



The 'Arctic Mobile Base' The Concept and Use Case

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In May 2026 the Government of Canada formally abandoned its efforts to build a refueling facility at Nanisivik. The project had been plagued by cost overruns and technical difficulties for years and, even if it could have been completed, the final product would have been little more than a short-term fuel depot – a pale shadow of the naval base that the Harper government pledged in 2007.¹ More broadly, this cancellation reopened the question of how Canada will support the expanded Navy and Coast Guard activity that the government has planned for the region.

The lack of refueling and reprovisioning facilities in the Arctic has long been understood as a critical weakness. Currently, St. John's is the closest major port for deploying ships into the North, and it is a 3,700 km voyage to middle of the Northwest Passage – roughly the distance from Vancouver to Montreal (as the bird flies). The need to close that gap with infrastructure to sustain a larger presence is therefore front and centre in Canadian Arctic defence policy.²

While the solution to this gap has long been seen as either a stand-alone naval port like Nanisivik or a dual-purpose shared infrastructure facility, a third option has recently gained traction: the idea of a 'mobile base.' This concept gained significant momentum in 2025 as Vice Admiral Angus Topshee began advancing it as a potential solution to Canada's logistics problems. While the notion has neither budget nor policy coverage, it has nevertheless entered regular discussion about the future of the Navy's posture in the North.

The concept is fairly simple. Understanding that northern infrastructure is notoriously difficult and expensive to build, and almost as difficult to operate, an ice-strengthened Auxiliary Oiler Replenishment Vessel (AOR) could be constructed in the south for the same cost, or less, than an Arctic facility. This Arctic AOR could provide fuel and provisions to Canada's federal fleets across the Arctic, with the added advantage of mobility, travelling to where it is needed most and where the ice permits resupply. As activity in the Arctic expands and Canada's maritime presence grows, the idea of an Arctic AOR deserves serious consideration. While not a clear panacea, it offers at least a partial solution to many of the government's longstanding sustainment issues. In addition, it would also offer the Navy a surveillance and Humanitarian Assistance and Disaster Relief (HADR) platform that could revolutionize how the RCN not only supports, but operates, across the Arctic.

In support of the Navy's exploration of the Arctic AOR concept, this paper offers a use-case analysis. It examines the current resupply environment, the evolution of the security dynamic in which it would operate, and the opportunities presented by the platform. Ultimately, any Arctic AOR will be only one part of Canada's broader Arctic posture and presence, yet the difficulties of

relying on bases and local harbours suggests that it's an idea worth considering as the Navy begins to think outside the box on Arctic logistics.

Presence and Sustainability

As the Arctic has made its way to the top of the Canadian defence policy agenda there has been a significant shift in thinking around how Canada approaches maritime security in the region. A combination of melting ice, increased commercial activity, and a more complex threat environment has placed a new emphasis on building and maintaining a persistent security presence. Recent policy has painted a picture of the Arctic Ocean as a busy region of increasing competition. *Our North Strong and Free* (ONSF) envisioned the Arctic as the “most efficient shipping route between Europe and East Asia”, with competitors jockeying for access to an “accessible Northwest Passage.”³ These dangers, posed by a myriad of state and non-state threats, are seen in ONSF as including everything from advanced submarines, hypersonic and cruise missiles, and surveillance activities.⁴ Global Affairs Canada’s 2024 *Arctic Foreign Policy*, meanwhile, pointed to more ambiguous hybrid threats, including marine scientific research, surveillance, and disinformation,⁵ as well as potential challenges to regional fisheries, seabed mining the “rules-based approaches in the Arctic Ocean” in general.⁶ The threat dynamic, as seen from Ottawa, is therefore complex and evolving.

