CANADIAN NAVAL REVIEW

VOLUME 18, NUMBER 1 (2022)

Arctic Theme Issue

HMCS *Harry DeWolf* Transits the Arctic

A Tale of Two Ships: HMCS *Labrador* and HMCS *Harry DeWolf*

The Arctic Council and Oil Pollution Prevention in the Arctic Ocean

Inuit and the Northwest Passage: A Relationship Built on Balance

Serving in the Arctic with the Canadian Coast Guard

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Today's Policy Questions, Tomorrow's Policy Leaders

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Credit: S2 Taylor Congdon, Canadian Armed Forces

*HMCS **Margaret Brooke** in sea ice off the Labrador and Baffin Island coasts during ice trials on 27 February 2022.*

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Editorial

The Arctic is Back[1]

The Arctic is, again, a hot topic. The last time the Arctic received such media scrutiny was in 2007/2008, the UN's International Polar Year. Numerous scientific studies confirmed that the Arctic was the climatic canary in the coal mine and collective responsibilities outlined in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) were adopted by the UN General Assembly in 2007 (which Canada voted against initially). The "race" was on to "own" the Arctic, exploit resources and find transit routes via the North.[2] Many Arctic states were collecting data to recognize extended continental shelves. The Arctic Council had just celebrated its 10th anniversary in 2006, and a new Canadian Prime Minister vowed to make sustained and significant resource contributions to the Arctic.

The Arctic was considered to be an 'exceptional' region; geopolitical tensions, which were on display elsewhere, were seemingly absent in the Arctic. Indeed, the five Arctic coastal states pledged in 2008 via the Ilulissat Declaration to let the UN Convention on the Law of the Sea (UNCLOS) guide the resolution of any conflicts among them. Then the Arctic faded into the background and attention to it by successive Canadian governments was sporadic.

Fifteen years later and the Arctic has burst onto the news again, with the Russian invasion of Ukraine being a major catalyst. Despite the urgings by successive NORAD commanders that North America remains vulnerable to threats, Canada continued to delay serious spending on continental defence. In addition, inaction contributed to the acceleration of Arctic warming, making it a formidable threat multiplier. Domestically, there is still the belief that there will be a race to resources and shorter routes but that boom has not materialized especially for the Northwest Passage. Slow progress in reconciliation with Indigenous peoples is compounded by the persistent lack of infrastructure investment in Canada's Arctic. The Canadian Armed Forces (CAF) is often called upon, as a result, for assistance as was on the case in October 2021 when the government of Nunavut requested CAF help to mitigate Iqaluit's tainted water supply while a remediation plan was developed.

This theme issue reflects the increased attention to the Arctic – from oil spill agreements to the role of the Canadian Coast Guard. Resource contributions by the government of Canada have been sluggish despite promises in successive Canadian Arctic policies. Take, for example, the Nanisivik deep water port. The project was launched under Prime Minister Stephen Harper to great fanfare in 2007, but it is still not fully operational. On the other hand, the Arctic and Offshore Patrol Vessels (AOPS) have begun to come online and HMCS *Harry DeWolf* circumnavigated North America in the summer of 2021, as recounted in this issue by Commander Corey Gleason.

The Arctic Council celebrated 25 years in September 2021 and the number of its Observers has increased from 25 in 2007 to 38 in 2021 indicating that more states and organizations want a seat at this forum which was nominated for the Nobel Peace Prize in 2018, 2020 and 2022. The

Credit: Master Corporal Jackson Kennedy, Joint Task Force (North)

Members of 4 Engineer Support Regiment fill the first water truck with potable water produced from the Reverse Osmosis Water Purification Unit that was established during Iqaluit's water contamination crisis in November 2021.

council, however, is now on hiatus given Russian aggression. The Commission on the Limits of the Continental Shelf is reviewing state data submissions (Canada's submissions for the Atlantic and Arctic are still in the long queue of submissions) and a 16-year moratorium on commercial fishing in the Central Arctic Ocean came into force in June 2021 signed by many Arctic and non-Arctic states, including China. And yet the conflict in Ukraine might undo this international cooperation.

It is clear that the Arctic has the potential for both conflict and cooperation as illustrated by Andreas Østhagen in this issue in terms of Norway. The counsel of Whitney Lackenbauer is instructive. Rather than thinking of the Arctic as either a region of conflict or a zone of exceptional cooperation, we must think about threats to, through and in the Arctic.[3] This has the advantage of bringing nuance to the debate. It is also important to evaluate the Arctic using many lenses, especially economic, diplomatic and military ones.

From the perspective of economics, Canada's prospects in the North are still anemic. A lack of adequate housing, air routes that are almost exclusively north-south rather than east-west to link Arctic hamlets, dependence on summer sea lift and high food prices are just a few of the challenges. COVID prevented tourism, one of the burgeoning economic drivers of the Canadian Arctic. However, there is still a promise that critical minerals located in the North may contribute to more traffic through Arctic routes. Entrepreneurship is alive and well, and certainly, the creative arts industry in Canada's Arctic has been an under-valued success story.

A Churchill-Murmansk sea link, an exciting prospect in 2007/2008, is all but dead for a variety of reasons including infrastructure challenges and a changing wheat industry, not to mention sanctions against Russia for the invasion of Ukraine. An oil and gas moratorium in the Canadian Arctic was an ecologically smart decision but opportunities to explore greener options are limited. Diesel remains the most reliable power source in Canada's Arctic, affecting the costs and emissions of any large-scale industrial projects.

It is Inuit industries that are filling infrastructure gaps. For example, CanArctic's SednaLink Cable has plans to run an underseas fibre optic cable from Labrador to Iqaluit which is in competition with the government of Nunavut's plans to install cable from Nuuk, Greenland.[4] That there are choices and competition is ultimately good for Canada's Arctic.

Indigenous self-determination across Canada's Arctic continues to evolve. The Inuit Tapiriit Kanatami (ITK) – the not-for-profit organization which represents over


Credit: Vyacheslav Viktorov, Roscongress

Representatives from all eight Arctic States, six Indigenous Permanent Participants, the Arctic Council's six Working Groups and over 30 Observers meet for the first time under Russian Chairmanship of the Arctic Council during the Senior Arctic Officials' meeting in December 2021 in Salekhard, Russia.

65,000 Inuit – commissioned a study to analyse vessel traffic in Canada's Northwest Passage as has the Arctic Council. The number of vessels and distances travelled are increasing, in particular vessels related to tourism, resupply, research and local fishery.[5] According to Natan Obed, President of the ITK, who contributed to this issue of *CNR*, the Inuit and the Northwest Passage are inextricably linked and the Indigenous peoples of the North are becoming increasingly active and involved. Local communities are training more first responders including auxiliaries of the Canadian Coast Guard, and an Inuit-controlled corporation Nasittuq has just won the contract to maintain the North Warning System (NWS).[6] The Northwest Territories has announced it will develop its own indigenously-based school curriculum to replace the current Alberta-based one, and the youth of the Arctic are increasingly finding their voices.[7]

From a diplomatic perspective, it is clear that the Arctic was never immune to global politics. The Arctic Council's twin mandates of environmental protection and sustainable development resulted in numerous agreements among the eight Arctic states and, importantly, afforded Arctic Indigenous peoples decision-making influence. On 3 March 2022, however, owing to Russia's "grave impediments to international cooperation," Canada, Denmark, Finland, Iceland, Norway, Sweden and the United States declared that they were "temporarily pausing participation in all meetings of the Council and its subsidiary bodies."[8] The Inuit Circumpolar Council supported such action while the Russian Association of Indigenous Peoples of the North declared its support for Russia's actions in Ukraine.[9] This does not mean, however, that all forms of cooperation in the Arctic have ceased.

There are also many partnerships that deserve attention. For example, Canada and Greenland share jurisdiction over Pikialasorsuaq, a large polynya (area of year-round open water surrounded by sea-ice cover) located in northern Baffin Bay. In 2016, the Inuit Circumpolar Council established the Pikialasorsuaq Commission to recommend an Inuit strategy for safeguarding and monitoring the

Credit: Lt(N) Steven Gallant

*HMCS **Harry DeWolf** is pictured next to the Nanisivik Naval Facility in this photo taken during the ship's 2021 deployment through the Northwest Passage.*

polynya. One of the commission's recommendations is to designate it as a protected area and Inuit-managed zone to ensure that this area, one of the most biologically productive regions north of the Arctic Circle, continues to thrive.

The US military continues to send mixed messages about its attention to the Arctic. On the one hand, there has been a pivot by US military services toward the Arctic – at least on paper via their Arctic Strategies – and in 2022 there have already been many simultaneously run (but perhaps not coordinated) Arctic exercises.[10] On the other hand, the latest Interim National Strategic Security Guidance issued by President Joe Biden in March 2021 made not one mention of the Arctic.[11] NATO too has been struggling with whether to have a common Arctic strategy and it is unclear if the NATO 2030 reflection process and updates to NATO's Strategic Concept will feature the Arctic despite publication of NATO's Regional Perspectives Report on the Arctic.[12]

Recent announcements by Defence Minister Anita Anand suggest that Canada's defence focus for its Arctic will be led by NORAD and efforts to modernize continental defence, including a rethink of current forward operating locations and a renewal of the aging NWS.[13] The Canadian Space Agency's RADARSAT Constellation Mission is used by 12 Canadian agencies – including the CAF – to improve domain awareness which will be augmented by the Polar Epsilon 2 program to support enhanced Arctic and maritime surveillance, and over-the-horizon radar that will provide persistent surveillance of North America's northern approaches.

Attention is back on the Arctic in part because of Russia's action in Ukraine. What is needed, however, is sustained and persistent attention with concomitant resources – and more bold thinking of the type we see from authors in this issue of *CNR*. The resilience and entrepreneurship of northerners and the behind-the-scenes 'getting on with it' also deserve attention.

Fifteen years from now, many of the same issues will remain. Sadly, the Canadian government's infrastructure advances in the Arctic will still be wanting if dual-use options aren't considered as part of continental defence funding. The Northwest Passage will remain a route more suited to resupply, tourism and local fishing rather than large trans-global cargo vessels. We hope a version of the Arctic Council will still be focused on environmental protection and sustainable development and debating new Observers. US attention will be pulled toward the Indo-Pacific region and references to the Arctic in its strategies will likely become fewer. And some promised Canadian Arctic defence-related acquisition will still be 'in the works.' But we must be optimistic – the Arctic is back, and the articles in this theme issue illustrate the ongoing interest in the North.

Andrea Charron
University of Manitoba

Notes

1. With thanks to Heather Exner-Pirot for comments on the draft. Any errors are the fault of the author exclusively.
2. Michael Byers, "Canada's Arctic Race with Russia," *Toronto Star*, 29 July 2007.
3. Whitney Lackenbauer, "Threats Through, To, and In the Arctic: A Framework for Analysis," North American and Arctic Defence and Security Network (NAADSN), 23 March 2021.
4. Jim Bell, "A New Undersea Fiber-optic Cable for Nunavut Competes against the Territorial Government's Plans," *Nunatsiaq News*, 18 January 2021.
5. Inuit Tapiriit Kanatami (ITK)/PAME, "Arctic Council Nilliajut 2: Inuit Perspectives on the Northwest Passage Shipping and Marine Issues," 2017.
6. Government of Canada, Department of National Defence, "Backgrounder: North Warning System In-Service Support," 31 January 2022.
7. See Janet French, "Northwest Territories Studying Alternatives to Alberta School Curriculum," CBC, 9 March 2021. For example, youth from Tuktoyaktuk screened their film "Happening to Us" outlining their perspective on climate change at COP 22. See Maéva Gauthier, "Happening to Us: Amplifying Youth Voices from the Arctic," *Terralingua*, 30 July 2020.
8. Global Affairs Canada, "Joint Statement on Arctic Council Cooperation Following Russia's Invasion of Ukraine," 3 March 2022.
9. For the Inuit decision see "Statement from the Inuit Circumpolar Council Concerning the Arctic Council," 7 March 2022. For Russia, see Russian Association of Indigenous Peoples of the North, "Letter to the President of the Russian Federation, V.V. Putin," 1 March 2022. For a summary of events, see Andrew Bresnahan, "Arctic Diplomacy and War in Europe," North American and Arctic Defence and Security Network, 8 March 2022.
10. Every US military service now has an Arctic strategy which is remarkable when you consider they do not have strategies for any other region in the world. And, for example, NATO's Exercise Cold Response, NORAD's Noble Defender, the US exercises Arctic Edge, IceEx and Arctic Eagle-Patriot and Canada's *Operation Nanook-Nunalivut* either overlap or are within weeks of each other.
11. The White House, "Interim National Security Strategic Guidance," 3 March 2021.
12. NATO, "Arctic Regional Perspectives Report," 2021, actually mentions the North American Aerospace Defence Command (NORAD) for the first time in any NATO document since the Cold War. See p. 33, pt. 24.
13. Steven Chase and Robert Fife, "Canada to Unveil 'Robust Package' to Modernize NORAD, Defence Minister Anita Anand Says," *The Globe and Mail*, 11 March 2022.

HMCS *Harry DeWolf* Transits the Arctic

Commander Corey Gleason

Credit: Lt(N) Steven Gallant

*HMCS **Harry DeWolf** sails in Larsen Sound during **Operation Nanook** in 2021.*

On 6 September 1958, Vice-Admiral Harry DeWolf, CBE, DSO, DSC, CD, RCN wrote a letter that ordered HMCS *Labrador*, the Royal Canadian Navy's (RCN) 'first' Arctic Patrol Vessel, to be paid off and transferred to the Department of Transport. In his order, he noted that the ship did not deliver on the operational role of an escort in war and the paying off of the ship would permit the crewing of additional escorts.

Well, the *Harry DeWolf*-class is no escort. The year 2021 is the year that ended the RCN's limited capacity to operate in the Arctic. When once the RCN could operate for weeks in the North, it can now be there for months, or any time there is a necessity to operate in Canada's northern waterways.

This article will share from the Captain's chair some highlights of HMCS *Harry DeWolf*'s first major journey with a focus on the North. The journey begins in Halifax, NS, and ends in Esquimalt, BC, via the Northwest Passage by way of the route of the Franklin Expedition and Roald Amundsen on *Gjoa*.

HMCS *Harry DeWolf* (HDW) deployed under the banner of *Operation Nanook* (*Op Nanook*) from 3 August to 15 September 2021. *Op Nanook* is the signature Arctic operation of the Canadian Armed Forces. The name derives from a military operation nomenclature which dates back to 1946, formally referred to as "US Naval Exercise Nanook," a proposed US/Canada joint Arctic exercise in which Canada's senior naval leadership refused to participate at the time despite the significant international interest. Today *Op Nanook* is delivering Arctic training, developing partnerships and improving readiness of its air-land-sea participants. The introduction of the Arctic and Offshore Patrol Ships, the *Harry DeWolf*-class, is signaling the RCN's readiness to operate in the North and improve interoperability with domestic and international partners.

Credit: Cpl Simon Arcand

Lieutenant (N) Daniel Fletcher, ship's Operations Officer, speaks with RCMP members.

Credit: Cpl Simon Arcand

Commander of Canadian Joint Operations Command speaks with members of Joint Task Force North, the Canadian Rangers, and HMCS ***Harry DeWolf*** *on the ship's flight deck.*

The days leading up to the departure were no different than those of HMCS *Labrador* when it set off on a similar voyage in the North, or any RCN ship for that matter. Last minute storing, training, personnel changes, equipment repairs and, of course, a global pandemic, complicated our departure. Everyone who was scheduled to sail with the ship, including the Captain, had to chip in to get everything onboard and secured for sea.

On the day of the departure there was a warm send off by Fleet Commander, Commodore Rich Feltham, Commander Maritime Forces Atlantic Rear-Admiral Brian Santarpia, Member of Parliament Andy Fillmore, Lieutenant-Governor of Nova Scotia Honourable Arthur J. Leblanc and local media. The ship moved away from the jetty, then turned at rest to pipe the side and salute the Lieutenant-Governor on our departure.

The transit north between Halifax and Iqaluit consisted of radar trials, typical training with sea trainers and some task group-related activities with HMCS *Goose Bay*, USCGC *Richard Snyder* and USCGC *Escabana*. The weather was challenging and visibility quite poor. Upon arrival in Iqaluit, Nunavut, HDW proceeded to anchor, disembarked all sea training staff and embarked four members of the Royal Canadian Mounted Police (RCMP) and three members of Defence Research and Development Canada (DRDC). The RCMP detachment embarked for the purpose of identifying and establishing future interoperability needs to meet their own Arctic mandates. The DRDC team embarked for the purpose of operating the Towed Reelable Active Passive Sonar (TRAPS) system which was installed in a sea container that was embarked and secured to the quarterdeck to be employed during *Op Nanook*.

HDW jumped quickly from *Op Nanook* to *Operation Tatigiit* (*NA-TA*). This was a scenario-based operation that kicked off in dense fog on 12 August 2021 in the vicinity of Clyde River, Nunavut, and concluded in the same area and visibility on 13 August. *NA-TA* entailed a maritime response to a mass rescue operation involving units from the US Coast Guard (USCG), Canadian Coast Guard (CCG) and HDW. As part of this, a vessel, MV *Northern Ranger*, was employed to act as the stricken vessel. The USCG and CCG concentrated on a search in restricted visibility for eight personnel in the frigid waters whereas HDW focused on the stricken vessel. HDW sent casualty clearing teams, damage assessment teams and a command component to organize an emergency response and stabilize the vessel. RCMP members embarked the stricken vessel to investigate and collect evidence in order to understand how the event happened. These personnel transfers were made possible by HDW's small boats, which are fitted with a full communications, radar and navigation suite that includes Automatic Identification System (AIS) which makes operating in restricted visibility a challenge but with much fewer risks.

The exercise wrapped up quickly with many lessons learned. With the exercise came the realization of how much work we collectively have ahead to be an effective force enabler which can work seamlessly in a real-world situation. HDW then transited the Davis Strait for Nuuk, Greenland. The ship made a one-day stop for fuel and light provisioning before the next exercise began.

Before discussing our next exercise – *Operation Nunakput* (*NA-NU*) – I want to mention a special event that occurred. HDW crossed the Arctic Circle for the first time on 18 August 2021 at 0725:55 Greenwich Mean Time. In the tradition of acknowledging the milestone, HDW held a Crossing the Line ceremony. HDW kicked the day off with a Crossing of the Line breakfast, which consisted of some harmless food colouring added to eggs, bacon, sausage and oatmeal. Sailors were invited to the flight deck where they were addressed by Queen Neptune, 'shaved' with cake icing so they would be cleanly shaven before Queen Neptune, given a 'pill' (cookie) to cure the tadpoles

Left to right: HDW Coxn CPO1 Jamie Haas, P.J. Akeeagok then President of the Qikiqtaani Inuit Association, HDW CO Commander Corey Gleason, and then Premier of Nunavut Joe Savikataaq.

of disease, and kissed the head of a fish. They were then escorted across the flight deck under the salt water spray from the ship's foam cannons on the gun deck and dipped into a kiddie pool. It culminated in sailors being acknowledged to be clean by Queen Neptune. HDW had 100% turnout for the ceremony and the ship's company enjoyed seeing their Captain go through all that they did. The air temperature was approximately 1 degree but sunny, and the whole event lasted approximately 60 minutes.

And now back to *Op NA-NU*. This commenced 16 August as HDW departed Nuuk, and it was a pretty full dance card in the hamlets where the ship operated with Canadian Army Rangers and the Canadian Army Land Task Forces (LTF). We conducted training on the ship and illustrated our joint capabilities with boats, landing craft loaded with all-terrain vehicles. Our briefings with the Canadian Armed Forces (CAF) elements were important, as we learned to exploit our joint capabilities with an Arctic and Offshore Patrol Vessel (AOPV). HDW embarked 20 LTF soldiers from Grise Fjord and transferred them to Arctic Bay, demonstrating how their annual patrols can be expanded and enhanced with an AOPV as part of their patrol plans. HDW demonstrated throughout this operation that with its capabilities, personnel can now patrol extreme reaches of bays, the foot of glaciers and beaches accessible only by boat. This force-enabling function will enhance Canada's reach in these austere regions.

In working with the government of Nunavut and through face-to-face meetings to establish an affiliation program[1] with the different regions, it was decided HDW would be affiliated with the largest of the six Inuit regions; Qikiqtaaluk. The Qikiqtaani region has 13 hamlets that are spread as far north as Resolute Bay and Grise Fjord, and as far south as Hudson Bay, spanning all of Baffin Island and parts of Melville Peninsula, Somerset Island and Prince of Wales Island. To commemorate this affiliation, a ceremony was conducted in Iqaluit in 2018, where then President P.J. Akeeagok of the Qikiqtaani Inuit Association (QIA) (now Premier of Nunavut) and HDW were officially affiliated. Since the ceremony in 2018, the Commanding Officer had been collaborating by mail, email and through teleconferences but this was the first time that the ship and company were available in person to begin to develop friendships that I hope will last for many years.

