to watch the southern ice edge, a DND contribution to Arctic Ocean surveillance will also be essential. The third point of access into the Canadian Arctic is through the waters around Ellef Ringnes Island. While Chinese access would realistically be limited to the Bering Strait, the Russian Navy is able to deploy freely into the Arctic Ocean from its Northern Fleet bases and into the Arctic Archipelago from the North. Surveillance and defence of this vector would be outside the capabilities of a conventional submarine fleet and would naturally fall to American SSNs. Yet Canada can contribute here as well. Over the course of the Cold War, Canadian and American defence agencies worked together to develop under-ice detection systems, and, by the 1980s, they were collaborating on a project to look deep into the Arctic Ocean.¹³ Like their Cold War predecessors, modern-day detection systems would be best designed as joint operations, leveraging American resources and Canada's strategic geography.

The future submarine fleet should fit into this integrated, joint system of detection, deterrence, and defence. A presence at the gateways to the Arctic Archipelago would be an invaluable addition to the joint continental defence effort. In conjunction with a renewal of the Canada-US under-ice detection work,¹⁴ Canada could ensure that the Arctic was not used as an avenue of attack and that the defence of the region was undertaken as a joint responsibility rather than a purely American one. This collaborative effort, built on a reasonable assessment of threats, costs, and benefits, would provide a more appropriate – if admittedly less straightforward or dramatic – narrative for Canada's submarine requirement.

The Risks of Oversimplifying the Narrative

The revitalization of Canada's submarine fleet is a critical element of the RCN's broader recapitalization, and it is moreover central to Canada's ability to meet the conventional defence threat posed by Russia, China, and other hostile state and non-state actors. How this program is developed and sold to the public and politicians is therefore important. While a clear narrative is needed to demonstrate the RCN's requirements, the oversimplified focus on the Arctic presents long-term risks.

Selling the program on the basis of Arctic sovereignty or resource protection creates an expectation that the vessels will be present *in* the Arctic on a regular basis. In the late Cold War, when governments responded to similar perceived sovereignty threats, the Navy was frequently tasked with deploying ships into the region on presence missions, which consumed ship time and resources but offered very little of value. It is easy to see future leaders expecting the RCN to use its limited submarine sea days on summer deployments to show the flag and generate useful photo ops.

A submarine program built on a sovereignty narrative would also have the adverse effect of limiting the political room for enhanced cooperation with the United States. The defence of the Arctic will have to be an integrated joint endeavour; however, the assumption that Canadian submarines were built to defend the region would change that narrative. Why work with the Americans when the government paid so much money to develop its own Arctic capabilities? Why integrate American SSN operations into Canadian defence planning if we have our own submarines? While DND would be able to offer a clear operational rationale, it would be pushing against years of political messaging about the need to independently defend our Arctic sovereignty and security.

In the near term, that messaging might even have the adverse effect of derailing the procurement of the submarines. If the political class truly bought into the narrative that the vessels' primary purpose was to patrol the Northwest Passage and defend the region, then a far greater under-ice capability would have to be acquired. That would mean significant design changes to the options now under consideration. All of this would add cost and time to an already delayed program, potentially to the point of derailing it entirely.

The Arctic is an important defence consideration for the RCN. However, it needs to be approached with more nuance than is present in most DND communications. Admittedly, nuance and complexity rarely sell as well as a clear threat narrative framed by sovereignty and resource security. Yet this more simplistic approach runs the risk of impacting design choices and concepts of operation as future leaders pursue those objectives. DND does have a clear, realistic, and nuanced vision for its future submarine fleet. What is missing right now is a plan to communicate it.



Adam Lajeunesse, PhD is an Associate Professor and Chair of the Public Policy and Governance program at St. Francis Xavier University. Dr. Lajeunesse is also the Arctic and Maritime Security Chair at the Brian Mulroney Institute of Government and the Director of the Canadian Maritime Security Network (CMSN).

Notes

¹ Canada, Department of National Defence, *Our North, Strong and Free: A Renewed Vision for Canada's Defence* (ONSF) (April 2024), 24.

² Canada, Public Services and Procurement Canada, "Government of Canada announces progress on the Canadian Patrol Submarine procurement," Press Release (September 17, 2024).

³ Harry McNeil, "Canada issues RFI to industry for new submarine fleet replacement," *Naval Technology* (September 18, 2024).

⁴ An overview of this framework for understanding Arctic security is found in: P. Whitney Lackenbauer, "Threats Through, To, and In the Arctic: A Framework for Analysis," NAADSN Policy Brief (March 23, 2021).

⁵ Canada, Department of National Defence, "Canada launching process to acquire up to 12 conventionally-powered submarines," Press Release (July 10, 2024).

⁶ Tim Choi and Adam Lajeunesse, "Some Design Considerations for Arctic-Capable Submarines," NAADSN Policy Brief (November 16, 2020).

⁷ William M. Leary, *Under Ice: Waldo Lyon and the Development of the Arctic Submarine* (College Station: Texas A&M University Press, 1999), 144.

⁸ Norman Polmar and Kenneth J. Moore, *Cold War Submarines: The Design and Construction of U.S. and Soviet Submarines* (Washington, DC: Potomac Books, 2004), 273; Norman Friedman, *U.S. Submarines Since 1945: An Illustrated Design History* (Annapolis, MD: Naval Institute Press, 1994), 163.

⁹ In-person event, Navy Outlook (April 2024).

¹⁰ ONSF, ix.

¹¹ "Rethinking the Top of the World: Arctic Public Opinion Survey, Vol. 2," Walter & Duncan Gordon Foundation (2015), 24. In this report – the most recent comprehensive survey on the subject – sovereignty was listed as southern Canadians' second most prominent concern about the North (after global warming).

¹² Quoted in: Douglas Bland, *Chiefs of Defence: Government and the Unified Command of the Canadian Armed Forces* (Toronto: Canadian Institute of Strategic Studies, 1995), 232–233.

¹³ Bruce Butler, *Into the Labyrinth: The Making of a Modern-Day Theseus* (Bigfoot Press, 2018).

¹⁴ On this work see: William Carruthers, "An Array of Blunders: The Northern Watch Technology Demonstration Project," NIOBE Papers 1, Naval Association of Canada (January 2019).