In response, the government is building a more sustainable presence with greater surveillance and response capabilities. Unlike the limited and sporadic deployments of the late Cold-War, designed primarily to show the flag for political purposes, the modern approach to maritime deployments centre on regular presence with Arctic-capable vessels geared towards responding to this increasingly complex environment.⁷ The RCN will soon deploy six AOPV on regular Arctic patrols while the CCG has taken on a new security mandate as the amended *Oceans Act* has tasked the force with supporting DND’s efforts to collect and analyze information for defence, security, and intelligence purposes.⁸ Understandably, the fleet needed to achieve this is far larger and more multi-functional than at any time in history. Based on the National Ship Building Strategy’s delivery timelines, the CCG and the RCN will have a combined 48 icebreakers and patrol ships *deployable* to the Arctic in 2035.⁹

Sustaining this larger fleet, operating across more of the Arctic, will require refueling capability in the High Arctic.¹⁰ With Nanisivik removed from the equation, few of Canada’s other obvious options are promising. The tyranny of distance alone is disqualifying. Iqaluit, for instance, while a (seasonal) Arctic deepwater port, remains 2,500 km from the central Arctic Archipelago – while also suffering from severe tides and limited facilities. Churchill, often herald as a future Arctic base, makes even less sense.¹¹ It sits 4,000 km away from the central Arctic, unless the Navy is willing to wager its resupply routes on the chronically ice-choked Fury and Hecla Strait. Other options, sometimes put forward as future bases, suffer from their own drawbacks – from shallow harbours, heavy ice, or limited (or no) facilities. The options are few and poor. Remarking on the predicament in April 2026, Admiral Topshee warned that, even if further investment was made into the development of port infrastructure, “we can’t change the geography that says it will still be frozen and icy in winter, and Iqaluit will always have 10-metre tides.”¹²

The other alternative to a dedicated government facility is a partnership with communities or mine sites to leverage existing infrastructure. This has obvious benefits, including supporting communities or local development by funding infrastructure expansion and bringing jobs associated with maintenance and operations. This strategy fits within the government's broader efforts to expand Canadian infrastructure in the region but, likewise, suffers from long timelines, high costs, and poor geography as many of the candidates for dual purpose facilities suffer from shallow or ice-coked harbours.¹³

Mine sites offer similar opportunities to partner and build off existing infrastructure. The Mary River mine on northern Baffin Island, for instance, has significant port facilities at Milne Inlet. The mine moves 70 capesize ships in and out every year and already boasts 55,250 tonnes of fuel storage and associated operational infrastructure.¹⁴ Further West, the government is looking to catalyze mining around the Gray's Bay area and defence spending to subsidize a dual-use port may be an attractive proposition.¹⁵ These partnerships may have real merit, though they come with their own drawbacks. Apart from Mary River's Milne Inlet port there is no major resource infrastructure along the Northwest Passage that may sustain naval or coast guard operations. Following its failure at Nanisivik, DND may also be reluctant to embark on a new greenfield development somewhere like Gray's Bay. Existing facilities also come with corporate baggage. Operations at the Milne Inlet are carefully synchronized and sequenced to ensure maximum efficiency, with commercial carriers operating throughout the navigable season. The port is busy and a government vessel would not have priority over regular mine operations. Businesses are also very protective of their operations and practices. In 2021 when HMCS *Harry DeWolf* visited Milne Inlet on its way through the Northwest Passage, operations were halted to protect proprietary operational techniques.¹⁶

In addition to these limitations, ports suffer from the inevitable limitation of inflexibility. During the shoulder seasons in particular they are frequently choked with ice and inaccessible. Moreover, they are fixed locations and often nowhere near where they're needed. In an operating area the size of Europe, that presents a problem.