Activities with the communities commenced upon arrival in Pond Inlet, Nunavut, 20 August and carried on with subsequent visits to Grise Fjord (23 August), Arctic Bay (25 August), Cambridge Bay (2 September) and Kugluktuk (6 September). These activities allowed HDW to engage with over 600 residents through formal visits with senior town administrators, breaking bread together (through community BBQs), town hall discussions and providing tours of HDW. Between Pond Inlet and Arctic Bay, HDW embarked Peter Mansbridge and a film crew. This provided an opportunity to showcase the AOPV capabilities and the positive impact the RCN will have in affiliated communities. I hope some of our efforts may be captured in the Arctic documentary still in production.[2]

The first deployment of the Towed Reelable Active Passive Sonar system from HDW began on our departure from Grise Fjord. The tests were to determine the efficacy of this system to be deployed from this class of ship. I was pleased to inform DRDC staff that we made history with this sovereignty patrol between Ellesmere Island and Devon Island – this was the farthest north an RCN towed-array had been employed in northern waters.[3]

The visits to the hamlets and historic sites provided opportunities to showcase new capabilities, such as beach landings, that could be used in humanitarian and disaster relief operations anywhere in the world. For example, once at anchor the crew conducted beach landing operations that included beach reconnaissance with swimmers to identify an appropriate beach operation point. The ship disembarked its 17-tonne landing craft with all-terrain vehicle to the shore position. The ship's crew went ashore to support activities which included the movement of equipment, stores and food for an outdoor cook-out, thus illustrating that rations for a large group of personnel could be

*The crew of **Harry DeWolf** hosts a community event in Pond Inlet.*

Credit: Cpl Simon Arcand

*Petty Officer Second Class Kendall Samuelsen, Sub-Lieutenant Karen Winzoski and Sailor Second Class Mohamed Kaseem aboard HMCS **Harry DeWolf**, guide a Towed Reelable Active Passive Sonar into Baffin Bay, Nunavut, during **Operation Nanook-Nunakput**, 23 August 2021.*

transported to shore. The ship's company moved groups over land-sea-land for ship tours, thus proving the ability to move elderly and children safely to the ship via landing craft and fitted ladders if ever needed.

While we were in Grise Fjord a story was shared with the ship's company by a gentleman named Larry Audlaluk. Larry is now in his 70s and told the story of how as a young boy he was moved in the 1950s with some of his family from the northern part of Quebec to the shores off Grise Fjord on the side of a grainy barren hill by the water. Other members of his family were moved to Resolute Bay, and left on a barren land in a similar manner. His story is complicated and painful to hear, but is one that must be told and heard by every Canadian. I cannot do it justice in this short article and his own book would be better suited to tell it.[4] His family's story has been illustrated. In Grise Fjord you will see a carved statue sitting in the hills above the hamlet. It is a young woman with her daughter facing west towards Resolute Bay. In Resolute Bay you will find a similar statue facing east, it is a man and his dog. The two statues tell a story of families torn apart by people who believed they knew what was best for other peoples' lives. It is a tragic story, and one that I share with everyone who will listen. When I tell the story in person it is so gut wrenching for me I end up in tears. This is a small price to pay to remind Canadians of the mistakes we have made.

HDW visited the Nanisivik Naval Fueling Facility (NNF) located on the banks of the Strathcona Sound in Baffin Island, in Nunavut. NNF has the ability to store 7500m^3 of diesel fuel oil in two 22-metre diameter double-walled tanks. On site one, there is a storage facility and a site office that can accommodate up to six personnel. The berth is not a traditional jetty – it has a unique jetty structure unlike any traditional ship-shore connector. (It is made up of three large cylinders partially secured to the shore by recessing them into the shoreline.) Having made a series of approaches on the jetty with the ship, I found it to be an easy approach.

The closest hamlet to NNF is Arctic Bay, located approximately 40 kilometres southwest over a mountainous region via a dirt road. The road once served as a service road for an iron ore mining company, but was also used for the annual Arctic Marathon, which one day I hope the RCN will rebrand as the RCN Arctic Marathon. Participants could fly to Arctic Bay via commercial air during an AOPV's summer patrol, which could support the event. During our visit to Arctic Bay we experienced a very warm welcome, a great deal of interest to visit the ship

Credit: Cdr Corey Gleason

This statue in Grise Fjord, part of two Arctic Exile Monuments, was carved by local artist Looty Pijimani in 2010 to commemorate the government's relocation of Inuit families from Pond Inlet and Inukjuak to form the communities of Grise Fjord and Resolute Bay in the 1950s.

and tremendous interaction on the shore with community members, in particular the youth of the community who received school supplies and back packs collected and delivered by the HDW crew on their first week of school.

With the eastern patrol complete, HDW proceeded to the central Arctic. I was excited about this leg of the journey because the crew was about to explore parts of the world which are rarely visited. During our passage from Arctic Bay via Admiralty Inlet and Lancaster Sound, HDW encountered stiff winds and following seas. We encountered light 3/10th ice (meaning that 3/10th of the surface was covered with ice) with no significant floes right up until Beechey Island. We entered Devon Island Bay, an area which provided suitable anchorage and shelter to the Franklin Expedition and other ships that would follow in search for HMS *Terror* and *Erebus*, including HDW.

On arrival, we flew our drone over land in search of wildlife and found polar bears far away from our intended beach landing area. We prepared to place boats in the water for our reconnaissance and follow-on personnel and conducted our routine mission briefs. We proceeded to Gascoyne Inlet with our landing craft and a work party to conduct a site survey, run up generators and get a sense of what maintenance will be required once DRDC can return to continue its work in the North. My mission while at anchor was twofold: conduct an over-the-horizon operation with my landing craft from Beechey Island to Gascoyne Inlet via Lancaster Sound; and take advantage of a professional development opportunity like no other on the shores of Beechey Island.

Before proceeding ashore, I gathered the crew in HDW's hangar and discussed the Franklin Expedition and the significance of Beechey Island. Three of Franklin's crew are interred on the island. Their graves were discovered in 1851 by the crew of British and American search vessels who were looking for any sign of Franklin's 'lost' expedition. I talked about the importance of their work and how sailors like ourselves took risks and sometimes made the ultimate sacrifice, not in a traditional war, but in doing all they could to see their mission through to fruition. I asked the crew, once they were on the beach and amongst the grave markers, to pause and reflect on the hardship those crews must have faced, as I did many years ago when I first visited this site. I asked them to take some time while on the beach to pay their respects. My imagination of life on Beechey is in stark contrast to Roald Amundsen's depiction, described in Pierre Berton's novel *The Arctic Grail*, as "splendidly equipped ships, with the British colours flying, officers in dazzling uniforms or boatswains with their pipes and blue-clad sailors hurrying ashore." For me while standing on the beach in a bitter cold wind, I imagined determined sailors from HMS *Erebus* and *Terror*,

Credit: Cpl Simon Arcand

An Initial Staging Committee arrives at an unspecified hamlet via the ship's landing craft.

some despairing, hungry, cold, and perhaps little appetite for fanfare, for tradition or uniforms, simply wanting to stay fed and warm.

At the end of both missions, we regrouped in the hangar for a BBQ. The discussions differed – some were somber, some excited due to polar bear sightings – and the Away Team who had departed the ship for Gascoyne via Lancaster shared their own observations. Each sailor had a unique story or observation, and I am sure these will be shared in years to come. It was a special day for all of us.

Once all boats were onboard and the ship was ready to re-deploy, HDW got underway for Peel Sound. We didn't know it but we were bound for ice encounters. The ice was reported to be light with a decent lead (a lead is a crack in the ice or path between ice floes that is the path of least resistance) to the northwest of Somerset Island. During our transit southeast through Barrow Strait and under a colourful sunset, I saw no evidence of a lead and HDW found itself quickly in 4/10th ice regimes that would gradually increase day after day to 10/10th ice as we proceeded south in Larsen Sound for Victoria Strait.

As you can imagine, ice is a concern in the North. The AOPVs have been designed and appraised by Lloyd's Registry based on the new International Association of Classification Societies (IACS) Polar Class (PC) Rules. The categories are as follows:

A. Ships that are designed to operate in at least medium first year ice which may include old inclusions. This corresponds to vessels built to the IACS Polar ice classes PC 1 to 5, icebreaking ships.
B. Ships that are designed to operate in at least thin first-year ice which may include old inclusions. PC 6 and 7 or equivalent, ice-strengthened ships.
C. Ships that are designed to operate in open water or in ice conditions less severe than those in categories A and B. This corresponds to ships of any Baltic ice class or with no ice strengthening at all.

The AOPVs have been classified as PC 4. They have icebreaking capabilities such as icebreaker stem, ice-strengthened propellers, ice knives and the hull itself is an icebreaking form. These features, together with the propulsion plant, are what enable the ship to conduct icebreaking.

Ice in the Canadian Arctic is a mixture of first-year and multi-year ice. Multi-year ice is extremely dense, dangerous even for icebreaking ships proceeding too fast. During the summer thaw multi-year ice breaks away and mixes in with first-year ice. When the winter begins, that multi-year freezes in with first-year ice resulting in old inclusions which present challenges in the next navigable season. Depending on the summer melt, much of the Canadian Arctic can remain inaccessible for that navigable season.

The *Harry DeWolf*-class is able to operate during the whole of the navigable season, which means that 2021 marked the first time this has been possible since HMCS *Labrador* operated in Canada's northern waterways. I am often asked "in what thickness of ice can an AOPV operate?" Thickness is of course a concern, however temperature and wind build up ice ridges and ice pressure is created between floes which contributes to the risk index assessments equally.[5] Without focusing on the science of sea-ice composition, ice ridging and pressure regions, a ship can be hampered in an ice regime and extremely cold temperatures and inconsistent density, pressure and thickness.

To get back to HDW's travels, the ship took Franklin's route west of King William Island, where ice tends to be extensive. The RCN could not operate in ice before the AOPVs – their introduction has made it possible to operate in 10/10th ice (100% ice). We proved this ability during cold weather Arctic trials in February/March 2021. Ship-handling in 10/10th ice is a force-enabling function. Now this passage will be a matter of routine operation during *Op Nanook*. The ship encountered old ice from McClure Strait and M'Clintock Channel clogging Larsen Sound


Credit: Cpl. Simon Arcand

The crew of HMCS ***Harry DeWolf*** *explores Beechey Island.*

and Victoria Strait. Civilian shipping required escort by CCG ships and HDW routinely encountered and communicated with the CCG in the central and western Arctic.

Once out of Victoria Strait, it was clear sailing through Queen Maud Gulf to Cambridge Bay, where the ship was to conduct its first major Arctic provisioning operation, and a planned fuel stop in Kugluktuk. Cambridge Bay is a beautiful open bay in which to anchor, protected by the environments and home to the Canadian High Arctic Research Station (CHARS). CHARS lies almost due south of Resolute Bay and shares similar infrastructure such as a long runway, warehousing, federal facilities and accommodations that can support crew changes, land task forces and government departments with an Arctic mandate. This visit was hampered by the fact that COVID paperwork had not been received by the hamlet officials so the ship crew was not allowed to engage with the community in the same way we had elsewhere. As an interesting aside, two beluga whales followed the ship into the bay and the people of the hamlet were pleased and thanked us over the radio for the whales.

When we think about the Arctic, we think of rough terrain, sparse vegetation and harsh weather conditions. Few would believe that coral could be found just feet off the


Credit: ***Harry DeWolf*** *crew via Cdr. Corey Gleason*

The camp site at Gascoyne Inlet has been used for DRDC's experiments with underwater sensors.

Credit: DRDC Lead Engineer Jeff Scutton

*HMCS **Harry DeWolf** in front of Cunningham Glacier.*

shore in some places. CHARS illustrated this with submersible remote-controlled devices equipped with cameras, so we could see the fragile floral beauty under the water. It was extraordinary to discover and also concerning given what little we know about the biodiversity beneath the sea and another domain we must work to protect while we travel in northern waterways.

We spent four days at anchor off the coast of Kugluktuk sharing our anchorage with CCGS *Sir Wilfrid Laurier* and a few commercial vessels awaiting escort. Kugluktuk has a wonderful cultural centre which provides a snapshot of years of culture and tradition. The crew took the opportunity to purchase souvenirs to share with their family and friends. The Kitikmeot (western Arctic) region is a special area and I am confident the AOPV selected to be affiliated with this region will be well received by the residents of each community.

HDW carried on its journey passing Point Barrow, Alaska, and proceeded south to Dutch Harbor for its first fuel stop since Nuuk and first port visit in 51 days at sea. Dutch Harbor was an excellent port to visit after such an amazing journey through Canada's Arctic Archipelago. It represents the frontier into the US Arctic and the first fuel stop when leaving (or entering) the Arctic. The transit in and out was interrupted by pods of whales of different species – the ship stopped regularly for whales during its southbound transit. Through poor weather the ship made good time arriving in Prince Rupert to embark Commander MARPAC Rear Admiral Angus Topshee. We signalled our salutations to the town with ship's whistles, as we were greeted by people with cameras, flying unmanned aerial vehicles and small boats coming in for a closer look.

We carried on to Vancouver. The ship proceeded alongside Burrard Pier in the north end of Vancouver where RCMP motor vessel *St. Roch* was built and launched. It was a fitting tribute to Vancouver, and its contribution to building the first Canadian vessel to traverse the Northwest Passage. HMCS *Labrador* was the first RCN vessel and HDW the second. The interest in the ship was impressive and the crew felt like celebrities.

The ship conducted a Canadian Leaders at Sea engagement, led by Commander Fleet Pacific Commodore Dave Mazur, that involved a transit from Vancouver to Victoria's Ogden Point where local dignitaries and guests visited the ship. The next morning HDW moved to Esquimalt Harbour for fuel, ammunition and a short work period. This leg of HDW's journey ended with a brief rest, relaxation and maintenance period in Esquimalt designed to introduce the ship to the West Coast fleet of sailors, trainers, logisticians, maintenance personnel and industry.[6]

I began this article with the paying off of HMCS *Labrador*, the first Arctic Patrol Vessel. Times have changed since 1958, but some things remain the same. Specifically, global and domestic affairs demand, as they did in 1958, that Canada and its allies invest in ships that respond with the right capability to support the mission they are being asked to do. The work done by HDW in the North illustrated that its capabilities are applicable anywhere in the world. This very Canadian ship fits into a scalable RCN and will operate on the lower spectrum of warfare filling the operational space of maritime security and disaster relief operations while the frigates and Canadian Surface Combatants are free to operate exclusively in the higher spectrum of warfare.

Notes

1. Ships are affiliated with regions of the country or cities. Ships and their affiliated cities or regions share charities, participate in community engagements and share the activities of the ship with schools, clubs and local government. HMCS *Harry DeWolf* is affiliated with the Qikiqtaani, one of six Arctic regions recognized by the Inuit.
2. Peter Mansbridge's podcast, "The Bridge" was produced onboard the ship while here and I encourage you to take the time to listen as he describes his personal observations and conducts an interview with Coxn, Chief Petty Officer 1st Class Ginette Seguin.
3. The CBC-contracted film crew recorded some footage during the TRAPS deployment.
4. Larry Audlaluk, *What I Remember, What I Know: The Life of a High Arctic Exile* (Iqaluit, Nunavut: Inhabit Media, 2020).
5. Temperature effects fractal ice strength. When two large ice floes interact they will break up and create ridges that push ice down into the water and up creating a mountain with a deep keel like an iceberg, or at the very least create pressure that could prevent a ship from moving freely.
6. Thales, for example, is establishing on the West Coast under in-service support contracts for the AOPVs and the Joint Support Ships (AJISS).

Commander Corey Gleason was the first Commanding Officer of HMCS Harry DeWolf. Appointed in 2015, Commander Gleason worked alongside industry and government to bring this class into service. He turned over Command 22 January 2022 and is now with Sea Training Patrol Vessel (Atlantic Group) supporting future patrol vessel Captains at sea.

A Tale of Two Ships: HMCS *Labrador* and HMCS *Harry DeWolf*

Roger Litwiller

Credit: Roger Litwiller

*HMCS **Harry DeWolf** moves astern of the future HMCS **Margaret Brooke** in Halifax on 16 December 2021 following its circumnavigation of North America.*

On a cold damp day in December 2021, Her Majesty's Canadian Ship (HMCS) *Harry DeWolf* sailed into Halifax with great fanfare. Once the lines were cast ashore and this new Arctic and Offshore Patrol Ship (AOPS) was secured to the jetty in HMC Dockyard, a new era in Canadian sovereignty began and a new chapter in Royal Canadian Navy (RCN) history was written.

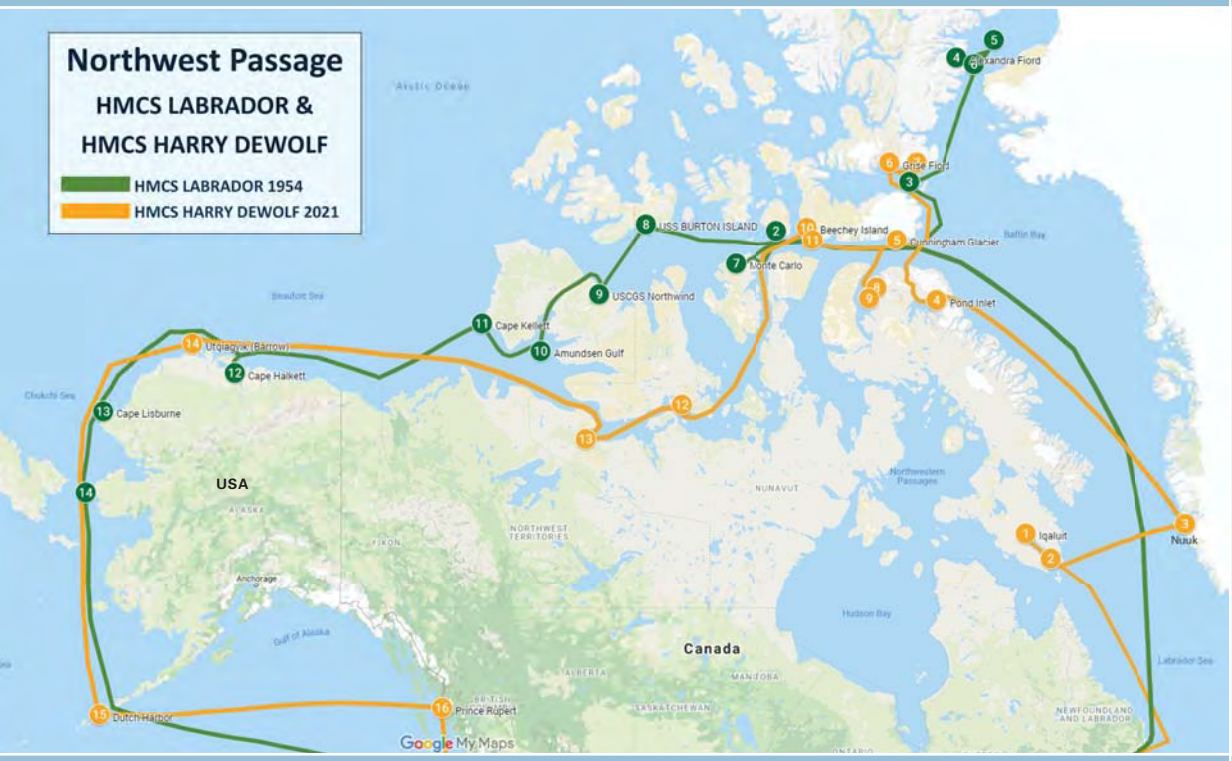
HMCS *Harry DeWolf* (HDW) had just completed a circumnavigation of North America, leaving Halifax on 3 August 2021 and transiting through Canada's Arctic via the Northwest Passage to Esquimalt, BC. The ship then set course for the Panama Canal. Before leaving the Pacific Ocean, the ship's company made two successful drug interdictions as part of *Operation Caribbe*, seizing 2,600 kg of cocaine. HDW returned to Halifax on 16 December.

HDW is the first of six in a new class of RCN ships designed to be capable of operating from the Arctic to the tropics. But this wasn't the RCN's first foray into Arctic operations. It follows in the footsteps of HMCS *Labrador* which was the last RCN ship to transit through the Northwest Passage.

***HMCS** Labrador*

By 1948, annual forays into Canada's Arctic region by American forces led to the decision by the Canadian government to secure an increased presence in the North to ensure Canada's claim to sovereignty. This led to the announcement of an RCN icebreaker to be built at Sorel, Quebec. On 8 July 1954 the Arctic Patrol Ship, HMCS *Labrador* was commissioned under the command of Captain Owen C.S. Robertson. *Labrador* was a truly distinctive, multi-role vessel and the only naval icebreaker in the Commonwealth. The ship was complete with research labs, medical facilities, cargo spaces and the ability to chart the relatively unknown waters of the Canadian Arctic. Especially unique was a large helicopter flight deck and open hangar, with enough space to operate and maintain three helicopters making *Labrador* the first RCN ship other than an aircraft carrier to embark helicopters and an air detachment.

Labrador's historic transit of Canada's Arctic was at the height of the Cold War. While *Labrador* was in the western Arctic, the Soviet Union conducted an H-Bomb



HMCS *Labrador*

1. Halifax
2. Resolute
3 Craig Harbour
4. Alexandria Fiord
5. 79 North
6. USCGC *Eastwind*
7. MV *Monte Carlo*
8. USS *Burton Island*
9. USCGS *Northwind*
10. Amundsen Gulf
11. Cape Kellett
12. Cape Halkett
13. Cape Lisburne
14. Cape Prince of Wales
15. Esquimalt

HMCS *Harry DeWolf*

1. Iqaluit
2. Mass Causality Ex
3. Nuuk, GL
4. Pond Inlet
5. Cunningham Glacier
6. Grise Fiord
7. Jakeman Glacier
8. Nanisivik
9. Arctic Bay
10 Beechey Island
11. Gascoyne Inlet
12. Cambridge Bay
13. Kugluktuk
14. Utqiagvik
15. Dutch Harbour
16. Prince Rupert
17. Vancouver
18. Victoria
19. Esquimalt

Credit: Roger Litwiller

*A map showing the voyages of HMC Ships **Labrador** and **Harry DeWolf** during their respective transits of the Northwest Passage.*

test on Wrangel Island in the Siberian Sea. Newspapers speculated that the purpose of *Labrador*'s 'sudden' transit through the passage was to monitor the test utilizing the scientists and lab equipment onboard.[1]

Labrador departed Halifax on 23 July 1954 for the Arctic. Many of the charts carried were over a century old, and part of *Labrador* mission was to conduct surveys and update charts of the Arctic passages. Despite centuries of explorers traveling to the North, it was still not yet fully explored.[2] Only two ships had successfully transited the Northwest Passage by this time. Roald Amundsen in the 21-metre Norwegian sloop *Gjøa,* first traveled east to west, beginning in 1903 and completed in 1906. In 1940 the 30-metre RCMP vessel, *St. Roch*, commanded by Superintendent Henry Larson, transited from the west, concluding the voyage in 1942. In 1944, Larsen and *St. Roch* were the first to complete the passage from east to west in a single season. Six years later, *St. Roch* returned to Halifax from Vancouver via the Panama Canal, becoming the first ship to circumnavigate North America.

As *Labrador* departed Halifax, it carried 228 sailors. For most, this was their first voyage to the Arctic. Since they set sail two weeks after commissioning, they had to learn their ship on the job. Also embarked were an RCMP Inspector and 10 scientists to conduct research, experiments and studies in cosmic rays, gyro-magnetic compass, ice conditions, oceanography, hydrography, terrestrial magnetism and meteorology.

To conduct surveying of the northern waters, *Labrador*'s two cutters and two landing craft were fitted with echo-sounders. Also carried was an 11-metre Hydrographic Survey Boat, named *Pogo* by *Labrador*'s ship's company. This survey boat was complete with heated cabin, bunks, galley, radar, echo-sounder, gyro-compass and radio with the ability to operate independently for extended periods of time while acting as 'mother ship' to the cutters and landing craft.[3]

On its maiden deployment, *Labrador* carried two Bell HTL-4 helicopters from VH 21 Squadron.[4] The air detachment consisted of two pilots and seven support personnel. True workhorses of the air, the helicopters proved invaluable to *Labrador*'s success, providing ice reconnaissance, surveying, assisting construction of navigation aids, and transport of personnel, equipment and material for research.

Credit: Naval Marine Archive, Picton, Ontario, via author

*HMCS **Labrador** in the St. Lawrence River after being commissioned in 1954.*

Labrador encountered its first ice pack shortly after crossing the Arctic Circle. Easily breaking through, the ship continued to Resolute, where it conducted surveying and recharting of the bay and harbour. Radar beacons were erected and some of the ship's company were detailed to test Arctic survival equipment and cold water immersion suits.

Labrador then sailed east for Craig Harbour on the southern tip of Ellesmere Island. There the ship picked up Inuit RCMP Special Constable Ariuk, his wife, their four children and all their belongings, including 17 sled dogs. Ariuk was to take up residence at the RCMP's most northerly outpost at Alexandra Fiord on Ellesmere Island. The sled dogs were kept on the foc's'le and the four-day passage was uneventful, with the exception of the sailor caring for the dogs. During one feeding, he watched in disbelief as his heavy gloves suddenly disappeared as an appetizer.

At Alexander Fiord, Ariuk's belonging were landed, along with a year's worth of provisions that *Labrador* had brought from Halifax, including a supply of coal. The task was difficult as the beach was not conducive to landing operations. Unloading the last two loads of coal provided the opportunity for a competition between *Labrador*'s officers and Chiefs and Petty Officers. The C&POs won by 30 seconds, receiving from Captain Robertson an old battered porcelain cup and tin plate, inscribed with "Ellesmere Island Jockey Club."

Credit: For Posterity's Sake, the Leonard Zbitnew collection, courtesy of Anne Zbitnew

Sled dogs belonging to Inuit RCMP Special Constable Ariuk were kept on the decks of HMCS ***Labrador*** *during the four-day transit from Craig Harbour to the RCMP outpost at Alexandra Fjord on Ellesmere Island.*

During a lull in the unloading, *Labrador* went to Buchanan Bay to meet with the US Coast Guard Ship (USCGS) *Eastwind*. Even though *Labrador* was based on the same design as the *Wind*-class icebreakers, there were considerable differences between the two ships. Most notably were *Eastwind*'s forward gun turret, small flight deck and lack of a hangar.

Labrador continued with oceanographic studies in Baffin Bay on the return journey to Resolute, arriving there on 15 August. The ship met CCG Ships *D'Iberville*, *C.D. Howe* and *N.B. Maclean* escorting the freighter *Grander Bay* and tanker *Maruba*. This Canadian Arctic resupply force marked the first time that Canada was solely responsible for resupplying the Arctic communities including the joint Canada/US weather stations. As part of the mission, thousands of steel drums left abandoned in the Arctic communities over the past decades were to be recovered and returned for the deposit value, providing the nickname *Operation Beerbottle*.[5]

On 17 August the sailors in *Labrador* visited Beechey Island to pay their respects at the graves of three sailors from the ill-fated Franklin Expedition. The next day, following the recommendations of Captain Robertson, Naval Headquarters in Ottawa authorized *Labrador* to attempt the transit of the Northwest Passage. When the ship departed Halifax, transiting the passage was not an objective of the mission as only two ships had successfully made this voyage since 1903.

On 19 August *Labrador* responded to a distress call. The 24-metre Boston dragger *Monte Carlo* was stuck in ice near Mechum Island in the uncharted Baring Channel, located between Russel and Prince of Wales Islands. *Labrador* set course at best possible speed, fighting ice and fog arrived on scene on 21 August. *Monte Carlo* had been chartered by a group of college students and their mentors to study terrestrial magnetism. *Labrador* broke the wooden hull dragger free of the ice and towed it out of the channel. The crew of *Monte Carlo* was brought aboard for hot meals, showers and a respite. Once clear of the ice, the ship was released and food, fresh water and fuel were transferred. Captain Robertson advised the master to set course home as *Labrador* was leaving the area and another rescue would not be possible.[6]

Proceeding west once again, *Labrador* rendezvoused with USS *Burton Island* at Dealy Island off the south shore of Melville Island on 25 August. *Burton Island* was a *Wind*-class icebreaker in service with the US Navy. This marked the first time any warships met in the Arctic after sailing from the Pacific and Atlantic Oceans. Captain Robertson invited his American counterpart, several officers and scientists from *Burton Island* to a celebratory dinner in *Labrador*. The next day the two ships started across Viscount

Credit: For Posterity's Sake, the Leonard Zbitnew collection, courtesy of Anne Zbitnew

A Bell HTL-4 helicopter takes off from ***Labrador****'s flight deck in an unspecified location during its transit of the Northwest Passage.*

Melville Sound fighting ice and fog to rendezvous with USCGS *Northwind* at Richard Collinson Inlet on the north side of Victoria Island. The American ships were operating as the US Beaufort Sea Expedition conducting surveys and charting the western Arctic and Beaufort Sea. Captain Robertson and the American skippers met in *Northwind* to determine a cooperative plan to work together and complete their similar objectives.

Labrador entered Prince of Wales Strait between Banks and Victoria Islands on the 30th to assist a survey team from the Dominion Hydrographic Office, which was surveying the Banks Island side of the strait. Their tracked vehicle had broken down leaving them stranded. The team was brought aboard *Labrador* and for the next four days utilizing the helicopters, the team was able to survey 72 kilometres of the strait. Previously on land they had surveyed 24 kilometres in 18 days, demonstrating the versatility and importance of shipborne helicopters. Another example occurred on 31 August when USCGS *Northwind* sent a request for immediate assistance. The ship was having difficulty with ice off Peel Point at the entrance to Prince of Wales Strait. *Labrador* diverted its helicopters to assist *Northwind* in finding a route through the ice.

Labrador had successfully transited the Northwest Passage when the ship left Prince of Wales Strait on 6 September, entering Amundsen Gulf to begin several weeks of survey work. The following day one of the ship's landing craft was washed on to the beach at De Salis Bay on Banks Island due to heavy surf. Poor weather delayed the recovery of the craft until the 10th.

When one of *Labrador*'s crew became seriously ill on 22 September, Robertson proceeded at best speed for Esquimalt, arriving on 27 September.[7] The ship's arrival was greeted with great celebration.[8] A team of reporters was waiting on the jetty, newspapers across Canada published accounts of *Labrador*'s historic voyage. Messages of congratulations poured in to the ship. Captain Robertson and several members of the ship's company gave lectures and attended events while *Labrador* was on the West Coast.

Labrador sailed for Vancouver after a brief rest and an opportunity to make the ship 'pusser' once again. *Labrador* met *St. Roch* outside of the harbour as *St. Roch* returned to the West Coast from Halifax via the Panama Canal on its final voyage. Captain Robertson waived tradition of a warship leading and took up station behind the historic RCMP vessel, following *St. Roch* through the harbour with both helicopters flying escort above.[9]

Festivities came to an end on 16 October as *Labrador* began the voyage south, with a brief stop at San Francisco where the ship met HMCS *Magnificent* and HMCS *Stettler*. *Labrador* was designed for Arctic operations, so in hot climates the heat in the ship became unbearable for the sailors. Cots and hammocks were rigged on *Labrador*'s decks so the ship's company could rest. The empty forward gun sponson was filled with water, creating a swimming pool allowing the sailors a chance to cool off.[10]

Transit of the Panama Canal was uneventful. Following that *Labrador* made a port visit at St. George's, Grenada, for maintenance and paint before return to Halifax. *Labrador* arrived in Halifax on 21 November 1954. Its place in history is guaranteed – *Labrador* was the first deep draft vessel, first warship and first RCN ship to transit the Northwest Passage. Also it was the first warship and RCN ship to circumnavigate North America.

HMCS Labrador ***and HMCS*** *Harry DeWolf*

How does this historic ship and voyage compare to the recent historic voyage by HMCS *Harry DeWolf*? Comparing *Labrador* to the new AOPS is somewhat akin to comparing apples and oranges. These two vessels were built in different eras, utilizing the best technology available at the time. But technology has changed greatly since 1954, and this is reflected in the ships. Most notably is automation. Thus *Labrador* required 228 sailors to work the ship, HDW sails with 87.[11]

Another difference of technology is the ability of the ship's company to communicate with home. *Labrador*'s sailors received several airdrops of mail during the voyage. HDW's sailors enjoyed almost instant communication with their families through ship-board Wifi and email. As well, satellites provide HDW with up-to-date ice conditions, reducing the requirement for an embarked

helicopter, although the AOPS have helicopter capability. HDW also has the ability to carry an unmanned aerial drone system to provide an 'eye' in the sky when a helicopter is not embarked. This is something that *Labrador*'s ship's company probably could not even imagine.

The sailors in *Labrador* were routinely required to clear ice with hammers and picks – a dangerous and tedious but necessary job – whereas HDW has a heat trace system to prevent ice buildup on the hull and heated decks. The enclosed fo'c'sle provides protection from the elements, but may be too warm if a team of sled dogs is embarked.

Climate change has also affected the environment these two ships faced. Global warming is changing the Arctic ice conditions, affecting the ability of other states to access Canada's north. *Labrador* was the only ship to transit the Northwest Passage in 1954. In 2019, 25 vessels registered to 12 states made the passage, including merchant ships, cruise ships, research vessels and privately owned pleasure craft.[12]

Harry DeWolf was commissioned on 26 June 2021 with Commander Corey Gleason in command. Commander Gleason developed a full working up program. Beginning with HDW's delivery to the RCN in July 2020, training of the ship's company began alongside in the dockyard, off Halifax, a circumnavigation of Newfoundland and followed by cold and warm weather trials in Baffin Bay and off Puerto Rico. Unlike *Labrador*, HDW departed for Canada's Arctic with a highly trained, skilled ship's company that knew their ship.

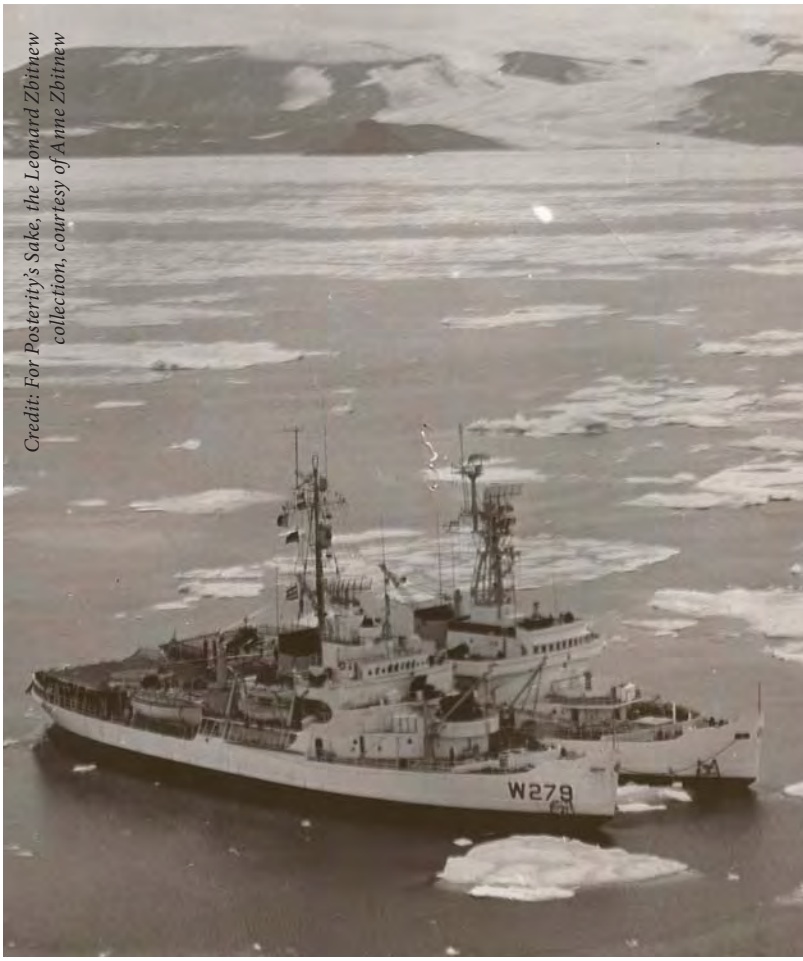
Unlike *Labrador*, HDW had a more defined mission set for the trip. The deployment was split into three phases of *Operation Nanook*. In the first phase *Operation Tuugaalik* (*NA-TU*), the AOPS was joined by HMCS *Goose Bay*, USCGC *Escanaba* and USCGC *Richard Snyder* for a task group exercise to enhance RCN and USCG interoperability. The second phase, *Op Tatigiit* (*NA-TA*) entailed conducting two maritime responses to a mass rescue operation exercises consisting of HDW, *Escanaba* and *Richard Snyder*, joined by CCGS *Pierre Radisson*. The MV *Northern Mariner* was contracted to act as the stricken vessel. In the third phase, *Op Nunakput* (*NA-NU*), HDW conducted interoperability activities with Land Task Force and Canadian Ranger Patrol Group 1 personnel forward deployed to the communities of Pond Inlet, Grise Fjord and Arctic Bay. Another objective of *NA-NU* consisted of conducting community relations, strengthening the bonds between HDW/RCN and the people of the region. HDW visited a number of northern hamlets, and each time it conducted a visit, this required the ship's company to lower/recover boats, transfer food, supplies and equipment to different beaches, and transport civilians to and from the ship. These are all skills that would be needed to respond to a disaster situation anywhere in the world.

HDW then went on to complete the final objective of *NA-NU*, the first transit of the Northwest Passage by an RCN vessel since 1954. Following the transit, HDW arrived at Prince Rupert, BC, on 29 September 2021 followed by port visits at Vancouver, Victoria and Esquimalt. After a respite at Esquimalt, preparations began for the transit south. Departing Esquimalt on 22 October, HDW began participating in *Operation Caribbe*. HDW proved to be a capable platform whether operating in cold Arctic conditions or hot southern waters – unlike on *Labrador*, there was no need for cots or hammocks on deck. After passage through the Panama Canal, HDW turned north and returned to Halifax on 16 December.

Conclusions

Explorers had searched for a Northwest Passage for centuries, and the search was a challenging and dangerous one. But climate change has opened Canada's Arctic. As the ice recedes, more shipping traffic will transit through the North reducing the sailing time from Asia to Europe by days.

Vice-Admiral Harry DeWolf made the following statement about *Labrador* in 1957, and his words are just as



Credit: For Posterity's Sake, the Leonard Zbitnew collection, courtesy of Anne Zbitnew

*HMCS **Labrador** and USCGC **Eastwind** (foreground) near Alexander Fiord, August 1954.*

Credit: Walter E Frost via City of Vancouver Archives

*In October 1954 HMCS **Labrador** is seen in Vancouver with the RCMP schooner **St. Roch** outboard of it after **Labrador**'s transit through the Northwest Passage and **St. Roch**'s voyage from Halifax via the Panama Canal.*

relevant today describing the entire AOPS class, including the ship that proudly bears his name.

> The operation of HMCS *Labrador* by the Navy provides valuable experience in the Arctic for officers and men and in particular valuable sea experience for the Captain. The number of sea-going billets for senior officers is strictly limited. It provides also the satisfaction of performing useful service to the country and assistance to other Government departments with resultant goodwill. In addition, there is, I believe, very real value in showing the white ensign in the Canadian north.[13]

The AOPS have brought a versatile, capable platform to Canada. This first major deployment by an AOPS has proven the capability of this multi-role ship. As the other ships of this class enter service, the ultimate contributions for the *Harry DeWolf*-class have yet to be fully realized.