The Arctic AOR

From the frustration of Nanisivik and the limitations of its alternatives, the Arctic Mobile Base concept – or Arctic AOR – came to the foreground. While there is no firm set of designs or capability requirements, the concept is that of a AOR with an extended range and ice-strengthening for sustained Arctic operations. It would carry a large amount of fuel to resupply both icebreakers and patrol ships, as well as a myriad of support facilities – from containerized workshops and drone hangars to medical facilities and accommodations for other government departments. What General Rick Hillier might have called an ice-strengthened “Big Honkin’ Ship,” it would support Navy and Coast Guard deployments, scientific research, and search-and-rescue operations, and humanitarian disaster response and assistance (HADR).¹⁷

In an interview with Janes, Captain Rob Watt, head of the Directorate of Naval Strategy (DNavStrat) ventured a guess that an Arctic AOR “probably would look something like an amphibious ship.” Though Watt was careful to note that the amphibious capabilities would support

a robust ship-to-shore connector to deliver materiel and personnel to support “lower-end tasks” (rather than combat landings).¹⁸

Ideally, the ship would be larger than the Protecteur-class joint support ships being constructed by Seaspan. The Protecteurs will displace 21,600 tonnes and carry 7,917 tonnes of marine diesel fuel (and 1,319 tonnes of aviation fuel).¹⁹ While this is designed to support a naval task force for a month, in the Arctic that capability would probably be too limiting. Arctic AOR deployments will likely last for several months and require the reprovisioning of more than a standard RCN task force. An AOPV, for instance, has a total fuel capacity of 641 tonnes of fuel which it consumes at a rate of .5 tonnes per hour of Arctic operations for a total range of roughly 13,000km.²⁰ Assuming seven hours of operations per day over five months for a fleet of 15 AOPV and icebreakers (which for simplicity will use all AOPV consumption rates), a total of 7,900 tonnes of fuel will be consumed, leaving a margin of only 0.5%.²¹

This is a conservative calculation and may underrepresent consumption. Heavy operations and continuous patrols will involve more than that (arbitrary) seven hours of operations. Total fuel requirements will also be heavily influenced by ice thickness and time spent in the ice. An icebreaker may consume up to six tonnes of fuel per hour of heavy icebreaking – far more than that assumed based on RCN’s Arctic operations assumptions.²²

Increasing the size of the AOR from the Protecteur-class baseline would therefore be wise. Given the distances involved, an Arctic AOR would not be able to return south for reprovision in the middle of a deployment. More likely, it would have to deploy into the Arctic at the beginning of the season (around June) and remain on station until it redeployed south in October-November. While this is a slightly longer operating season than is common today, it is safe to say that climate change will continue to lengthen that window of Arctic accessibility.

A larger vessel would allow for greater fuel storage but also more workspace and facilities to sustain lengthy deployments and a more complex mission than that assumed for a standard AOR. Beyond a simple refueling platform, an Arctic AOR should also play a more comprehensive role in Arctic security, filling multiple gaps in Canadian capacity. Critically, a larger ship can carry more food and other provisions. Unlike southern operations, where reprovisioning can be done at ports, Arctic operations leave ships thousands of kilometers from the nearest food source. Northern communities cannot be tapped for provisions since their supplies are limited while flying provisions in is an expensive proposition. Sustained operations by both the Navy and Coast Guard will therefore need a better system for provisioning of frozen and non-perishable supplies (perishables will still need to be flown in) and an Arctic AOR with sizeable freezer and storage capacity will go a long way to solving that sustainment problem.

Sustaining icebreakers and patrol ships also requires repair facilities beyond what those ships may be able to sustain themselves. The distances and limited infrastructure involved in northern operations means that securing spare parts can be time consuming and difficult. While icebreakers and patrol ships bring an ample supply, it is impossible to anticipate everything that may be needed. An Arctic AOR should serve as both a parts storage and repair facility. Large workshops and 3D printers could turn the ship into the capable field mechanic needed to sustain a larger fleet over lengthy deployments in harsh conditions.

Longer deployments by icebreakers and patrol ships will also require better sustainment facilities for Navy and Coast Guard personnel. An Arctic AOR would, ideally, boast dental facilities and a NATO ROLE-level 2+ hospital, with an operating room and an intensive care unit. These facilities would provide immediate care for critical injuries while also providing an easier treatment option for non-urgent care beyond the capabilities of the more limited facilities found Navy and CCG ships.