Notes

1. "Soviet H-Bomb Test Linked with Labrador's Dash Here," *Times Colonist* (Victoria, BC), 27 September 1954, p. 1.
2. P. Whitney Lackenbauer, Adam Lajeunesse and Jason Delaney, *HMCS Labrador: An Operational History* (Antigonish, NS: Mulroney Institute, 2017), pp. 1-23.
3. P. Whitney Lackenbauer and Elizabeth Elliot-Meisel (eds), *One of the Great Polar Navigators: Captain T.C. Pullen's Personal Records of Arctic Voyages, Volume 1: Official Roles* (Calgary: Centre for Military, Security and Strategic Studies, 2017/Documents on Canadian Arctic Sovereignty and Security (DCASS), No. 12, 2018), pp. 12-13.
4. Don MacNeil, *Rotary Wings Over the Arctic: Diaries of HMCS Labrador's Flight Operations 1954-1957* (Antigonish, NS: Mulroney Institute, 2018).
5. Gerald Waring, "Operation 'Beerbottle' More Than Just Supply Trip North," *The Kingston Whig-Standard*, 3 August 1954, p. 1.
6. "New Arctic Patrol Ship Frees Stranded US Vessel," *The Montreal Star*, 16 September 1954, p. 17.
7. CPO Colin MacArthur had developed pneumonia. MacAuthur was transported to HMCS Naden Hospital. Sadly he passed away on 8 September due to complications. "Northwest Passage Marred by Death of Montrealer," *The Montreal Star*, 9 October 1954, p. 5.
8. The RCMP Vessel *St. Roch* arrived at Esquimalt on 5 October, still under the command of Superintendent Henry Larson and secured alongside *Labrador*. Larsen had brought his ship to the West Coast from Halifax via the Panama Canal on its final voyage. *St. Roch* was later preserved as a museum ship by the City of Vancouver. "St. Roch, Labrador Meet Here," *Times Colonist* (Victoria, BC), 5 October 1954, p. 1.
9. "Navy Bows to Brave Little Ship," *The Province* (Vancouver, BC), 9 October 1954, p. 4.
10. James Boutilier, *RCN in Retrospect 1910-1968* (Vancouver: The University of British Columbia Press, 1982), p. 294.
11. Unless otherwise noted, the information following this point has been provided by Commander Corey Gleason. I would like to thank Commander Gleason for his patience and generosity during several telephone/video conversations, emails and messages.
12. R.K. Headland et al., "Transits of the Northwest Passage to End of the 2021 Navigation Season," Scott Polar Research Institute, University of Cambridge, Cambridge, United Kingdom, 12 November 2021.
13. Lackenbauer, Lajeunesse and Delaney, *HMCS Labrador: An Operational History*, p. 89.

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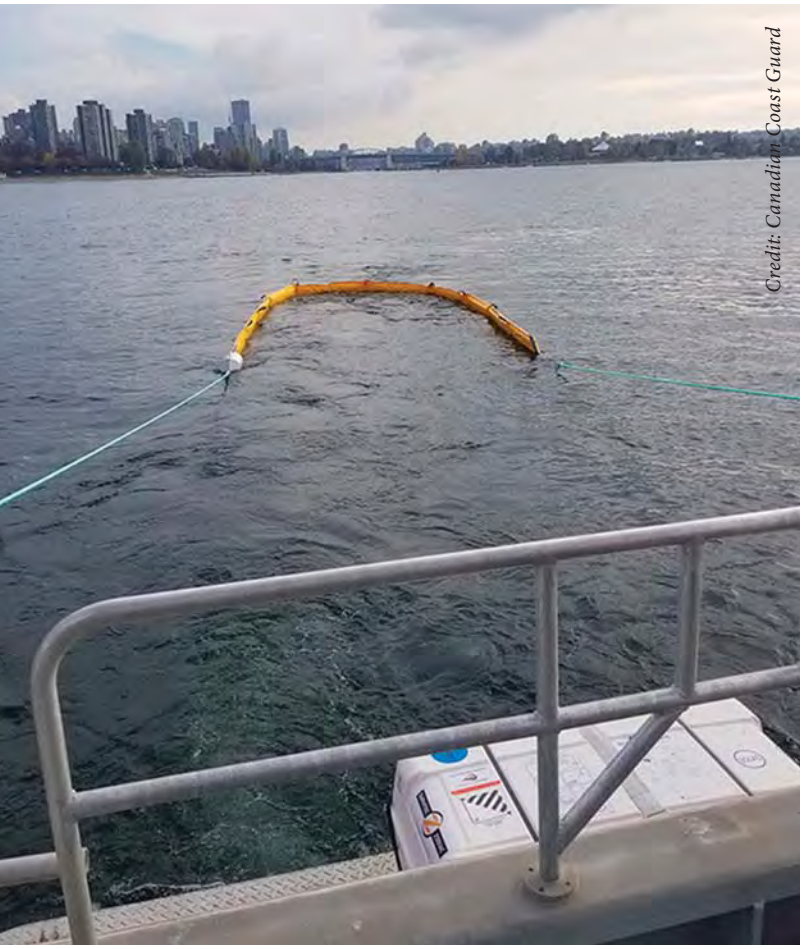
The Arctic Council and Oil Pollution Prevention in the Arctic Ocean

Jeff G. Gilmour

The Arctic Ocean is Canada's third ocean and encompasses the Arctic archipelago which includes such major islands as Baffin, Victoria and Ellesmere, and borders most of Nunavut, part of the Northwest Territories and Yukon. Situated in the northern extremity of North America, it is estimated to cover approximately 550,000 square miles and consists of a multitude of islands.[1]

The purpose of this article is to outline some of the steps taken by the Arctic Council and the Canadian government to mitigate marine oil pollution in the Arctic Ocean. With the increased melting of sea ice leading to more ships transiting these waters, there is a risk of a ship accident resulting in a major oil spill. To clean up such a spill in these waters will require significant technical support and assistance. The weather in this region is challenging and oil under the ice can be very difficult to recover. Oil spills are normally cleaned up by using dispersants, skimmers and barriers. The effectiveness usually depends on the situation, such as the amount and type of oil, ocean currents and tides, and the weather. Some methods can be detrimental to the sensitive Arctic environment.



A fence boom for containing pollutants is employed in this undated photo off Vancouver, BC.

Canadian Coast Guard crews operate a towable floating bladder for storing recovered oil.

Historically Canada first considered the issue of marine oil pollution in these waters with the transit of SS *Manhattan* through the Northwest Passage from the east to west in August 1969. Following this, in 1970 Canada enacted the *Arctic Waters Pollution Prevention Act* (AWPPA). Through this legislation Canada asserted jurisdiction over navigation out to 100 miles for the purpose of pollution prevention.[2] The next major piece of legislation relating to Canada's Arctic Ocean was a result of the US Coast Guard icebreaker *Polar Sea* transiting the Northwest Passage in 1985. This voyage led to Canada adopting the *Canadian Laws Offshore Application Act* of 1990. It was designed to provide a legal framework for extending Canadian jurisdiction out to the continental shelf.[3]

This photo illustrates an offshore boom containing an oil spill.

In addition to this legislation, Canada has initiated specific legislation to cope with marine oil pollution. Thus it adopted the "Arctic Shipping Safety and Pollution Prevention Regulations" (ASSPPR) in 2017.[4] This legislation is intended to discourage the deposit of waste materials in the Arctic Ocean. Part 2 of the regulations, entitled "Pollution Prevention Measures," includes conditions for waste deposits, prevention of pollution by oil, the control of pollution and the prevention of pollution by sewage and garbage. Canada then initiated new segments of the ASSPPR to include safety and pollution prevention measures for foreign vessels navigating the Canadian Shipping Safety Control Zones.[5]

The Arctic Council and Marine Oil Spills in the Arctic Ocean

Now let us focus on the measures taken by the Arctic Council.[6] In 1996 Canada was one of the eight Arctic states which created the Arctic Council. This body was established as high-level forum "to provide a means for promoting cooperation, coordination and interaction among the Arctic States, with the involvement of the Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic."[7]

In 2009 the Arctic Council published the "Arctic Marine Shipping Assessment."[8] The assessment noted that there was a general lack of infrastructure in the Arctic, including a lack of hydrographic, oceanographic and meteorological data critical to safe navigation and that, except in limited areas, there was a lack of emergency response capacity for pollution mitigation. The assessment also noted that there were serious limitations to communication and few systems to monitor or control the movement of ships. The assessment concluded that these deficiencies, coupled with the vastness and harshness of the environment, made conducting emergency responses significantly more difficult in the Arctic than in other regions.

The Arctic Council established a task force in May 2011 to develop a major marine oil pollution document. The task force included participants from the Arctic states, observers, industry representatives and invited experts. The final document from the task force was formed into the Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (MOSPA), which was signed on May 2013 by the eight member states of the Arctic Council at Kiruna, Sweden.[9]

The objective of this agreement is "to strengthen cooperation, coordination and mutual assistance among Parties on oil pollution preparedness and response in the Arctic in order to protect the marine environment from pollution by oil."[10] Key elements of MOSPA include the commitments to provide mutual assistance in the event of a major oil spill. As well, MOSPA includes commitment to:

- undertake appropriate monitoring activities to identify oil spills in areas within a member's national jurisdiction (Article 7);
- promote cooperation and coordination amongst the parties by carrying out joint exercises and training (Article 13);
- promote the exchange of information that could improve the effectiveness of response operations (Article 12); and
- conduct a joint review of activities undertaken during a coordinated response operation (Article 11).

An important consideration underpinning MOSPA was that a major Arctic oil spill likely could not be addressed by any Arctic state acting alone. Therefore, the elements of MOSPA were aimed to increase the collective capacity for oil spill response. MOSPA applies to "oil pollution incidents that occur in or may pose a threat to any marine area over which a State whose government is a Party to this Agreement exercises sovereignty, sovereign rights or jurisdiction, including in its internal waters, territorial sea, exclusive economic zone and continental shelf, consistent with international law."[11] MOSPA also applies to areas beyond the defined national jurisdictions, where actions may include monitoring, spill notification and requests for assistance. It specifies that such actions must be consistent with international law and are subject to the availability of resources and national capacity.

The Arctic Council incorporated six working groups that were formed following the creation in 1991 of the Arctic Environmental Protection Strategy. One of the working groups is the Protection of the Arctic Marine Environment (PAME) Working Group. The group focuses on Arctic shipping, maritime pollution, marine protected areas, ecosystem management, and resource exploitation and development.[12] It was tasked with producing guidelines and recommendations for policy improvement, and has the goal of improving knowledge of the Arctic

Credit: Canadian Coast Guard

*The icebreaker CCGS **Henry Larsen** breaks ice ahead of the ferry **Qajaq W** in the Strait of Belle Isle in a photo posted by the Canadian Coast Guard on 25 March 2022.*

marine environment and facilitating policy and technical cooperation.

Another working group is the Emergency Prevention, Preparedness and Response (EPPR) Working Group. EPPR focuses on "the prevention, preparedness and response to environmental emergencies, search and rescue, natural and manmade disasters and accidents in the Arctic."[13]

In accordance with Article 21 of MOSPA, Operational Guidelines were developed by the EPPR Working Group. These guidelines were designed to address the following issues:

- a system and formats for notification, requests for assistance, and other related information;
- provision of assistance, as well as coordination and cooperation in response operations involving more than one party, including in areas beyond the jurisdiction of any state;
- movement and removal of resources across borders;
- procedures for conducting joint reviews of oil pollution incident response operations;
- procedures for conducting joint exercises and training; and
- reimbursement of costs of assistance.[14]

A number of key steps have since been taken to augment MOSPA. The first was EPPR initiating Phase I of the Circumpolar Oil Spill Response Viability Analysis (COSRVA) project in 2017.[15] The purpose of this project was to understand the potential for different oil spill response systems to operate in the Arctic marine environment. Phase II of the project, approved by EPPR at Helsinki in 2018, was to develop a web-based Geographic Information Systems (GIS) tool, that enables the users to access data online directly using computers, tablets or smartphones. Another key step was applying Article 13 of the MOSPA agreement by carrying out regular joint training exercises. These include stakeholders and members and have included table-top exercises. (Because countries cannot deliberately release oil into the ocean to test recovery procedures, Arctic states rely on table-top exercises to test their procedures.) The results of these exercises are then published in the EPPR's After Action Reports.[16]

It is probable that EPPR members will focus on several major initiatives over the coming years, including:

- examining an oil spill research and development initiative about identifying and understanding risks;
- exploring how best to incorporate local and indigenous traditional knowledge with Western science; and
- looking at new and emerging ultra-low sulfur fuels in the wake of the International Maritime Organization's (IMO) plan to ban heavy fuel oils in the Arctic.[17]

Canada and Marine Pollution in the Arctic

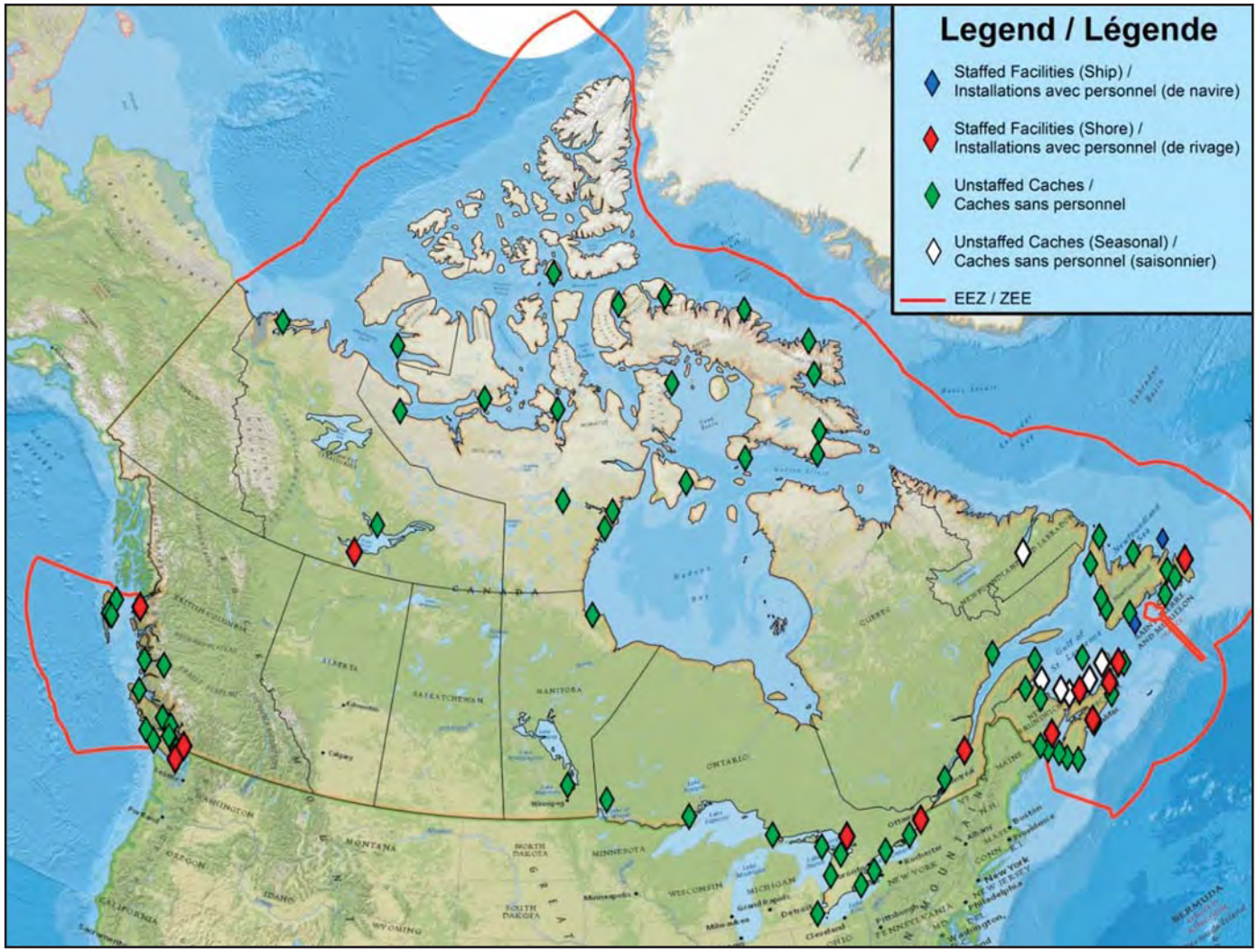
Canada participates in the Arctic Council working groups, and has adopted its own legislation as well as followed Arctic Council guidelines. In 2020 the Arctic Council's PAME Working Group released its first report looking at the growth in Arctic shipping. The report looked at changes in vessel traffic and ship types from 2013 to 2019. The report showed a 25% increase in ship visits from 2013 to 2019.[18] There were 73 cruise ship visits to Arctic waters in 2019 and ships were sailing 75% longer distances than previously.

The report notes that this increase in ship traffic coincides with the decline in sea ice across the Arctic. While the sea ice in September 1999 stretched across 6.1 million square kilometres, it had shrunk to 4.3 million square kilometres in the same month in 2019.[19] The increase in shipping in Canada's High Arctic with the receding of ice makes for the increased possibility of a significant marine accident and a resulting oil spill. For this reason, it is imperative that the Canadian Coast Guard (CCG) has adequate plans in place to mitigate and handle such a disaster in these waters in very difficult climatic conditions.

MOSPA and its guidelines are relatively new. The agreement to date has not been activated outside of the exercise environment. This means that implementing all elements is still a work in progress. Updates in 2020 included country profiles, contact information and several best practices identified as a result of recent exercises.

According to CCG officials, COSRVA seems to be working well, although it does have some limitations. It currently uses 10 years of historical time-specific data to inform spill response viability. Canada is in the early stages of developing a proposal to add a decision support tool to COSRVA that would help with shoreline clean-up and remediation measures. Based on available information, the CCG ensures there is enough adequate pre-positioned equipment in northern communities to deal with a major spill. The support of the territorial governments is useful for local information and advice.

Due to the extreme weather conditions and sparse population in the High Arctic, CCG in concert with the Department of National Defence (DND) and Transport Canada is preparing a project proposal related to enhanced aerial



Credit: Canadian Coast Guard

An undated map shows environmental response equipment for Canadian Coast Guard depot sites.

Credit: Canadian Coast Guard

Canadian Coast Guard and contracted vessels during a 2018 environmental response effort to remove bulk oil from the wreck of ***Manolis L****, which sank in 1985 in Notre Dame Bay, Newfoundland and Labrador.*

surveillance to detect spills to assist with the type of spill response from the various government agencies. Such platforms could include satellites, radar, drones, airships, ships, the National Aerial Surveillance Program (NASP), and underwater sound surveillance systems. These platforms could also assist with search and rescue activities in the region as well.

Conclusion

In order to protect and preserve the sensitive environment in the North, the Arctic Council adopted MOSPA and its guidelines. The eight Arctic states and indigenous organizations believe in enhancing regulatory cooperation to prevent marine oil pollution, which is crucial since traffic in the Arctic Ocean increases each year. One of the guiding principles in establishing the council was to provide "a means for promoting cooperation, coordination and interaction to address particular issues of sustainable development and environmental protection in the Arctic."[20] (It should be noted, however, that in reaction to the Russian invasion of Ukraine, on 3 March 2022 all of the Arctic states except Russia announced the intention to suspend temporarily their participation in meetings of the Arctic Council and its subsidiary bodies.)

A key aspect of MOSPA is the ability of an Arctic Council member to request assistance from other members in the event of a large-scale spill that exceeds domestic capacity. However, the main outstanding issue concerning MOSPA seems to be in relation to possible international assistance and how recovery costs are calculated.[21] Despite the pause in Arctic Council activity, it is anticipated that Canada will continue to ensure that the objectives of these Arctic Council agreements are achieved and improved upon in the coming years, to mitigate and reduce the risk of any potential major marine oil spills in the Arctic Ocean.

Notes

1. "Arctic Ocean," Wikipedia.
2. See Adam Lajeunesse, *Lock, Stock and Icebergs* (Vancouver: UBC Press, 2016), p. 167.
3. Government of Canada, *Canadian Laws Offshore Application Act*, 1990 (S.C. 1990, c. C-18.5).
4. Government of Canada, "Arctic Shipping Safety and Pollution Prevention Regulations," 2017 (SOR/2017-286).
5. Government of Canada, Transport Canada, "Coming into Force: New Arctic Shipping Safety and Pollution Prevention Regulations," 2018 (SSB No.: 05/2018).
6. The Arctic Council is, of course, not the only organization that focuses on marine matters. For example, in 2017, the Polar Code was negotiated under the auspices of the International Maritime Organization (IMO). The code covers the design, training, construction and environmental protection matters related to operating in polar waters.
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8. The Office of the Auditor-General, "The 2020 Fall Report of the Commissioner of the Environment and Sustainable Development, Chapter One: Oil Spills from Ships," Ottawa, 2010.
9. Arctic Council and Government of Canada, "Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (MOSPA)," 2013, Ratified by Canada, 13 February 2014.
10. Arctic Council, MOSPA, Article 1.
11. *Ibid*., Article 3.
12. See Arctic Council, Protection of the Arctic Marine Environment Working Group (PAME).
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14. Arctic Council, MOSPA, Article 21.
15. Arctic Council, EPPR Working Group, "Circumpolar Oil Spill Response Viability Analysis," Phase II 2018.
16. Email exchange of the author with the Arctic Council Secretariat, 1 March 2021.
17. See "IMO Inches Forward with Ban on Heavy Fuel Oil in Arctic," *High North News*, 26 February 2019.
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Inuit and the Northwest Passage: A Relationship Built on Balance

Natan Obed

Inuit Nunangat is a distinct geographic, political and cultural region that is co-managed by Inuit and the Crown through democratic governance structures established by comprehensive Inuit land claims agreements. It encompasses the land, water and ice of the Inuvialuit Settlement Region of the Northwest Territories, Nunavut, Nunavik (Northern Quebec) and Nunatsiavut (Northern Labrador).