Space is also at a premium in the Arctic and a large AOR could serve as a mobile base for hydrographic work and civilian science. Containerized science labs would be a simple and attractive addition – particularly in support of the Canadian Hydrographic Service. Today only 15.8% of Canadian Arctic waters have been adequately surveyed (though this includes 44.7% of the key navigational routes).²³ This limitation stems from the high cost of contracting this work from private firms and the limited capacity of government vessels. While CCG icebreakers have the capacity to conduct surveys, the ships are normally at capacity supporting commercial traffic, setting aids to navigation, and performing other necessary duties. As the CCG takes on more surveillance and security tasks, it is unlikely that its ships – or those of the RCN – will have significantly more capacity to spend a season on surveys. The advantage of a large AOR operating in the area is that it could be equipped with dedicated facilities for large-scale and systematic hydrographic work.

This work could most effectively be undertaken not by the ship itself but by a fleet of autonomous underwater vehicles (AUV), with the AOR serving as a mobile base for a fleet of these systems working autonomously and returning to the mother ship for refueling (either battery or hydrogen fuel cell), repair, and redeployment.²⁴ Modern AUV, like the Canadian made Envoy, are capable of travelling thousands of kilometers to conduct multibeam echo surveying and a fleet of several such AUV, deployed from an AOR in near Resolute, could range across nearly the entire archipelago.²⁵ These are large systems, at nearly 10 metres long, and would need a sizeable ship with ample workshop space for maintenance. They would also benefit from an AOR equipped with a moonpool for deployment through the ice.

A fleet of AUV would also have clear military applications. Since the 1970s Canada has sought to build an Arctic subsurface detection system to identify and track trespassing submarines. This task still has policy coverage from ONSF.²⁶ Covering the Arctic Archipelago's chokepoints with standard seafloor sensors has, however, proven difficult as ice-scouring tends to tear such systems up.²⁷ Long-sustaining AUV stationed at those choke points may offer an alternative, with rotations from an Arctic AOR providing a more reliable and flexible solution than fixed sensors.²⁸

Beyond AUV, a large AOR could also serve as a highly capable aerial drone carrier. Reviews of Canadian defence requirements and capabilities in the North have consistently identified surveillance as a critical gap.²⁹ As activity in the region grows and vessels of interest multiply – from both state and non-state actors – that gap will only widen. Canada has made strides in closing that gap, purchasing a fleet of 16 P-8A Poseidon maritime patrol aircraft and 11 MQ-9B Reaper drones. These are highly capable platforms but few in number and tailored to specific surveillance missions, rather than persistent surveillance of a wide area. They are also very expensive options. Costing \$6,500/hour to operate and employing a crew of nine, the P8s are high-

value anti-submarine warfare platforms, not tailored to monitoring fishing boats or small craft in the Beaufort.³⁰ Likewise, the Reapers – at \$2.49 billion for 11 systems – are built for higher-end tasks than persistent Arctic presence.³¹ These systems are also limited in number and tasked with operations across three Oceans. This means that, at best, Canada will have one or two Reapers available in the Eastern and Western Arctic – assuming a high operational availability.

This may not be a problem today, where there may be one or two vessels of interest in the area, however the future will likely see a busier Arctic, where the RCN and CCG have dozens of targets to monitor. This is not an unrealistic scenario and could include multiple fishing vessels or commercial ships, marine scientific research vessels, and small craft, all operating simultaneously in the Canadian EEZ or internal waters.³²

In such an environment, the RCN and CCG will require a layered approach to monitor clusters of ships in an area like the Beaufort Sea. That means leaning more heavily on smaller and cheaper drone systems that can launch from a local base to sustain a more persistent presence over multiple targets simultaneously. In the Canadian Arctic the vast distances involved necessitate a mobile platform to launch and maintain these systems.³³ The possibilities presented by such a pairing have grown exponentially as the drones themselves have become more capable in recent years, driven by new innovations and proven in the war in Ukraine.