The region includes Canada's entire Arctic coastline. With 50 of the 51 communities in Inuit Nunangat located on coastal lands (only one community in Inuit Nunangat, Baker Lake, is located inland), Inuit are a marine people whose survival, food, travel and knowledge all stem from a close and interrelated relationship with the environment. Waterways, such as the Northwest Passage, have served as 'highways' to hunting grounds and to extended networks of friends and relatives throughout Inuit Nunangat. Today, the role of these waterways is under threat by rapidly changing climate conditions, which results in the declining extent of sea ice and increased external access to internal waterways.

The Northwest Passage is a coveted route connecting the Atlantic and Pacific Oceans. Ships using the Northwest Passage can complete the journey between Asia and Europe in 30 days, versus 40 days using the Suez Canal. The difference of 10 days has enormous financial implications for ship operators based in the South. Historically, ice made this route impassable, however, an ice-free passage is quickly becoming a reality. The significance of an alternative route was never more keenly felt than in March 2021 when a single ship stuck in the Suez Canal disrupted global trade for nearly a week at a cost of $9.6 billion in lost revenue per day.[1]

With 90 per cent of worldwide goods shipped by sea, the impact a permanent shipping route through the Northwest Passage will have on Inuit communities is enormous. In only four years, between 2015 and 2019, vessel traffic in Inuit Nunangat increased by 37 per cent.[2] All ships traveling through the Northwest Passage enter Inuit Nunangat. As the people who live on the front lines of this drastic change, it is crucial that Inuit are equipped to deal with the inevitable outcomes.

Our 51 communities, the largest of which has a population of just over 7,000, are spread across an area that encompasses a third of Canada's total landmass. The Northwest Passage might be easier to traverse in the coming years,

Sea ice image provided by author.

but it is still located in one of the most isolated areas on the planet. Inuit are uniquely positioned to act as first responders in the event of an accident or disaster, but without significant investment, we are simply not equipped to respond effectively.

Although the International Maritime Organization (IMO) approved a ban on the use and shipping of heavy fuel oil in the Arctic after 1 July 2024, some environmental groups are critical and say it could take until 2029 for the ban to come into effect.[3] An oil spill in Inuit Nunangat would be an unprecedented disaster. Not only would it devastate our ecosystem and way of life, recovery would be next to impossible. Cleanup would be slow and transportation of equipment and personnel to the site would need to be done at the mercy of the weather, ice conditions, the season and myriad other factors. Communities are too often relied upon, in terms of resources and finances, to respond to spills. This is an unsustainable burden.

Investment in our communities is critical for disaster response, and also prepares us to take advantage of the economic opportunities increased shipping would bring to Inuit Nunangat. Cruise ships bring visitors to communities that would not normally see tourists, which was the case in 2016 when the ship *Crystal Serenity* made its voyage through the Northwest Passage. That season, the ship's community visits brought $110,000 in tourism

revenue to Cambridge Bay and $35,000 to Pond Inlet in pre-pandemic times.[4] In order to benefit from these opportunities, our communities need the infrastructure to support them. An influx of thousands of visitors can easily overwhelm a small community.

The Current Landscape

As Inuit Tapiriit Kanatami (ITK) noted in a 2018 video "Nilliajut 2, Inuit Perspectives on the Northwest Passage and Shipping and Marine Issues,"[5] our comprehensive land claims agreements ensure our place as co-managers of Inuit Nunangat waterways alongside government. In November 2021, our decision-making rights were further recognized when the IMO announced that the Inuit Circumpolar Council (ICC) would become the first Indigenous organization to receive International Maritime Organization Provisional Consultative Status.

In 2018, the federal Department of Fisheries and Oceans (DFO) and the Canadian Coast Guard (CCG) introduced standalone Arctic regions for the first time to provide Arctic-specific programming. DFO headquarters for the Arctic have always previously been located in the South, now, there is an office in Rankin Inlet, Nunavut. The boundaries for these regions were announced in March 2021 and include the four regions of Inuit Nunangat. In July 2021, ITK created a National Inuit Marine Committee, which will represent Inuit on the newly formed DFO and CCG Arctic Region Table. The full implementation of the DFO-CCG Arctic Region is a top priority for Inuit and recently featured at the December 2021 meeting of the Inuit Crown Partnership Committee (ICPC).

Full implementation of the DFO-CCG Arctic Region would include staffing the federal department to reflect the population and geography of Inuit Nunangat. Additionally, all operations, from research to programs, would be run by the Arctic Region department rather than being allocated among other provincial or territorial offices. Using the DFO-CCG Arctic Region Table, policies and procedures would be developed in collaboration with Inuit Land Claims Organizations.

Priorities for Responsible Marine Traffic Conditions in Inuit Nunangat

Inuit continue to develop strategies and recommendations that strengthen our self-determination and recognize our right to support for our waterways. The first priority is to increase capacity within Inuit communities and organizations by providing adequate information to aid in decision-making, improving access to the internet across Inuit Nunangat, supporting and empowering Inuit involvement in knowledge creation and increasing long-term investment to support organizational capacity.

The second priority is to develop effective partnerships between Inuit Nunangat and the federal government by ensuring Inuit regions affected by policy decisions are involved in the decision-making process. Engagement with Inuit organizations should be improved to maximize efficiency and minimize consultation fatigue, and communities should be better informed about research vessel activity. All information and communication should be provided in both Inuktut and English. The third priority is to enhance emergency response capacity through increased resources for search and rescue and oil spill response, supporting marine infrastructure development and providing emergency response training to community members.


Credit: provided by author

Photo of the author.

The fourth priority is to increase domain awareness and environmental protection. That includes making it mandatory for all vessels to have Automatic Identification Systems (AIS), developing mandatory greywater (i.e., ship waste water from sinks and showers for example) disposal regulations that address Inuit concerns, and requiring cruise ships to request permission before landing in any area. This priority also includes requiring vessels to have marine mammal observers onboard to monitor vessel operations and wildlife interactions, requiring vessels to have professional pilots onboard to manoeuvre ships in dangerous areas and conducting sufficient charting to ensure safe navigation through Inuit Nunangat waters.

It is our inherent right and responsibility to ensure we are living in balance with the natural world. Now that responsibility extends to all those who wish to engage us in the development of our homelands. Strong relationships have never been more crucial as the world continues to look to the Arctic for opportunity. Together, we can achieve responsible development that encourages the respectful sharing of cultures and supports thriving communities with a solid footing in both tradition and modernity.

Notes

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3. Bob Weber, "Ban on Heavy Fuel Oil Full of Holes, Environmental Groups Say," CBC News, 22 February 2020.
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Natan Obed is President of the Inuit Tapiriit Kanatami (ITK).

Serving in the Arctic with the Canadian Coast Guard

Captain Simon Dockerill

The year 1988 stands out for me as a heavy ice year in the western Arctic. As a young seaman, that year I sailed north through the Bering and Chukchi Seas on the Canadian Survey Ship *John P. Tully*. I was participating in my second year of running hydrographic survey launches in the Beaufort Sea as activity in the region increased due to the economic boom of that era. On reaching Wainwright, Alaska, in late July, our escort, the Canadian Coast Guard Ship (CCGS) *Martha L. Black*, stopped with some mechanical issues and was waiting for conditions to improve, which delayed our transit around Point Barrow. We dutifully waited by the ship with the ice pack moving around us. It eventually closed both ships in, besetting them. Over the next two days, the ships were carried some 112 nautical miles north.[1] The pressure of the ice increased to the point where *Tully*'s stern was lifted by the ice causing an alarming list. Below decks we thought this was a great adventure, but our Captain, a mentor of mine, paced and smoked with concern. We eventually broke free and resumed our transit east to start our survey work.

In early September 1988 we cut operations short to take advantage of a low pressure system to the west and an offshore wind which cleared the ice enough to give us relatively open unescorted passage along the north slope of Alaska. We were one of the last ships out from the west that year. Just over two weeks later CCGS *Martha L. Black*, CCGS *Pierre Radisson* and USCGC *Polar Star* all struggled westward in convoy through the multi-year pack ice.[2] The conditions eventually forced all three ships to turn back, and *Martha L. Black* needed to take the Panama Canal back to its homeport in Victoria, BC. In early October, the world's attention turned to this part of the Arctic as the international effort of *Operation Breakthrough* worked to free three trapped whales near Point Barrow, Alaska. For me that episode drove home our Captain's difficult, but correct, decision to leave early.

Thirty years later almost to the day, I was Commanding Officer of *Martha L. Black*'s sister ship, CCGS *Sir Wilfrid Laurier*, and I was facing a similar dilemma when I found myself confronted with a pressure field of multi-year ice that was trailing south from Banks Island to Cape Bathurst in the Amundsen Gulf. We were tasked with assessing conditions in the area to escort the local tug and barge traffic for community resupply. In late September 2018 we found the waters off Cape Bathurst clogged with this older ice and unacceptable for safe escort for the vessels in question. These decisions are never taken lightly;

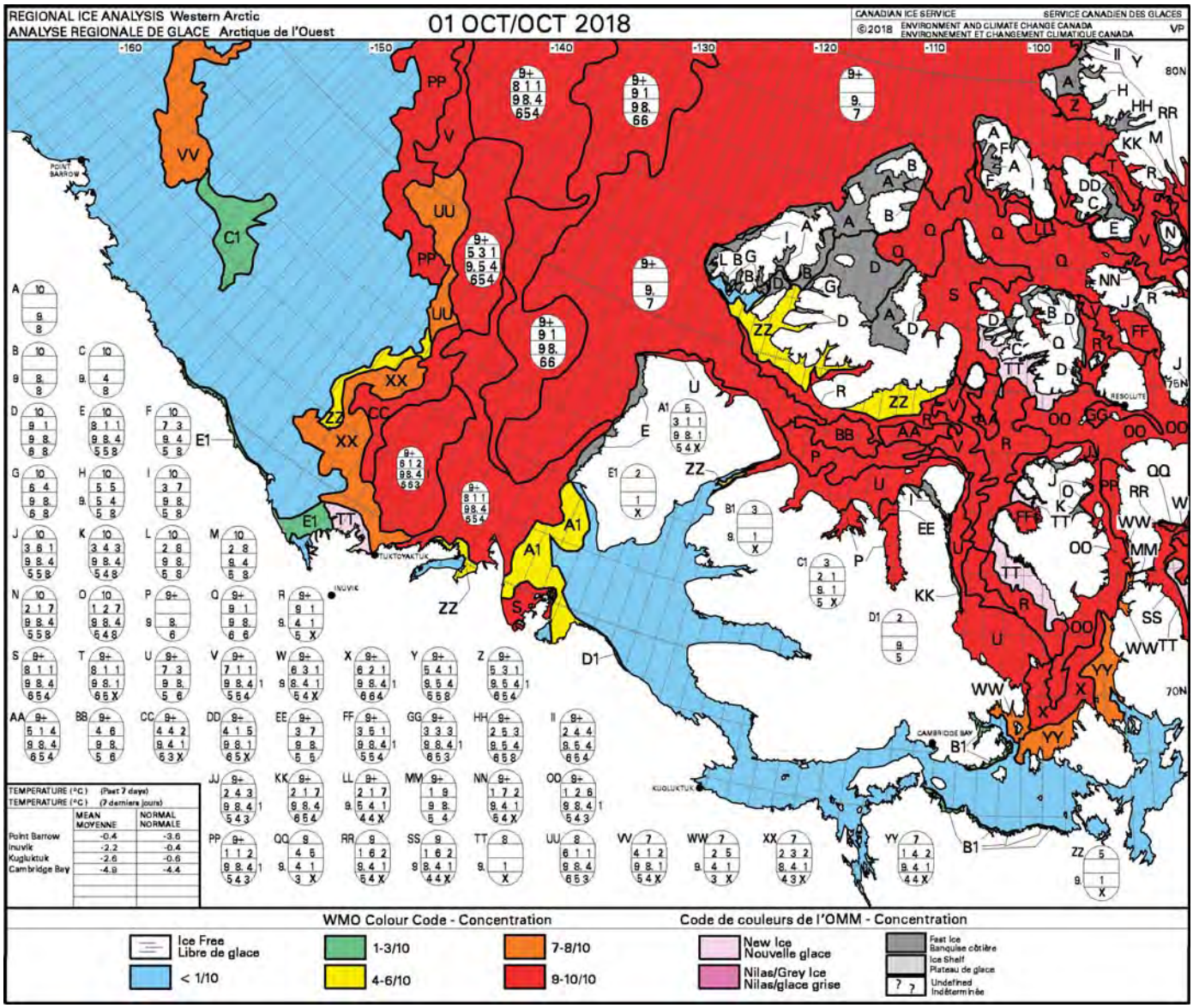
Credit: Donavan Tremblay via author

*CCGS **Sir Wilfrid Laurier** makes its way through ice in the western Canadian Arctic, 8 October 2018.*

the implications for the communities are significant, as discontinuing the escorts means some of the goods the communities count on for the year ahead cannot be delivered.

Sir Wilfrid Laurier is a very capable ship, having proven its usefulness in the shallow waters of the western Arctic, and being used to navigating through the mixed ice for which this area is known. But like *Martha L. Black* and *Pierre Radisson* back in 1988, *Sir Wilfrid Laurier* would need assistance through these particular conditions. The heavy icebreaker CCGS *Louis S. St-Laurent*, having completed its work in the Canada basin, turned east to help out. Challenging itself to transit through the heavy ice blocking our path westward, the ship experienced pressure and ridging enough to dissuade it from re-entering the ice immediately with us in escort. It was a prudent decision at the time.

As Captain, when working in ice and assuming a capable, prepared ship and crew, the three most important basic lessons I have learned are: avoid the worst ice when possible; work with the conditions and not against them; and have patience. In this instance, it was a week of waiting as new ice formed in our area, so that *Louis S. St-Laurent* could return and assist us through still difficult but workable circumstances. Fortunately, this avoided an eastern exit like in 1988 (and again in 1996).



Credit: Environment and Climate Change Canada via author

An ice chart of Canada's western Arctic on 1 October 2018.

The 2018 ice year in the western Canadian Arctic demonstrated a departure from the 30-year average for the area and highlighted the impact of localized year-to-year variability that can result in navigational challenges for shipping. Variability has always existed in the Arctic. Yearly changes are averaged as we look at the mean over time. These averages inform our forecasting for expected conditions on a particular voyage, and from this we monitor the departure from normal conditions on an annual basis. However, 'normal' is becoming more tenuous as evidenced by the shift of the North America Ice Services from using the 1981-2010 averages to the 1991-2020 averages to account for the recent, rapid change.

The Arctic is warming up three to four times faster than the rest of the world.[3] Total worldwide sea ice concentrations are on average trending downward distressingly, but this is only part of the story. Regionally and locally, we are seeing anomalies and shifts in conditions including localized increases in ice concentrations. In *Sir Wilfrid Laurier*'s area of operations in the western Arctic, we see meteorological changes and anomalies that affect prevailing winds as well as a seasonal increase in the frequency of low pressure systems. This, by extension, has an impact on currents and general ice movement. From personal observation, a reduction of first-year ice, coupled with local meteorological conditions has allowed incursions of the older, harder, multi-year ice further south into what are normally more navigable areas of the passage.

The popular notion that climate change means a seasonally ice-free Arctic is misinformed. The need to ensure ships suitable for Arctic voyages has never been clearer. We see similar situations in other Arctic states as winter transits through the Northeast Passage in 2022 – even though it was touted as navigable – have resulted in ships requiring unscheduled icebreaker assistance. The uncertainty and unpredictability of the current era, and the difficulty of forecasting local ice conditions, also emphasize the need for more on-the-ground sensors, data points and observations of all types. It also highlights the importance of Indigenous traditional knowledge and the input that can

*CCGS **Louis S. St-Laurent** sails in pack ice on 1 October 2018.*

be provided by the regional inhabitants, as well as of the scientific research that is carried out with the Canadian Coast Guard's support on these Arctic missions.

Sir Wilfrid Laurier is the one Canadian icebreaker to be deployed from the West Coast, accessing the Canadian Arctic through international and American waters. The ship's primary area of operations is in the western Canadian Arctic where its role is to aid the annual community resupply when required, assist shipping to benefit the Canadian economy, provide key services, including what can be very complex search-and-rescue operations, support for scientific research, marine communications and traffic services, aids to navigation and general navigational safety, and marine environmental response.

On the West Coast, we have adapted *Sir Wilfrid Laurier* to the challenges of this deployment and we support numerous other programs to make the best use of the ship's transits and time in the North. These include supporting long-term scientific monitoring programs, embedding the Canadian Hydrographic Service onboard to improve charting, and overseeing an extensive aids-to-navigation maintenance program while interacting where possible with Arctic communities and sustaining other government priorities, including the well-publicized Franklin Expedition discoveries. Interacting with our American neighbours in Alaska, who are now committed to an Arctic port at Nome and are investing in polar security cutters, brings further emphasis to Canada's regional position and common interests with the United States.

Whether supporting from the West or East Coast, the Canadian Coast Guard has been a fixture in the Arctic throughout the organization's history and it has played a key role in supporting Canadian sovereignty and security. Indeed, the symbol of Canada is proudly displayed on our ships' hulls by virtue of the distinctive red and white colour scheme. Readers may think of national security as primarily led by the presence of Canadian military ships in the North but the definitions of sovereignty and security have become more intertwined recently. The implication is that environmental, economic, social and cultural issues[4] form the basis of both terms. Given this shared role, the addition of Arctic and Offshore Patrol Ships (AOPS) to the Royal Canadian Navy augurs well for the continued coordination in the Arctic of the CCG and Canadian Armed Forces.

*Tug and barge traffic trail behind CCGS **Sir Wilfrid Laurier** during a community resupply effort in 2018 in the western Canadian Arctic.*

The Canadian Coast Guard is celebrating its 60th anniversary in 2022, and we continue to focus on the Arctic. As we look ahead to the challenges of the future, we recognize the importance that the Arctic Ocean and the residents along its shores represent to the country and the world. For my fellow Captains and I, understanding the risks to safe navigation in this region, being alert to seasonal variabilities, and maintaining a strong presence in the North will ensure readiness within this beautiful and vast domain.

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Captain Simon Dockerill is one of two Commanding Officers assigned to CCGS Sir Wilfrid Laurier operating on the coast of British Columbia and in the western Arctic. Captain Dockerill has been a professional mariner for 40 years, and he resides on Salt Spring Island, BC.

Making Waves

[Note: The commentaries included in Making Waves represent the opinion of the authors.]

Are the Arctic and Offshore Patrol Ships Valuable Fleet Assets?

Roger Cyr

The role of the Royal Canadian Navy (RCN) is to operate combat-capable, multi-purpose maritime forces that support Canada's participation in security operations anywhere in the world. To fulfill its mission, the navy should be equipped with warfighting elements for emergencies and conflicts. Given climate warming, the melting ice cover and the opening of the Arctic Ocean, Canada needs a naval fleet that is capable of protecting that environmentally sensitive region of the country.

Even though a traditional sea battle between states seems unlikely, this remains the *raison d'être* of a navy. The fleet should also serve as an effective diplomatic lever and act as a deterrent. Canada's defence policy calls for flexibility to respond to changing situations, agile forces capable of protecting Canada's sovereignty and making tangible contributions around the world. There is also the issue of affordability of ships and ensuring they can be adequately crewed and maintained for decades.

Ultimately, the mix of ships needs to be established through a trade-off between the types and numbers of ships that best provide the required combat capabilities and the investment that the country is willing to make in its navy. Canada's naval fleet must have general-purpose capability coupled with warfighting competencies and be able to achieve maritime power projection. It must also be ready to enforce Canada's presence in the Arctic and protect sea lanes of communication in that region.

At the core of today's RCN fleet are 12 upgraded Canadian Patrol Frigates (CPF), which were state of the art when built 25-30 years ago. There are 12 Maritime Coastal Defence Vessels (MCDVs) that do not carry naval sensors or weapons and were built in the 1990s. There are four conventional submarines, acquired, used, some 20 years ago from Britain. There is one leased support ship, MV *Asterix*, a commercial container ship that was converted to an unarmed naval support ship, crewed by a mix of sailors and civilians. And the final element is the first new Arctic and Offshore Patrol Ship (AOPS), HMCS

Credit: S2 Taylor Congdon, Canadian Armed Forces

Civilian contractors take ice samples of sea ice while HMCS ***Margaret Brooke*** *was in the Labrador Sea during ice trials on 27 February 2022. Results indicate* ***Margaret Brooke*** *encountered ice up to two metres thick during its trials.*

Credit: Canadian Armed Forces photo

*HMCS **Harry DeWolf** conducts a weapons firing exercise, likely with its 25mm gun, during **Operation Caribbe** in the eastern Pacific Ocean on 23 November 2021 against a Hammerhead target drone.*

Harry DeWolf now commissioned into the fleet. The second ship HMCS *Margaret Brooke* was delivered to the navy in July 2021 and work continues on the remaining four.

It is planned that the future surface fleet will consist of the following assets: 15 Type 26 frigates (the Canadian Surface Combatant (CSC)); two Joint Support Ships (JSS) (*Protecteur*-class); and six AOPS (*Harry DeWolf*-class). This fleet is expected to meet domestic and international obligations. The cost of the CSC project is estimated at over $60 billion for 15 frigates, or approximately $4 billion per ship.[1]

However, what is needed is a fleet that is composed of a reduced number of primary warfighters, buoyed by secondary units that are also capable of combat. The Type 26 frigate will become the RCN's capital ship and will need to be backed up by other units that are also combat capable. Can the AOPS be a secondary unit capable of naval combat given that it is not fitted with combat systems? Will these ships enhance fleet capabilities and contribute during hostile scenarios?

The AOPS are designed to enhance the navy's ability to assert Canadian sovereignty in Arctic and coastal waters and support international operations. According to the RCN, the roles of the ships are:

1. Conduct armed presence and surveillance operations, including in the Arctic.
2. Support armed forces in sovereignty operations.
3. Support the core missions of the armed forces, including capacity building in support of other states.
4. Participate in international operations such as anti-smuggling, anti-piracy and international security and stability.
5. Contribute to humanitarian assistance, emergency response and disaster relief domestically and internationally.
6. Conduct search and rescue and provide communications relay to other units, as required.
7. Support other government departments to enforce their mandates by providing situational awareness of events; and
8. Conduct a diverse range of missions worldwide.[2]

As it stands, the AOPS are simply not capable of conducting the first three missions. The ships are fitted with a MK 38 25mm gun, which can support domestic constabulary roles but not naval combat missions. The MK 38 is a machine gun system designed to counter small fast-attack crafts. It is intended as a secondary weapon to provide self-defence capability to a ship that is also fitted with primary naval sensors and weapons. The AOPS are not fitted with naval sensor and weapon systems, and are certainly not capable of maritime force projection, nor of engaging in naval combat – and, indeed, are described by the navy as non-warfighters. These ships would have to be under the constant protection of the primary combatants in a hostile environment. As for missions four through seven, these would not require a combat element, and hence they could be carried out by coast guard assets. In terms of mission eight, over the last 15 years, the most regular mission for the RCN has been *Operation Caribbe* as part of an American-led counter-narcotics mission in the eastern Pacific Ocean and Caribbean Sea, along with cutters from the US Coast Guard. The AOPS would be ideally suited for this mission.

The AOPS have a stern that can accommodate multiple payload options such as shipping containers, underwater survey equipment, or landing craft. The ships are also equipped with a 20-tonne crane, providing self-load and unload capability. As well, they have a bay for specialized vehicles such as pickup trucks, all-terrain vehicles and snowmobiles to provide mobility capability over land or ice. These features would not normally be found on combatants. It is unusual for warships to have dedicated onboard space for transporting pickup trucks and snowmobiles. Most operational space on a combatant is allocated to sensors and weapons to maximize fighting capability.

The AOPS design is based on NoCGV *Svalbard*, an icebreaker and offshore patrol vessel operated by the Norwegian

Coast Guard. The vessel can conduct maritime patrol and search-and-rescue operations and provides support for research in the Arctic Ocean. This is similar to the missions of the Canadian version. However, the Norwegian version is fitted with a Bofors 57mm dual-purpose naval gun with a range of 9,300 yards, which is four times greater than the Canadian machine gun. The ship can also carry one *Simbad* surface-to-air missile system.

The Norwegians spent less than $100 million to design and build the first ship in 2002. The Danish built two ships for $105 million each in 2007, and the Irish did the same for $125 million. For Canada, the budget for the project is $4.3 billion for six ships, or almost $700 million per ship.[3] This difference in cost is attributed to a Canadian redesign – i.e., to take a war-capable ship design and convert it to a non-combatant with no naval combat systems by removing the naval gun and replacing it with a secondary machine gun.

As the Arctic ice continues to recede, new maritime trade routes and economic opportunities are appearing, and many international actors may seek to capitalize on this, hence the possibility of conflict over competing interests. Will the AOPS be a match for what other states send to the Arctic? Will these ships enhance Canada's maritime force projection and be able to make contributions in conflict scenarios, and especially in Canadian Arctic waters? Both Russia and China are now preparing to exploit the region by developing and building armed icebreakers and other Arctic-capable warships. Other countries, including the United States, are also taking steps to ensure their access to the region. The US Navy has traditionally conducted most of its Arctic operations using submarines or patrol aircraft but, given the changing ice conditions, the United States is expanding its military surface presence in the region.

The AOPS are classified as Polar Class 5 which is defined as year-round operation in medium first-year ice.[4] They are no match against the warship icebreakers and ice-capable warships of other states. The Canadian government has announced that two heavy icebreakers will be built, but they will be for the coast guard, not the navy. The navy needs to acquire these two heavy icebreakers if it is to conduct Arctic surveillance and enforce Canada's sovereignty. The two new *Diefenbaker*-class heavy icebreakers will be classified as Polar Class 2, year-round operation in moderate multi-year ice conditions, and have a displacement of 23,000 tons. The ships should be built as naval ships and fitted with naval combat systems. They would be the navy's capital ships for the Arctic, putting the RCN in a better position to ensure a credible presence in Arctic waters.

A computer-generated graphic shows the Finnish ***Pohjanmaa****-class corvette, currently in the process of being procured for the Finnish navy.*

As a trade-off, the six AOPS should be transferred to the coast guard. The mission of the Canadian Coast Guard (CCG) is to ensure waterways are safe and accessible. Its role is to ensure the sustainable use and development of Canada's oceans and waterways by protecting the marine environment, and by establishing a presence in Canadian territorial waters. The capabilities of the AOPS are aligned with these responsibilities. The transfer of the six AOPS would give the CCG the resources to carry out its mission, particularly if supplemented by the RCN's MCDVs which are assigned missions of counter-narcotics, coastal surveillance, sovereignty patrol, route survey and training. Given their age, however, the MCDVs should soon be paid off.

Canada should buy fewer Type 26 frigates – only six should be procured. With fewer of these frigates, the AOPS transferred to the coast guard and the MCDVs paid off, the fleet gap should be filled with 10 smaller and cheaper corvettes, which would be more affordable, capable combatants. There are many corvettes in the market today from which to select, for example the Finnish *Pohjanmaa*-class multi-role corvettes now being built. The project cost is 1.3 billion euro for four ships, or 325,000 euro per ship. So, one corvette would cost about $500 million (Cdn).[5] The *Pohjanmaa*-class corvettes will feature an ice-strengthened hull suitable for navigation in ice and shallow waters. The corvette displacement will be 3,900 tons, and they will be fitted with a flight deck and a hangar to accommodate a single helicopter or multiple unmanned aerial vehicles. A Bofors 57mm naval gun will be the main weapon and the corvettes will feature two Trackfire remote weapon stations with small, medium and heavy machine guns, automatic grenade launchers and lightweight medium-calibre cannons. The ITO20

surface-to-air missile system on the corvette will integrate Mk 41 vertical launchers for firing 32 Evolved Sea Sparrow missiles.[6] Each ship will also be armed with eight Gabriel 5 surface-to-surface or anti-ship missiles. Saab lightweight torpedoes and naval mines will be installed onboard the ships.

Given Canada's high shipbuilding and project management costs, it would be more expensive to have these corvettes built in Canada, likely about $1 billion per ship. So, the cost for 10 fully equipped, combat-capable corvettes would be $10 billion. The total cost would be significantly less than buying 15 Type 26 frigates and still produce a viable and combat-capable fleet. The corvettes would be suited to carry out the missions now being performed by the MCDVs and the AOPS but with a naval sensor and weapon suite and, being ice-capable, they could carry out their missions in all of Canada's territorial waters.

These elements – two icebreakers, two support ships, six frigates and 10 corvettes – would provide the RCN with the surface ships it requires to conduct effective maritime force projection and ensure the protection of Canada's sovereignty in territorial waters including the Arctic. The RCN needs to be composed of warfighting assets that can operate year-round in all of Canada's territorial waters and support Canada's international obligations. The Arctic and Offshore Patrol Ships do not meet these criteria and should not be part of a naval fleet.

Notes

1. Office of the Parliamentary Budget Officer, "The Cost of Canada's Surface Combatants: 2021 Update and Options Analysis," 24 February 2021.
2. Government of Canada, Royal Canadian Navy, "Arctic and Offshore Patrol Ships," 2021.
3. See Government of Canada, Public Services and Procurement Canada, "Arctic and Offshore Patrol Ships."
4. Icebreakers are rated according to the World Meteorological Organization, Sea Ice Nomenclature, on a scale of Polar Class (PC) 1 to 7.
5. At the time of writing 1 Euro = 1.44 Cdn.
6. For more information on the capabilities, see "Pohjanmaa-Class Multi-Role Corvettes," *Naval Technology*, 17 October 2019.

*A Landing Platform Arctic Ship: Turning the LSI(A) back to the LPA**

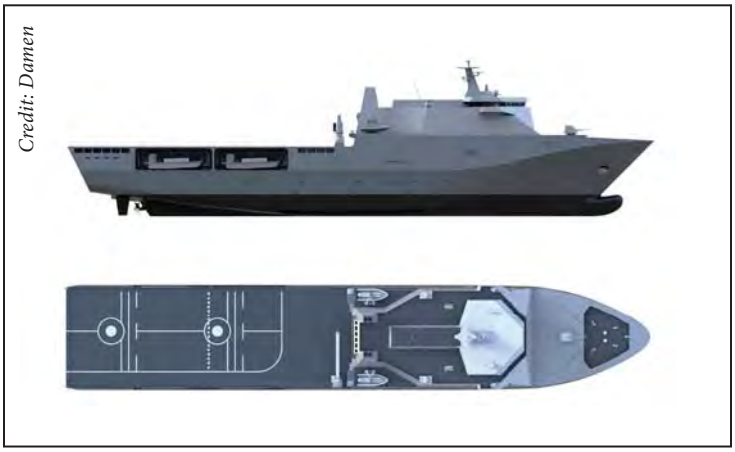
José Cañadas Mendez

This commentary is in support of Major (ret'd) Les Mader's articles suggesting how to provide the Canadian Armed Forces (CAF) with a sea-based capability to protect Canadian sovereignty in the Arctic.[1] In the first article, among other things, he proposes a 16,000-20,000 ton Landing Platform Arctic (LPA) designed for polar operations. In the second one, written after the emergence of Covid-19 and its costs, he suggests a smaller version, named Landing Ship Infantry (Arctic) (LSI(A)), based upon the Danish *Absalon*-class multi-role frigate.

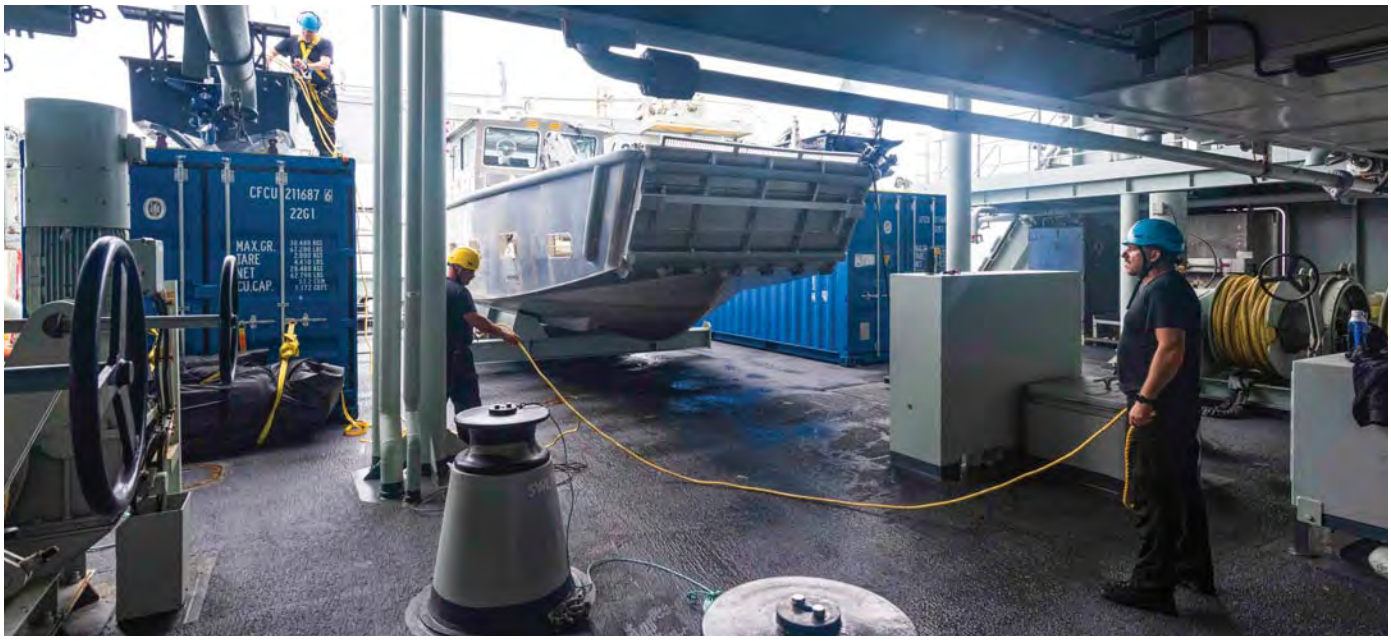
I agree both of the need for Arctic amphibious capability and the benefits of the *Absalon* design. That said, when trying to model it out, a few drawbacks arise. In the first place, accommodating a third or a fourth Cyclone helicopter into that ship is a tough task. It would require stretching the hangar nearly 20 metres (m) and adding a second landing spot to get better use of them. Second, *Absalon* can transport up to 200 marines by using containers in the flex-deck. This may represent an insufficient landing force and also reduces the available space for equipment – as well, it is rarely compatible with delivering them physically strong and fresh after two or three weeks at sea. Finally, in order to also house two small hovercrafts (LCAC(L)) as desired, or to provide other means to unload the equipment to places without port facilities, we need to retrieve the well-deck from the original LPA concept.

My proposal here is a return to the LPA proposal by adjusting it according to the needs expressed in Mader's articles. Hence, for the sake of deploying a marine infantry company of 300-350 in the Arctic, the vessel would be expected to carry up to 250-300 of them, and be escorted by one or two Arctic and Offshore Patrol Ships (AOPS) which would transport the rest of the troops. One AOPS sailing in front might also provide some anti-submarine capability and serve as reconnaissance and surveillance platform. Nonetheless, the proposed LPA is assumed to be Polar Class 5 as are the AOPS.

These vessels might count on the surface combatants (Canadian Surface Combatant (CSC) or *Halifax*-class frigates) for air-defence coverage when deployed to open seas in contested scenarios. However, since this air defence cannot be effectively provided by the AOPS, improved radars, sensors and countermeasures would be required for



Side and top views of the Damen Enforcer 11000.



Credit: Canadian Armed Forces image

*Crew on HMCS **Harry DeWolf** prepare to launch a Hammerhead target drone from the ship's stern. In the middle of the image is the ship's landing craft, which provides the RCN with limited amphibious capability.*

an effective anti-aircraft and anti-missile point-defence capability. This would mean a significant cost increase yet it is necessary to protect the landing force while in transit through the Arctic.

Appraising the LPA's dimensions based only on preliminary drawings of similar but not ice-capable LPDs is a difficult task. Nonetheless I have come up with some tentative estimates based on the DAMEN Enforcer 11000[2] (150m long, 27m beam), and a hypothetic VARD-7 313 (130m long, 24m beam) platform variant,[3] but with an extra 20m in length for deeper hangars and a greater flight deck. The result would be a 150m long ship, 24-26m breadth and 12,000-16,000 tonnes displacement.

These basic designs are intended only for us to have an idea about the LPA aspect over the waterline. The hulls and ship systems should be completely redesigned to comply with the Polar Class requirements. These include, just to mention a few, longitudinal strength, ballast tanks, waste management or storage, vent pipes, heating systems, SOLAS -compliant enclosed lifeboats and specific measures to avoid oil spillage.[4] The tonnage of the LPA would be similar to that of the Dutch LPD *Rotterdam* (L800), even though it would be slightly shorter (10%).

The Trade-offs

The DAMEN Enforcer 11000 design fits most of the main features required for the LPA. The main changes would

Table 1. Reference models and proposed LPA main features

	Dimensions (m)		Accommodation		Endurance (days)		Aviation	Space (m²)	
	Length overall	Beam	Crew	Embarked Troops	Crew only	Full complement	Flight deck (m²)	Ro-ro deck	Well-deck
Enforcer 11000	150	27	150	520	30+ days	15+ days	1815	1630	400 (1)
Vard-7 313	130	24	74+32	300	n/a	30 days	1080	1400	no
Proposed LPA	150	24-26	120-150 (2) max.250	250 max.300	120 days (250 personnel)	60 days (500 personnel)	1400-1600	900-1200	300

Notes: *(1) Estimated value. (2) The proposed LPA would require a basic crew of 120-150, additional accommodation (100 berths) for air detachment (helicopters and unmanned aerial vehicles), command and control and/or additional support personnel such as medical or landing craft crew, according to mission.*

Table 2. Key features of the LPA proposal, summary

Concept	LPA	Concept	LPA
Tonnes	12,000-16,000	Ice class	Polar Class 5
Proposed endurance	Up to 120 days (250 p.), 60 days full complement (500 p.)	Speed (open water)	17-20 knots
Crew	120-150 basic crew plus up to 100 for aviation flight, command and control or additional support	Embarked landing team	250 (max. 300)
Flex-deck cargo	900-1,200m² Including Bv-206-like vehicles Side and stern ramps	Approximately 10 x 30m Well-deck (1) for:	2 x LCAC(L) (6x13m each), 1 x 27m-long ready mexeflote, 1 x LCM (up to 28 x 7m) or 2 x 1604 LCVPs
4 davits below flight-deck (2)	2 1604 LCVPs (8 tonnes cargo) or 2 CB-90 combat boats, plus 2 12m crafts	RHIBs (amidships, in alcoves)	2 x multi-role boats (9m).
SOLAS compliant enclosed lifeboats	4 to 6, for 500+ personnel.	Deck crane	One or two, 20 to 30 tonnes
Hangar	Up to 4 Cyclones, + 2-3 UAVs Space for up to 2-3 Cormorant or 2 Chinook	Landing spots	2 at least one spot capable for a Chinook or Osprey
Anti-air and anti-surface defence (3)	1 main gun (57-76mm), 2 x 25/30mm RCWS. Point defence (CIAD): 24-36 CAMM or RAM launcher	ASW	AOPS-based containerized sonar (TRAPS) and CH-148 Cyclone helicopter

Notes: *(1) The well-deck has been limited to a minimum to keep low both the maintenance costs and the flooded area occasionally exposed to ice. 1604 LCVP refers to a DAMEN landing craft vehicle personnel, 16m long and 4m wide, 8 tonnes load capacity, but could refer to any similar or equivalent LCVP.*
(2) The 12m crafts may include: unmanned surface vessels, the new AOPS landing craft (4 tonnes cargo) or some kind of SAR/landing crafts.
(3) Deceivers, soft-kill and countermeasures defence systems not mentioned.

be to increase and adapt the hangar to host four Cyclone helicopters, most likely by shortening the flight deck and relocating the funnels. Furthermore, endurance should be increased at the cost of reducing the embarked landing force. Moreover, much work would have to be done to convert it into Polar Class 5.

To use the VARD-7 313 model as a starting point, the main changes would include:

- Lengthen the flight deck, the hangar and the overall ship length. This would allow increased accommodation for nearly additional 100 staff, mainly air-detachment, command or support.
- Relocate the landing craft to new davits below the flight deck to make more room in the hangar to fit in up to four Cyclones.
- Add improved sensors, guns and weapon systems. This would also increase manning requirements, up to approximately 120-150.
- Replace the stern ramp by a small well-deck (roughly about 10 x 30m) which would enable deployment and recovery of a ready-to-use powered mexeflote raft or different sea craft depending on mission requirements.
- Since the well-deck and davits would take space from the ro-ro deck, the available ro-ro area would then be within a range of 900-1200m² (9,687-12,917 sq.ft.).
- Alternatively small LCAC(L) hovercrafts might be located on the upper deck, above the hangar, and be deployed on the water by means of a deck crane.