Indeed, one of the lessons from the war in Ukraine has been the value of cheap, expendable, yet plentiful drones that can saturate a battlespace and be quickly replaced. An Arctic AOR could easily double as a carrier, moving into areas of interest to launch large numbers of cheaper, shorter(er)-ranged drones. Rather than a single high-cost Reaper (operational range 1,850 km) launching from Inuvik, a drone carrier AOR could cover much of the Canadian Beaufort with smaller, cheaper systems with operational ranges of little more than 250 km.³⁴ This would provide flexibility, allow broader coverage, and permit more aggressive use of drones – given their low cost. Ukrainian industry has even shown the ability to 3D print large components and assemble such drones from artisanal workshops with imported optics and electrical components. Ideally, a drone carrier in the North would not only repair these systems but manufacture replacements from onboard 3D printers and stocks of high-end components.

Beyond defence and security applications, an Arctic AOR would have obvious safety and HADR functions. Search and Rescue (SAR) risks are growing across the Arctic as more ships enter the region. Cruise ships, in particular, present a new risk as vessels with hundreds or thousands of passengers or crew travel through uncharted territory.³⁵ Canada currently has a very limited capacity to not only rescue large numbers but to house them in a crisis. No Arctic community – save perhaps Iqaluit – has the capacity to feed or sleep a large influx of rescued passengers. An AOR could move to a disaster site, provide beds and food, as well as medical facilities while personnel are evacuated.

Similar services could be provided to communities in distress. Often powered and supplied by old infrastructure, Northern communities have suffered from repeated and dangerous power outages. In the last two years alone, Gjoa Haven has lost power and suffered a water crisis while Puvirnituq suffered a water crisis in 2025. An AOR with ship to shore power lines could provide a vital bridge until local facilities are repaired. Likewise, integrated desalination and water purification systems

could produce large volumes of potable water when local capabilities are offline. Ship workshops and 3D printers designed to sustain other vessels could also support communities struggling to repair generators, purification systems, or other vital infrastructure.

The Design

Lacking funding or policy coverage, there is no clear design or capability requirements for an Arctic AOR. In 2025, Admiral Topshee described the ship as “a heavy icebreaking amphibious ship” likely with a polar class (PC)2 rating, akin to the CCG’s new heavy icebreakers.³⁶ The PC2 rating would make this one of the most powerful icebreaking vessels in the world, providing access to most of the Arctic for most of the year. That capacity offers obvious benefits; however, a lighter ice rating may offer superior value overall. A PC5 capability, akin to the AOPV, may be the ideal compromise.

This assessment assumes that winter ice capability will be unnecessary. By mid-fall shipping in the Arctic has ended and the RCN and CCG have withdrawn most of their vessels. The two new heavy icebreakers being built by Davie and Seaspan will operate in three seasons, however these ships were designed with autonomy in mind. While their total range is still unknown, the CCGS *Louis St. Laurent* offers a useful comparison. Carrying 3,000 tonnes of fuel and boasting a range of 51,856 km, *St. Laurent* and other heavy icebreakers are less in need of resupply than their lighter cousins.³⁷

During the shipping season, when the AOR would deploy to the Arctic, a lighter ice class would probably suffice. When refueling AOPV, the ship would have to be in ice conditions accessible to PC5 ships. Meanwhile, refueling the CCG’s heavier vessels would simply involve those ships travelling to waters accessible to the AOR, rather than vice versa. If being used as a drone carrier to monitor large areas, the AOR would likely be in light ice conditions. The reason for this is simple: any scenario involving many vessels needing to be tracked would only ever be in areas of light (or no) ice. If the ice was so thick as to necessitate a heavy icebreaker, then it would, almost by definition, be inaccessible to nearly all potential trespassers. The only exception to this rule would be foreign heavy icebreakers, which are few in number and far more easily monitored by satellite, AIS, and long-range patrol aircraft. In essence, any areas inaccessible to a PC5 AOR would be an area where it probably isn’t needed.

In addition to being ‘just enough’ for the Arctic, a lighter ice class like PC5 would also come with huge cost and versatility advantages. Most obviously, a PC2 vessel is expensive – with each costing billions of dollars. These ships require considerably thicker steel and heavier, more robust framing arrangements and moving that hull requires significantly more power, while delivering less speed and maneuverability.³⁸ Of particular concern, heavy icebreaking bows are designed to maximize icebreaking by shaping a bow to ride onto ice, which comes at a cost in open-water performance. A PC5 would be faster and more efficient in open waters.

This blue water capability matters because the RCN will need more AORs not only in the Arctic but around the world. Recent fleet analyses show that the two Protecteur-class JSS are insufficient, with up to five replenishment ships needed for the fleet currently planned.³⁹ A PC5 Arctic AOR can help to plug that gap by operating with the fleet in the blue water. As an ice-strengthened

vessel it will never be as fast or efficient as the Protecteur-class, however it will certainly suffice. Replenishment ships are in short supply around the world and today the RCN is never as popular as when it arrives at a multinational exercise with its oiler, the MV *Asterix*.⁴⁰ During the six or seven months of the year when the Arctic is closed to shipping, the Arctic AOR should be free to deploy elsewhere. In crisis or wartime Arctic responsibilities would also become secondary and any AOR would be critical to maintaining Canadian and allied fleets on station in distant waters, particularly in the Pacific theatre. Indeed, this broader global perspective adds a new and critical layer to the pitch for an Arctic AOR – rather than fixed infrastructure.

There are few comparables for such a vessel – which combine the replenishment and ice-strengthening requirements identified here.⁴¹ As such, an Arctic AOR would need to be built from scratch. Despite that need for design work, Canada is well. Decades of progress on the National Shipbuilding Strategy has left the country with several capable shipbuilders and a growing comfort with constructing ice-strengthened vessels. In British Columbia, Seaspan Shipyards is building a PC2 heavy icebreaker and the country's two Protecteur-class AORs; the combination of which would provide important institutional capability to bridge the gap. In Quebec, Davie has already proposed a design that seems to meet many of the criteria for an Arctic AOR. The Global Logistics, Aviation and Medical Support Platform (G-LAM) concept is advertised as a multipurpose PC4 (or higher depending on need), with many of the resupply and HADR capabilities that the Navy would require.⁴² What sets Davie's design apart from other AOR concepts is its enormous multipurpose flight deck. Capable of supporting up to five Chinook-sized helicopters, it could function as both a replenishment vessel and the mobile base for drones and AUV that would be so useful in the Arctic. In Halifax, Irving Shipbuilding is the only major yard not building icebreakers; however it has the most experience in ice-strengthened patrol craft – having built eight AOPV for the RCN and CCG. Canadian shipyards are now faster and more experienced than at any time since the early Cold War, with capacity and expertise that is beginning to rival most (non-Asian) shipyards. With an expanding defence budget and a new sense of urgency in Ottawa, a project like the Arctic AOR may now be both politically realistic and functionally doable.

Conclusion

The failure of the Nanisivik project has opened a serious gap in Canada's long-term plans for Arctic operations. Sustaining larger naval and coast guard fleets, operating across more of the region, during longer shipping seasons will require enhanced logistics and, at the very least, a reliable source of fuel. Despite the short-term difficulties this may create, failure has opened longer-term opportunities to build a more flexible solution. The concept of an Arctic AOR fits neatly into this capability gap and fills not only Canada's fuel and reprovisioning requirements, but offers defence and HADR capabilities that will only grow in importance as activity in the region expands.

In moving the concept from idea to formal project, the government should prioritize flexibility. An Arctic AOR should be able to achieve more effects than simple replenishment. The region is too remote and too expensive to operate siloed capabilities. A major investment in such a platform should, therefore, deliver not only fuel and provisions but other strategic effects. The most obvious of these are new drone surveillance capabilities to augment Canada's limited existing capabilities, with a focus on cheap, medium-range coverage of strategic regions (the location of which may

vary with circumstances). Any Arctic AOR should, likewise, serve as the government's mobile AUV mothership and workshop. Both above and below the waters, drones can build needed situational awareness, complete charting tasks, and ensure that Canada understands what is happening in its Arctic.