Additional Considerations

As indicated, robust anti-air and anti-ship self-defence capabilities are required for Arctic deployments, for which the AOPs are not fitted. Therefore the LPA should include a close-in air defence system (CIAD). It could consist either of 24-36 CAMM missiles or alternatively one or two RAM launchers. One 57mm or 76mm main gun could be used as a back-up CIAD.

The hangar (and heli-deck) might be able to host two Chinooks or maybe three CH-149 Cormorants, for use in search and rescue or humanitarian/disaster operations. A combined flight configuration of Cyclones and CH-146 Griffons might also be considered. The Griffons are valuable assets for a variety of utility roles, including

Credit: Vard Marine

A computer-generated graphic shows the VARD-7-313 design.

reconnaissance, search and rescue, and they would release the Cyclones for other roles such as anti-submarine warfare and tactical transport. On top of that, one Osprey-capable landing spot would enhance interoperability with allies and allow replenishment or evacuation at longer ranges.

Conclusion

Based on the requirements set out in Mader's articles, to which I basically adhere, and building on several existing LPD designs, the purpose of the notional LPA described here is to adjust the operational requirements to those designs, which have had to have their transport capacity reduced, according to two constraints: polar class and endurance. The main criteria used for this exercise have been to maintain a spacious hangar to fit four Cyclone helicopters and limit the number of staff to be transported in order to attain longer endurance. Consequently the LPA may be similar in dimensions to the Dutch LPD *Rotterdam*, but could transport and deploy about half the landing troops because of doubling its endurance.

This LPA is conceived to project a small force of about 250-300 soldiers and provide significant services for humanitarian assistance/disaster relief operations, not only in the Arctic Ocean but in warm seas as well. Thanks to the well-deck, the variety of sea craft and the amplitude of the hangar, the LPA could also be used as a mother ship for aerial, surface and sub-surface vehicles to patrol and watch over a vast area of the ocean.

Notes

* The author's wish is to contribute to the debate about this amphibious and Arctic capability.

1. Major (Ret'd) Les Mader, "A Suggestion for an Intermediate Level Arctic Amphibious Capability, *Canadian Naval Review*, Vol. 16, No. 1 (2020); and Major (Ret'd) Les Mader, "The LSI(A): An Arctic Sovereignty Protection Option?" *Canadian Naval Review*, Vol. 17, No. 1 (2021).
2. Damen Schelde Naval Shipbuilding, Enforcer 11000 product sheet is available at https://products.damen.com/-/media/products/images/clusters-groups/naval/enforcer/enforcer-lpd-11000/documents/product_sheet_enforcer_11000_02_2015.pdf.
3. Brochure of VARD Marine 7 313 Multi-Purpose Logistics Vehicle is available at https://vardmarine.com/wp-content/uploads/2019/03/VARD-7-313.pdf. The VARD 7-312 sister design proves quite interesting, however it displays poor flight facilities.
4. For reference, readers may check that dimensions and displacement are consistent to those of other Polar Class 5 ships, see HMCS *Harry DeWolf* and S.A. *Agulhas II*, or Polar Class 3 RSV *Ruyina*.

Hovercraft for the Royal Canadian Navy

Major (Ret'd) Les Mader[1]

The inaugural northern deployment of HMCS *Harry DeWolf*, the Royal Canadian Navy's (RCN) first Arctic and Offshore Patrol Ship (AOPS), has confirmed the navy's ability to patrol far into Canada's Arctic waters. Unfortunately, the AOPS are currently equipped with traditional landing craft and ship's boats, which have limited utility in sea ice. The adverse effects of this shortcoming will become ever more serious as climate change and an increasingly fraught geopolitical environment increase the likelihood of challenges to Canada's Arctic sovereignty, and thus the need for more RCN ships operating in the polar seas for longer periods.[2] Therefore, the RCN must now think carefully about how to provide these vessels with an off-ship deployment capability for when sea ice, or the risk of it, makes conventional watercraft unusable.

Given their ability to travel over most nearly-flat surfaces, hovercraft would be a viable way to overcome the problem of ice and a valuable addition to the capabilities of the AOPS. These craft could also be used by other RCN ships when operating in polar waters. This article will discuss this view and propose a way ahead.

Hovercraft offer the RCN two different capabilities during Arctic deployments. First, they provide their host vessels with a ship's boat that can carry out boarding missions and routine off-ship trips in waters where sea ice (or the threat of it) makes conventional boat operations impossible or dangerous. Second, they provide a Landing Craft,

Credit: Griffon Hoverwork

An undated photograph shows the Swedish Coast Guard hovercraft KBV 590, which uses the 2450TD model similar to the ones used by the Royal Marines.

Air Cushion (LCAC) capability that can transport personnel over water, ice and mixed surfaces to the shoreline, and even beyond, when helicopters are unavailable, insufficient or inappropriate. Such landing parties could consist of members of the ship's crew, specialists dealing with a humanitarian/environmental disaster, or Canadian soldiers responding to an Arctic crisis or on a routine deployment.[3]

Having LCACs offers the launching ship greater flexibility in how it deals with whatever mission requires it to land, support and recover personnel on/across the Arctic tundra. LCACs will be particularly relevant to any future Canadian dock-equipped amphibious ships operating in Arctic waters, as they would not need to flood their well-decks with near-frozen sea water in order to launch/recover their landing craft. With LCACs, such ships could simply 'dock-down' enough to use their rear gate as a launching/access ramp for the hovercraft while keeping the well-deck itself dry.

In order to accomplish the above missions, any RCN hovercraft should have a number of key operational characteristics (quantified where possible against a selection of representative hovercraft in Table 1). They should be able to:

- function in the Arctic temperatures and sea ice conditions usually encountered during the normal polar navigation season and for at least two months after its end to cater for the need to remain on station to deal with a crisis;
- provide protection to its crew and passengers from the Arctic weather during this period;
- carry at least a large boarding party/infantry section from the vessel to the desired off-ship location;
- transport, land and recover the all-terrain vehicles needed to support landing parties logistically and transport their heavy equipment and weapons;
- have sufficient autonomy and seaworthiness to operate away from the parent ship for at least multiple hours; and
- float in the water without the air cushion being inflated, both as a safety measure and to facilitate launching by crane or davits by vessels that do not have a well-deck.

It is clear that a light hovercraft type is the only one that is practical for use with the AOPS. Employment of medium or heavy types would require the RCN to acquire well-deck-equipped vessels.

Providing any hovercraft to the RCN's ships is not as simple as equipping them with a conventional ship's boat as hovercraft have their own unique operating characteristics.


Credit: Canadian Coast Guard

*Canadian Coast Guard hovercraft **Mamilossa** is seen carrying out icebreaking operations in southern Canada in this undated photo.*

This means a different approach to their entry into service is needed compared, for example, to the landing craft being provided to the AOPS. Therefore, the RCN should stand up a hovercraft flotilla in Halifax, with the following five roles:

1. Serving as the navy's centre of hovercraft expertise, responsible for such tasks as: training hovercraft crews how to pilot and maintain them; developing special procedures, such as launching a boarding party on to a moving non-compliant vessel; and providing user input to the RCN's routine development of hovercraft tactics, techniques and procedures;
2. Providing a support unit for naval experiments into possible new hovercraft roles, such as mine-hunting in polar and temperate waters, and new techniques, such as launching/recovering hovercraft from/by ships that have neither a crane nor a well-deck;
3. Acting as the 'parent' unit that provides hovercraft to deploying ships in the same way that the maritime helicopter squadrons provide Cyclone detachments;
4. Acting as the off-ship command element for operations and training where LCACs are deployed from multiple ships on a single task; and

Table 1. Key Characteristics of Some Representative Hovercraft Types

	Light	Medium	Heavy
Model	2400TD/2450TD (Royal Marines)	CCGS Mamilossa (Cdn Coast Guard)	LCAC/MCAC (US Navy)
Polar/Sea Ice Operation	Yes	Yes	Information not available (N/A)
Personnel Protection	Yes	For crew. Temporary for passengers (PAX)?	For crew. Temporary for PAX?
Payload (kilograms) (kg)	2,400 or 15-18 PAX. Removable crane to load/offload quad bikes/ snowmobiles.	23,000 or equivalent PAX. Removable 6,600kg capacity crane.	24 PAX, one tank or 60-75 tons
Autonomy/Endurance (hours)	7 (at most economical speed)	24	N/A
Seaworthiness	Maximum wave height 1.2 metres (m)	N/A	Some limitations in very rough seas. Hard to tow if disabled.
Float Without Air Cushion	N/A	N/A	Yes. Draught is 0.9 m
Range (nautical miles)	245	400	300 at 35 knots (kts). 200 at 40 kts.
Length (m)	15.2	28.5	26.8
Beam (m)	6.9	12	14.3
Displacement (tons) (t)	10.6	75	87.2 (170-182 full load)
Crew	Minimum 2	8	5
Speed (kts)	35 at full load	50	40 (loaded)
Highest Vertical Obstacle Traversable (m)	0.7	N/A	N/A
Vehicle Bow Ramp	No	Yes	Yes
Launch/Recovery Method	Well-deck Crane – likely Davits – perhaps	Well-deck	Well-deck

Credit: Chart assembled by author

Sources: Jane's Fighting Ships, "Landing Craft Air Cushion (LCAC/MCAC)," 2005; Edward Hampshire, British Amphibious Assault Ships – From Suez to the Falklands and the Present Day (London: Osprey Publishing, 2019), pp. 9, 10, and 32; Griffon Hoverwork, "Commercial and Rescue Brochure 2021," and "Defence and Security Brochure 2021."

5. Acting as the command element for all the landing craft carried by an amphibious ship, should Canada decide to provide the RCN with such a vessel.

Given Canada's geography, whichever hovercraft are purchased should be grouped into at least two flotillas in order to build a robust and flexible employment structure that can maximize the use of these relatively scarce assets. The initial Halifax flotilla would support the entry into service of the AOPS and the RCN's first hovercraft. In time, a second flotilla would be established to ensure that the Pacific fleet's AOPS are properly supported.

Climate change and a worsening geopolitical situation are forcing Canada and the RCN to pay more attention to Arctic sovereignty and operations. It is likely that sea ice will remain a concern during the annual polar navigation season. Its presence makes the use of conventional ship's boats and landing craft problematic, and at times impossible. In order to maximize the value of its Arctic patrol fleet, the RCN should provide these ships with hovercraft that can operate where sea ice is present and off-ship movement using Cyclones cannot fulfil all mission requirements.

It is recommended that the RCN make the case to acquire an initial batch of suitable light hovercraft, grouped into a single flotilla, both to support the AOPS as they enter service and to allow the navy to gain experience with hovercraft operations and ownership. This experience will inform future decisions about how many hovercraft, of what types, are needed.

Notes

1. The author would like to thank Diane Mader and Guy Lavoie for their editorial advice.
2. See Major (Ret'd) Les Mader, "Future RCN Structure: A Modest Proposal," *Canadian Naval Review*, Vol. 17, No. 3 (2022), pp. 20-21 for a discussion of these changing international trends.
3. Colonel (Ret'd) Brian K. Wentzell, "Arctic Amphibious Capabilities for Canada?" *Canadian Naval Review*, Vol. 15, No. 2 (2019), p. 37; and Major (Ret'd) Les Mader, "3rd Special Service Force: A Paratroop/Marine Infantry Arctic Contingency Force for Canada?" *Canadian Army Journal*, Vol. 19 No. 2 (2021), pp. 70-75.

Norway's Arctic Policy: High North, Low Tension?

Andreas Østhagen

In 2005, the then Norwegian Foreign Minister Jonas Gahr Støre urged people to 'look north.' Speaking in Tromsø, the self-proclaimed Arctic capital of Norway, he launched what was to become Norway's new foreign policy flagship: the High North Policy (*nordområdepolitikken*). With one-third of the landmass and 80 per cent of its maritime domain located North of the Arctic Circle, it is no wonder that Norwegian politicians have been quick to seize the opportunity to promote a hybrid mixture of foreign and regional policy tools as the world has turned its attention northwards.

In part, Norway's orientation towards the Arctic occurred as the result of a domestic initiative because economic opportunities were increasingly becoming apparent in the North. In part, international conditions were ripe as climate change, resource potential and a resurgent Russia appeared on the agenda. Developments in the North have undergone several stages since. The Russian annexation of Crimea in 2014 alongside a considerable drop in oil prices made the High North less 'hot' in a Norwegian context, despite the ice melting at record rates.

Around 2018, we can mark a new phase of Norwegian High North policy, in tandem with global changes in power politics. The efforts by the US administration under President Donald Trump to drag the Arctic into the wider systemic competition with China began around this time as China released its Arctic White Paper in 2018. Simultaneously, the US Navy's 2nd Fleet in Norfolk was re-activated with responsibility for the East and North Atlantic, after having been deactivated in 2011. This marks how the strategic and operational importance of those areas (which includes Norway's Arctic domain) has grown. The military presence and provocative exercise activities have been increasing here the most.

In the last decade, the Norwegian government has used the phrase 'High North, low tension' to highlight that the Arctic, despite claims by some commentators, is a region characterised by amicable affairs. However, the question is whether this is still an accurate portrayal of the state of affairs and – crucially – Norway's Arctic approach.

Although researchers have largely rejected the idea of a budding resource war in the North, the view of and discourse about the Arctic has changed.[1] This was underscored by the Russian invasion of Ukraine in February 2022. Although the Arctic has not been dragged into this conflict at the time of writing, given Norway's land border and maritime boundary with Russia, with the Russian Northern Fleet located about 100 kilometres from

Norwegian military personnel inspect equipment of the Russian 200th Motorized Infantry Division in Petsjenga near Murmansk on 7 December 2021. This annual inspection is an arms verification effort established under the 2011 Vienna Document and involves a reciprocal visit by Russian military officials to Norway's Brigade North.

Norway, this is a concern in the 'new' era of relations between Russia and the West.

The Russian Neighbour

In the confrontation between the two military blocs during the Cold War, Norway was the only NATO country that shared a land border with the Soviet Union in the North, which in turn defined Norway's security politics. After relatively good cooperation in the 1990s, from the mid-2000s onwards, the Arctic regained strategic and military importance. This occurred primarily because Russia under President Vladimir Putin began to strengthen its military (and nuclear) prowess in order to re-assert Russia's position in world politics. In addition to the changing political, climatic and economic circumstances in the Arctic, the region's growing importance was also the result of Russia's geographically dominant position in the North and its long history of a strong naval presence – the Northern Fleet – on the Kola Peninsula. This fleet houses Russia's strategic submarines which are essential to the country's nuclear deterrent vis-à-vis the West.

In general, Western security analysts have interpreted Norway's northern areas to be part of a so-called Russian 'bastion concept,' a strategy developed during the Cold War by the Soviet Union in order to ensure access to and from the North Atlantic and to control access to the Northern Fleet's headquarters at Severomorsk.[2] Thus, military planning in Norway since the 1940s has been dominated by concerns over Soviet/Russian military activity in the North – both as an extension of Soviet/Russian broader strategic plans and more recently in terms

of other types of interference and destabilising measures vis-à-vis Norway's northernmost regions. With Russia's redevelopment of its Northern Fleet primarily for strategic purposes (with an eye towards Arctic developments as well), and with its defence posture defined by the situation in its northern areas, Norway faced a more challenging security environment.

Since the Russian annexation of Crimea in 2014, relations have become increasingly tense, with bellicose rhetoric from Russia regarding the northern military posture of Norway and NATO, as well as increased military presence and exercises in the European Arctic by both Russia and NATO (or NATO countries). The 2020 long-term plan for the Norwegian Armed Forces reiterates Norwegian concerns over an increasingly tense great power rivalry in the High North. Given these concerns, Norway plans to purchase new tanks, adding a new army battalion in the North, acquiring new submarines and phasing in F-35 aircraft (replacing the ageing F-16s) and P-8 maritime surveillance aircraft (replacing the P-3s), while also replacing ageing Coast Guard vessels with three new ice-capable ships. In response to the Russian invasion of Ukraine in 2022, additional funds have been allocated to the Norwegian Armed Forces, specifically highlighting the need for capacity, readiness and surveillance in the North.

However, despite increasingly tense military relations, Norway and Russia, and earlier the Soviet Union, have a long history of cooperation in the Arctic. Especially after the fall of the USSR, regional and local cooperative schemes emerged that enabled businesses and people to cross the border in the North. In 2010, a longstanding maritime boundary dispute was settled in the Barents Sea, and in 2012, a visa regime for those living on both sides of the Norwegian-Russian border was implemented. On the state level, cooperation on maritime safety and emergency response, as well as fisheries management, have been ongoing despite tensions in the security relationship. This has played a significant role in reducing tension in the Barents Sea and preventing small-scale incidents from escalating out of control. This has not – at the time of writing – been affected by Norway's sanctioning of Russia after the invasion of Ukraine.

The US Security Guarantee

For Norway, a close bilateral relationship with the United States has been one of the pillars of foreign and security policy in modern times. The United States is seen as the ultimate guarantor of Norwegian sovereignty in the face of security concerns regarding Russia. However, Norway has always sought a balanced approach (but not neutral, like its neighbours Finland and Sweden) to US engagement in its northern domain, for example, by not allowing nuclear weapons or foreign bases to be located on its territory. Still, concern over too much US/NATO military activity and Soviet reactions was prevalent in Norway during the Cold War, with fears that it would get caught in between the two superpowers if conflict were to erupt.

Although the same balancing act is still a cornerstone of Norway's posture in the North vis-à-vis Russia,[3] concerns over the US approach to Arctic and northern European security emerged as the Trump administration became more vocal about Arctic security issues in 2018-2019. On the one hand, Norway has long desired increased US and allied attention on the North, starting with the Core Area Initiative launched by Norway through NATO in 2008. On the other hand, in 2019-2020 there were increasingly alarming statements from US officials concerning the Arctic security environment, and the United States increased its military activity in the Norwegian Arctic. As a result, some have argued that Norway risks getting too much of what it asked for in terms of US Arctic engagement.[4] These concerns are relevant not only to the discussion of traditional security and defence concerns in the High North/Barents Sea area but also in terms of the increasing US obsession with China's Arctic interests.

Credit: Torbjørn Kjosvold, Norwegian Armed Forces

Norway's second P-8 Poseidon, Ulabrand, sits amidst heavy snow at Evenes Air Base on 25 March 2022 during NATO Exercise Cold Response 2022.

Credit: Norwegian Armed Forces

The American transport ship MV ***Cape Race*** *prepares to unload military cargo at Harstad on 18 February 2022 for Exercise Cold Response 2022.*

However, in 2022, these concerns are likely to take a back seat to the primary issues for Norwegian decision-makers – i.e., how to continue to engage the United States/NATO in the High North, while ensuring that they understand and care about Norwegian security concerns vis-à-vis Russia. The NATO exercise Cold Response 2022 in March – the largest Norway-led exercise since the end of the Cold War – brought more than 30,000 troops from 27 countries to the Norwegian Arctic in order to show NATO's ability to operate in northern environments.

Future Arctic Security Concerns for Norway

The central question for Norwegian decision-makers is how northern relations can be insulated from events and relations elsewhere, while still standing firm vis-à-vis a Russian neighbour. The Arctic states – with Norway taking one of the leading roles – have managed to do a relatively good job of keeping relations civil in everything but military relations, underpinned by the shared economic interest of the Arctic states in maintaining stable regional relations.

Also, shifting global power balances and greater regional interest from Beijing need not lead to tension and conflict in the Arctic. On the contrary, they might spur efforts to find ways of including China in regional forums, alleviating the geo-economic concerns of the Arctic states. We cannot discount the role of an Arctic community of experts, ranging from diplomats participating in forums such as the Arctic Council to academics and business-persons who constitute the backbone of networks that implicitly or explicitly promote northern cooperation. Norway has been a proponent of this through venues such as the annual Arctic Frontier (in Tromsø) and High North Dialogue (in Bodø) conferences that have emerged in the past decade. Also noteworthy are new agreements and institutions that have been created to deal with specific issues in the Arctic as they arise, such as the 2018 A5+5 (which includes China, Iceland, Japan, South Korea and the European Union (EU)) agreement to prevent unregulated fishing in the central Arctic Ocean, and the Arctic Coast Guard Forum established in 2015. In these avenues of cooperation, Norway has been a proactive instigator and participant.

However, events in Ukraine in 2022 have changed the situation. Trust between Norway and Russia is gone, and any Russian military activity in the Arctic – most likely emanating from the Northern Fleet – is likely to be viewed with greater concern and suspicion than before. Potential disputes on or in waters around Svalbard – Norway's northern archipelago – where a community of Russians reside due to provisions in the Svalbard Treaty of 1920 are seen as a possible liability. The forums and 'softer' mechanisms for dialogue that were developed in the Arctic have also been affected. The other seven Arctic countries have decided to suspend cooperation in the Arctic Council, at least as long as Russia has the chair (Norway takes over in spring 2023). Although there is no immediate concern of Russian aggression in the North, the region will undoubtedly be dragged into a wider NATO-Russia conflict, should it escalate over issues further South.