Flexibility also means operations outside the Arctic. The RCN is in desperate need of additional AORs for global deployments. These are critical enablers and vital contributions in war and crisis. An Arctic AOR should therefore be designed not as a purely Arctic platform but as a flexible, globally deployable vessel that happens to be equipped for Arctic operations. The opportunity to mesh Canada's Arctic logistical needs with its blue water requirements creates clear synergies that should not be ignored. The Arctic AOR offers a promising opportunity to combine these required capabilities into a single, versatile platform. As Canada's Navy thinks outside the box to meet its needs, this idea deserves consideration.

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Notes

¹ Todd Coyne, "Canadian Military to Shutter Nanisivik Naval Facility in the Arctic," *CTV* (May 21, 2026)

² See for instance: Department of National Defence, "Our North Strong and Free" (2024), 34.

³ Department of National Defence, "Our North Strong and Free" (2024), 4.

⁴ Department of National Defence, "Our North Strong and Free" (2024), ix.

⁵ Global Affairs Canada, "Arctic Foreign Policy" (2024), 8.

⁶ Global Affairs Canada, "Arctic Foreign Policy" (2024), 38.

⁷ For a policy directive on this: Department of National Defence, "Our North Strong and Free" (2024), ix.

⁸ Canada, Coast Guard, "Building the Canadian Coast Guard's role in National Security,"

<https://www.canada.ca/en/canadian-coast-guard/news/2026/03/building-the-canadian-coast-guards-role-in-national-security.html>

⁹ This number is illustrative and speculative and depends on retirement and build schedules. Not all Arctic-capable vessels will *actually* be deployed to the region. This total assumes: 8 AOPV; 2 heavy polars; 16 multipurpose icebreakers; 6 program icebreakers; and 16 existing icebreakers of the Black-, Cool-, Risley-, and Radisson-classes.

¹⁰ Zachary Zimmerman does a good job demonstrating range capabilities with refueling in the Arctic in: Zachary Zimmerman, "Too Much Geography? Evaluating the Locations of Canadian Armed Forces Infrastructure in the North and Arctic," *CIAS* (December, 2025), 20-24.

¹¹ On Churchill see statements by Manitoba Premier Wab Kinew: Mitchell Ringos, "Churchill port is 'our only hope' if Greenland dispute rises, Manitoba premier says," *City News* (January 20, 2026) and Conservative leader Pierre Poilievre: Conservative Party of Canada, "Part II of the Canada First Arctic Defence Plan" (2025).

¹² Vice Admiral Angus Topshee, Keynote Address, Alliances and Partnerships Conference, Halifax (April 2026).

¹³ These would include, amongst others: Tuktoyaktuk, Resolute, Cambridge Bay.

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- ¹⁴ Ryan Galley, Matthew Friesen, Dan Coombs, “Ship Traffic in Milne Inlet, Nunavut, 2022-2024,” Canadian Technical Report of Hydrography and Ocean Sciences 230 (2025), 1.
- ¹⁵ See for instance the advocacy by the West Kitikmeot Resources Corp. “Grays Bay Road and Port Project,” https://www.westkit.ca/gbrp?utm_source=chatgpt.com
- ¹⁶ This was relayed to the author by a crew member of *Harry DeWolf*.
- ¹⁷ Hillier’s comments were in reference to a desired large AOR for blue water operations.
- ¹⁸ Lee Willett, “Special Report: Canada Considers Icebreaking Amphibious Capability for Arctic Access,” *Janes Navy International* (February 11, 2026).
- ¹⁹ Royal Canadian Navy, “Protecteur-class,” <https://www.canada.ca/en/navy/corporate/fleet-units/surface/protecteur-class/fact-sheet.html>
- ²⁰ These figures are based on early assessments of the class and may not be perfectly accurate: RCN, “Harry DeWolf Class Arctic and Offshore Patrol Ship: Concept of Use” (2015).
- ²¹ All calculations based on Navy statistics from: RCN, “Harry DeWolf Class Arctic and Offshore Patrol Ship: Concept of Use” (2015).
- ²² Mikko Heikkilä et. al., “Effect of Ice Class to Vessel Fuel Consumption Based on Real-Life MRV Data” *Transport Policy* 148 (2024).
- ²³ Fisheries and Oceans Canada, “Arctic Charting,” https://charts.gc.ca/arctic-arctique/index-eng.html?utm_source=chatgpt.com
- ²⁴ The first such use of an icebreaker to launch AUV for under-ice mapping was in 2010. Innovation, Science and Economic Development Canada, “Surveys with Autonomous Underwater Vehicles (AUVs),” https://www.ised-isde.canada.ca/site/science/en/educational-resources/canadas-extended-continental-shelf-program/survey-logistics/surveys-autonomous-underwater-vehicles-auvs?utm_source=chatgpt.com
- ²⁵ See for instance, AUV produced by Cellula Robotics: Cellula Robotics, “Envoy AUV,” <https://cellula.com/envoy-auv/>
- ²⁶ Department of National Defence, “Our North Strong and Free” (2024), ix.
- ²⁷ Adam Lajeunesse, “Symbolism and Substance: Northern Deployments in the Late Cold War,” *Canadian Armed Forces Arctic Operations, 1941-2015: Lessons Learned, Lost, and Re-Learned*. Adam Lajeunesse and P. Whitney Lackenbauer Eds. (Fredericton: Gregg Centre, University of New Brunswick, 2017), 211.
- ²⁸ This possibility has been discussed for several years and the target of DND investment. See for instance the CAUSE project, part of DND’s All Domain Situational Awareness (ADSA) S&T Program. DND “All Domain Situational Awareness (ADSA) S&T Program 101 Briefing,” (June 2019), <https://www.canada.ca/content/dam/drdc-rddc/documents/en/adsa-bg.pdf>
- ²⁹ Auditor General of Canada, “Arctic Waters Surveillance, Report 6” (2022), 6.
- ³⁰ Headquarters, New Zealand Defence Force, Memorandum, (August 24, 2024), <https://www.nzdf.mil.nz/assets/Uploads/DocumentLibrary/OIA-2024-5057-Flying-costs.pdf>; NAVAIR, “P-8A Poseidon,” <https://www.navaair.navy.mil/product/P-8A-Poseidon>
- ³¹ Murray Brewster, “Canadian military buying armed drones for \$2.49B,” *CBC News* (December 19, 2023).
- ³² For a fuller analysis of this dynamic see: Adam Lajeunesse, “Arctic Perils: Emerging Threats in the Arctic Maritime Environment,” Canadian Global Affairs Institute (November, 2022).
- ³³ The new NATO Task Force X-Arctic highlighted that requirement in June 2026 as Allied Command Transformation launched a concerted effort to demonstrate drone-based all domain awareness in the Arctic.
- ³⁴ Assuming an AOR position roughly 200 km north of Tuktoyaktuk.
- ³⁵ The Crystal Serenity moved through the Northwest Passage in 2016 with 1,000 passengers plus crew.
- ³⁶ Adam Lajeunesse and Corah Hodgson eds. “Canadian Seapower 2025: Conference Report” (2025), 12.
- ³⁷ Canadian Coast Guard, “CCGS Louis St. Laurent: Vessel Details,” <https://inter-j02.dfo-mpo.gc.ca/fdat/vessels/vessel-details/81>
- ³⁸ Noah Gairn, “So, What the Hell is an Arctic Mobile Base?” *True North Strategic Review* (April 19, 2026).
- ³⁹ Adam Lajeunesse and Corah Hodgson eds. “Canadian Seapower 2025: Conference Report” (2025), 12.
- ⁴⁰ This assessment was made to the author by a senior RCN official.
- ⁴¹ Perhaps the closest is HMNZS *Aotearoa* (New Zealand).
- ⁴² Noah Gairn, “So, What the Hell is an Arctic Mobile Base?” *True North Strategic Review* (April 19, 2026).