Still, Norway maintains dialogue with Russia through a direct channel between the Norwegian Armed Forces Headquarters outside of Bodø and the Northern Fleet at Severomorsk in Russia. Fisheries co-management, emergency response cooperation and interaction across the border still occur. Neighbours, after all, are forced to interact regardless of the positive or negative character of their relations. And the goal for any Norwegian government is to try to ensure that the statement 'High North, low tension' still describes affairs in the North.

Notes

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Dollars and Sense:

Russia's Invasion of Ukraine is a Sign We Should Get Serious about Arctic Defence

Dave Perry

Russia's invasion of Ukraine has created a massive disruption in global security. As of the time of writing, four weeks into the conflict, the scale of human suffering is already immense. An estimated 3.7 million Ukrainians have fled the country, with an additional seven million displaced internally, and thousands of civilians have been reported dead. Total battlefield losses are tough to gauge. Ukrainian reports have estimated up to 15,000 Russian dead, but Russian estimates differ.[1] Although the precise scale is unknown, it is clear that Russian losses in the first month are more significant than many expected, with reports of Russian equipment destroyed, captured and abandoned as well as aircraft losses. This seems in part attributable to Russian planning which was apparently predicated on achieving quick victory with limited air strikes and rapid advances by small tactical units in the opening days of the conflict, and in part because of lack of advance planning, poor morale and poor command and control and logistics support. Comparable information on Ukrainian losses is scarce, but the enactment of a law prohibiting Ukrainian males 18-60 from leaving the country and progressive territorial advances of Russian forces would indicate that for all the positive messaging, Ukrainian military forces have taken significant losses.

After the failure of the initial rapid advance, the Russians have resorted to familiar tactics of using long-range artillery, rockets, missiles and air strikes to destroy Ukrainian infrastructure and population centres. Despite the stated desire by President Vladimir Putin to recreate a wider Russian empire including historically Russian-speaking Ukraine, it is the cities in eastern Ukraine that have borne the brunt of the worst Russian assaults and, Mariupol especially, have been largely destroyed.

Although the United States predicted an invasion in the weeks leading up to its launch, Russia's decision to invade and the brutality with which it has prosecuted the war appear to have caught much of the West by surprise. Certainly, the reactions by many Western governments have included remarkable changes in policy in response. Chief amongst these has been Germany, with Chancellor Olaf Scholz announcing sweeping changes to Germany's long policy of *Ostpolitik* (engagement with Russia), a $100 billion euro increase in defence spending, a pledge to meet the NATO 2% of Gross Domestic Product (GDP) spending

Credit: Sergii Vlad Volosyn, Armyinform

A ruined building in the town of Makariv near Kyiv following its occupation by Russian forces in a photo posted by Ukrainian military media 13 April 2022.

target, and a change to Germany's previous aversion to suppling parties to a conflict with weapons – all within the first week of the war.[2] Similarly consequential, albeit less dramatic, changes to Swiss neutrality (participating in the international sanctions against Russia) and Norway's stance towards providing weapons to Ukraine are further indications of the massive shift the invasion has created.

All of these changes are commensurate with Russia's invasion. Entirely unprovoked, the assault on Ukraine is the most consequential military action in Europe since the Second World War. The invasion of a sovereign country, on NATO's border, with the entire world watching, on a scale not seen in Europe since the 1940s are individually remarkable, and in their totality astonishing.

This should promote a rethinking of Canadian defence policy to revisit what the return to great power competition means for Canada. Critical in that rethinking should be a reconsideration of Canada's assumptions about the Arctic. Canada needs to reconsider the belief that, unlike the wider Arctic (and the Greenland-Iceland-United-Kingdom Gap in particular, which was a key arena of strategic competition during the Cold War), Canada's Arctic region is a "zone of cooperation."[3] That assumption, that there are no military threats to the Canadian Arctic, has

Credit: Cpl Simon Arcand, Canadian Armed Forces

*HMCS **Harry DeWolf** carries out initial firing trials of its 25mm cannon on 6 May 2021 off the Atlantic coast.*

manifested itself in many ways, including the design of the Arctic and Offshore Patrol Ships (AOPS). As Rob Huebert discussed in an earlier issue of *CNR*, the design of the AOPS, and the requirements upon which the ships are based, assumed Canada faced no direct military threat in the Arctic, and therefore the ships needed little in the way of firepower.[4] But, just as NATO Secretary General Jens Stoltenberg has stated the need for the NATO alliance to reset its defence and deterrence posture,[5] Canada should reconsider its own defence posture and whether it faces a threat in the Arctic.

Many aspects of Russia's invasion of Ukraine had been considered unthinkable only a few weeks ago – for example that Russia would invade a sovereign state in full view (rather than deploy little green men under false pretenses as it did in Crimea), and that it would slaughter Russian-speakers in Ukraine. The lesson that Canada should take away from this is that autocratic great powers can, and do, take actions if they consider them important for their own security interests but that may make no sense to Canada. When Canadian officials say there is no military threat to the Canadian Arctic, they are making an assumption that the military capabilities of countries like Russia and China, which *could* be employed to threaten Canada's Arctic, will not be. We now have ample evidence to show that our ability to understand and predict the actions of well-armed great powers leaves much to be desired.

Where does this leave Canada? In the first instance, as Canada considers how to defend continental North America, it should re-evaluate the assumptions that have been made about the intention of actors that possess the military capability to threaten Canada if they so choose. Canada's efforts to develop new military capability for Arctic use have proven to be glacial. The Nanisivik refueling station, for example, which was a Conservative Party pledge in the 2006 election campaign, is still not slated to open until 2023.[6] The lesson we should take from Canada's very slow processes to improve Arctic capability is that we need to make decisions today that account for as many future possibilities as we can.

The war in Ukraine has caused Canada to examine options to meet or even exceed the 2% of GDP target to which Canada committed at the NATO Summit in Wales in 2014, and bring forward a robust package of options for NORAD modernization and continental defence.[7] As it does that, we should revise our assumption that the Canadian Arctic will not be militarily threatened. To be clear, that does not mean we should assume that the Russians or Chinese will try and seize Canadian territory, or land troops on Canadian soil. But we should plan for the possibility that they might use long-range weapons to strike Canadian infrastructure, facilities or equipment in the Arctic, or pose threats from either on or under the water. In short, Canada should plan for the Arctic to be a zone of strategic competition, while hoping for cooperation.

Notes

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4. Rob Huebert, "The Case for a More Combat Capable Arctic Offshore Patrol Ship," *Canadian Naval Review*, Vol. 10, No. 3 (2015), pp. 4-9.
5. Jens Stoltenberg, *Power and Politics*, CBC News Network, 16 March 2022.
6. Steven Chasse, "Long Delayed Naval Facility Postponed Again," *The Globe and Mail*, 30 March 2022, p. A5.
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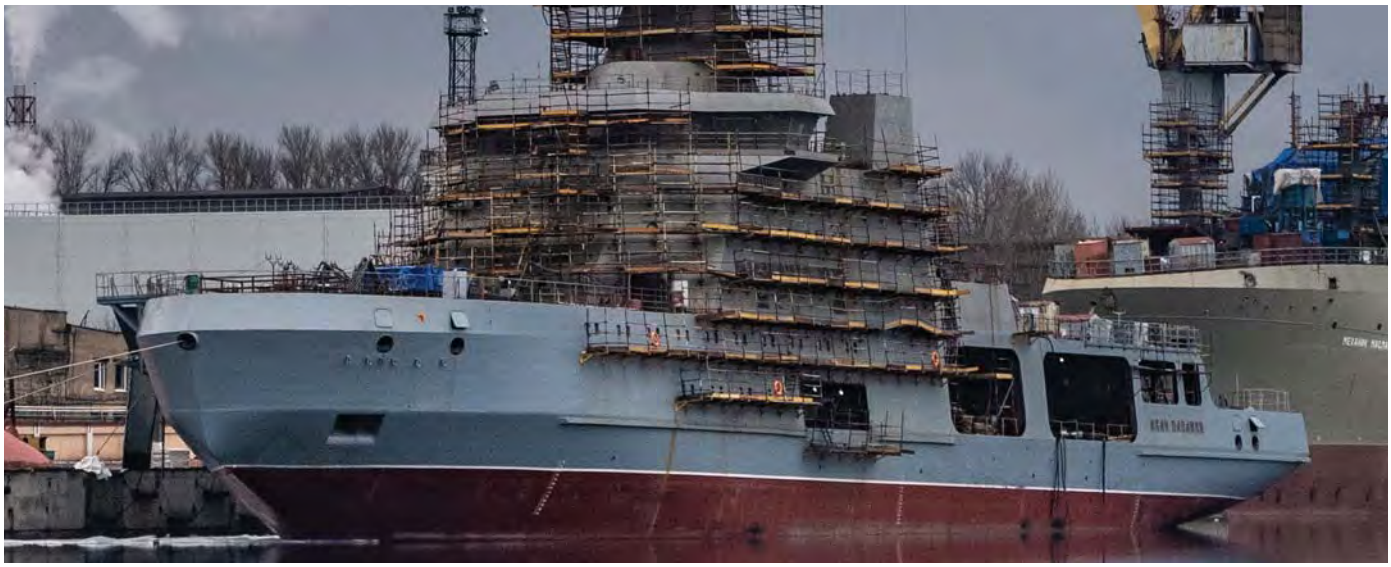
Warship Developments: The Russians

Doug Thomas



Credit: Bestalex, Wikimedia Commons

*A Russian **Ivan Papanin**-class icebreaking patrol ship is seen here under construction at the Admiralty Shipyard in St. Petersburg, March 2021.*

Naval Operations in the Black Sea

There has not been much in the way of direct naval operations by the Russian Navy against Ukrainian forces to date, aside from some naval gunfire support of land operations along the coast, and possibly missile firings from ships in the Sea of Azov against Ukrainian coastal cities. It should be noted, however, that because the Russian Navy has taken up position off the coast of Ukraine, it controls access to Ukrainian ports which limits imports and exports and creates, in essence, a naval blockade. Amphibious operations to land armoured vehicles and troops seem possible in order to avoid the kind of counterattacks experienced by the Russian Army in the North when employing road and railway transportation, for example in the battles near Kyiv. It was reported in March that some Russian Navy Pacific Fleet amphibious vessels loaded with armoured vehicles and materiel had departed from Vladivostok, probably heading for the Black Sea. However, Turkey is interpreting the conflict as a 'war' rather than a 'special military operation' and has banned transit of Russian naval vessels if their home base is not registered as the Black Sea.[1]

There is a widely circulated video depicting the Russian *Alligator*-class Landing Ship Tank (LST) *Orsk* exploding on 24 March 2022. The cause of the explosion has not been determined for certain – Ukraine claims to have destroyed it, others say it exploded while discharging probable explosive munitions alongside a jetty in the captured Ukraine city of Berdyansk.[2] This, plus the fact that several *Ropucha*-class LSTs are shown fleeing the area certainly demonstrates that transport of Russian troops, vehicles and munitions is not without danger no matter how it is done.

Russian Navy Arctic Patrol Ship (Project 23550)

The Arctic Ocean is the smallest and shallowest of the world's oceans, but is of increasing interest with the warming of its waters and the probability that it will be exploited for its resources and used as a short-cut between Europe and Asia. As well, Russia is heavily dependent on oil and gas exports, and believes that there are vast additional energy reserves in the Arctic. For more than 100 years it has claimed ownership of the shallow waters along its Arctic Coast.

The Northern Sea Route (NSR) is one of three Arctic shipping routes, the others are the Northwest Passage and

Credit: 333 Squadron, Royal Norwegian Air Force

*The **Gorshkov**-class frigate **Admiral Kasatonov** sails off northern Norway in this photo taken by a Norwegian P-3 aircraft on 25 January 2022.*

*The **Kirov**-class nuclear-powered missile cruiser **Peter the Great** sails off Finnmark, northern Norway, in this photo taken by a Norwegian P-3C Orion on 13 March 2022.*

the Transpolar Sea Route. There are projections that the NSR may be ice-free by 2030, considerably earlier than the Northwest Passage or Transpolar Sea Route. Therefore, of the three routes, the NSR is the most likely to be utilized and Russia has invested in infrastructure to make it a viable option for year-round transit.[3] Since the mid-1930s the NSR has been an officially managed and administered shipping route along the northern coast of Russia. The administrative entity that administers the route has been updated and upgraded in recent years. The current entity is the Northern Sea Route Administration, established by the Federal State Budgetary Institution in 2013.

In August 2017, the first ship traversed the Northern Sea Route without the use of icebreakers. This foreshadows more shipping through the Arctic, as the sea ice melts and makes shipping easier – although, as elsewhere in the North, the ice can be unpredictable even as the total coverage lessens. In 2018 Maersk Line sent the new ice-class container ship *Venta Maersk* through the route to gather data on operational feasibility. While Maersk Line did not consider it was commercially viable at that time, it likely will be in the future. Assistance was required from the very large Russian nuclear-powered icebreaker *50 Let Pobedy* for three days of the voyage.

As part of maintaining firm control of use of the NSR, the Russian Navy initiated Project 23550 which called for building two naval-manned multi-role icebreakers (Arctic Patrol Ships) capable of breaking ice up to 1.7 metres thick. The Project 23550 ships are designed to protect and monitor Arctic water resources, provide support, escort and towing for other vessels, participate in rescue operations and transport cargo in the Arctic.[4] Construction began in 2016, with the first ship, *Ivan Papanin*, launched in October 2019. The second ship, *Nikolai Zubov*, was started in November 2019. The ships are scheduled to become operational in 2023 and 2024 respectively.

These vessels appear to be similar to – albeit larger and more capable versions of – the Norwegian *Svalbard* or the Canadian *Harry DeWolf* Arctic patrol ships. They have a displacement of just under 9,000 tons, a length of approximately 114 metres, a width of about 20 metres and a draft of about 6.0 metres.[5] They will have a crew of 60, but can accommodate an additional 50 – as can *Harry DeWolf*. The maximum speed of the Russian ships is 18 knots, with endurance of 70 days at sea.

They are more heavily armed than the *Harry DeWolf*-class, with a 76mm automatic main gun, and possibility of carrying portable air defence systems and a containerized surface-to-surface missile system. They can accommodate helicopters, unmanned aerial vehicles, high-speed assault boats and a hovercraft.[6] It should be noted that lightly-armed large vessels such as the often-criticized *Harry DeWolf* are, or can be, easily fitted with many of these same features.

Conclusions

The Russian economy is actually smaller than that of Canada,[7] but more national treasure is expended on security of the homeland and its resources. The Russian Navy has been starved for funding in the post-Soviet era, although that has improved over the past decade. Examples of 'starvation' are the extended periods required to complete refits on major units such as the aircraft carrier *Kuznetsov* (at least six years for the current work) or the astounding 25 years for the battle cruiser *Admiral Nakhimov*.[8] Nevertheless, the Northern Sea Route, security of the Arctic islands along the NSR, and the new Arctic Patrol Ships have high priority. Russia is certainly determined to maintain total control over the NSR, and is expending scarce resources to achieve this. The increasingly expensive war against Ukraine may make budgeting to do that more difficult.

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Book Reviews

After Jutland: The Naval War in Northern European Waters, June 1916-November 1918, by James Goldrick, Annapolis, Maryland: Naval Institute Press, 2018, 332 pages, $52.42 (soft cover), ISBN 978-1-68247-327-6

Reviewed by Colonel P.J. Williams (Ret'd)

For those not among the maritime history cognoscenti, and that is probably most of us, the title of this book could have been a sub-title, subordinated to a new title *Who Knew?*

James Goldrick is a retired Royal Australian Navy Rear-Admiral and a former Commander of the Australian Defence Academy. He previously authored, among other works, *Before Jutland: The Naval War in Northern European Waters, August 1914-February 1915* (Annapolis: Naval Institute Press, 2015). The author's aim here is to analyse the naval war behind the U-boat campaign and the Allied blockade. Indeed, through the prism of operations in varied areas, and the experiences of the Royal Navy, the German High Seas Fleet, the Imperial Russian Fleet and (in time) the US Navy, the book looks into why not much more than a stalemate was achieved in this period.

The book begins with a chapter which describes each of the navies involved, including not only the technology they possessed, but also their character/'culture.' The operational challenges of the wide maritime environment encompassed within the book's canvas are then described, before presenting a multi-chapter chronological coverage of the major surface actions that took place. The book then ends with a "Reflections" chapter.

As mentioned at the outset, there is much for the reader to learn of the naval war during this period. The High Seas Fleet *did* (reviewer's emphasis) sortie from its German bases on more than one occasion and was often able to inflict severe damage on the Royal Navy. In a type of operation not normally associated with their forces during the Great War, the Germans seized islands in the Gulf of Riga from the Russians as part of the little-known *Operation Albion*. This operation was conducted in concert with the German Army, which captured Riga on 3 September 1917. The Germans believed that in so doing Petrograd would be made vulnerable to attack.

It was a time of great technological advancement. Great strides were made in mine warfare. The newly arrived US Navy was responsible for laying the vast majority of the 70,00 mines laid as part of the so-called 'Northern Barrage,' between Scotland and Norway. Naval aviation was also coming into its own, with early attempts being made at deploying aircraft carriers.

Despite all this, the author concludes that both sides could have done more during the post-Jutland period. As we are reminded in the book, it is in this period that Admiral Jellicoe, who had commanded the Grand Fleet at Jutland and who by now was the First Sea Lord, was sacked for his handling of the naval war. The adoption of convoys was but one of the actions the Royal Navy needed to take, in the author's assessment.

Despite covering events that took place over a century ago, this book has modern relevance. The highly convoluted command chain of the German Navy offers useful lessons for command and control, and the descriptions of new technologies and practices speak volumes about how military organizations inculcate an innovative and learning culture. And in perhaps the only book review where I say this, there are lessons for military operations during a pandemic. While we learn to operate in a COVID-19 environment, the navies covered in this book had to contend with the influenza epidemic of 1918. At one point, the Grand Fleet had over 10% of its ranks infected. The author concludes that the rates of infection in the High Seas Fleet likely contributed to "the chaotic events" of October and November 1918 (p. 250) which included mutinies.

In preparing this work, the author consulted archival material in the UK (including translations of German documents) and the United States. The Bibliography is 14 pages and there are 15 pages of notes. The text is well supplemented with photos and maps.

For many, the conventional wisdom is that 'After Jutland,' it was all over but the crying. Or to be more specific, over for the German High Seas Fleet, all but mutiny, surrender, internment and the scuttling. This book demonstrates, quite conclusively, that there is much more to the story and that quite a lot happened between the so-called Battle of the Skagerrak (as the Germans call it) and Admiral David Beatty's declaration as the High Seas Fleet hove into his view after the German surrender to be escorted to internment, "I always told you they would have to come out!" Highly recommended.

2022 Canadian Naval Memorial Trust
Essay Competition

Canadian Naval Review will be holding its annual essay competition again in 2022. There will be a prize of $1,000 for the best essay, provided by the **Canadian Naval Memorial Trust**. The winning essay will be published in *CNR*. (Other non-winning essays will also be considered for publication, subject to editorial review.)

Essays submitted to the contest should relate to the following topics:

- Canadian maritime security;
- Canadian naval policy;
- Canadian naval issues;
- Canadian naval operations;
- History/historical operations of the Canadian Navy;
- Global maritime issues (such as piracy, smuggling, fishing, environment);
- Canadian oceans policy and issues;
- Arctic maritime issues;
- Maritime transport and shipping.

If you have any questions about a particular topic, contact **cnrcoord@icloud.com**

Contest Guidelines and Judging

- Submissions for the 2022 *CNR* essay competition must be received at **cnrcoord@icloud.com** by Friday, **30 September 2022**.
- Submissions are not to exceed 3,000 words (excluding references). Longer submissions will be penalized in the adjudication process.
- Submissions cannot have been published elsewhere.
- All submissions must be in electronic format and any accompanying photographs, images, or other graphics and tables must also be included as a separate file.

The essays will be assessed by a panel of judges on the basis of a number of criteria including readability, breadth, importance, accessibility and relevance. The decision of the judges is final. All authors will be notified of the judges' decision within two months of the submission deadline.

A long-exposure photograph captures a 'light painting' on HMCS ***Yellowknife*** during its ***Operation Caribbe*** deployment to the eastern Pacific, 17 March 2022.

Credit: MARPAC Imaging Services, Canadian Armed Forces