



CANADIAN NAVAL REVIEW

VOLUME 15, NUMBER 1 (2019)



**Sailing to Byzantium:
A Eulogy to the
Sea King**

**Third Base: The Case
for CFB Churchill**

**The Strategic
Contribution of the
Harry DeWolf-class
to Canadian Defence
and Security**

**Canada Concludes
Fourth Command
of CTF 150**

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Credit: LS Zachariah Stopa, Canadian Forces Combat Camera



HMCS Regina sails in the Arabian Sea on 2 March 2019 during Operation Artemis while operating as part of CTF 150. For more on Canada's recent contributions to CTF 150, see the interview with Commodore Darren Garnier.

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Editorial

Innovation: Top Down or Bottom Up?

Given Canada's penchant for retaining military equipment far beyond its normal replacement cycle, it is evident that innovation is essential to maintain the combat capability of a weapon system. There are several examples that could be used to make this point but given the recent retirement of the Canadian Sea King helicopters, it is useful to examine the influence of innovation on this particular aircraft.

Regarding this, it may be helpful to reflect on the remarks of Rear-Admiral Jeffry Brock, then Maritime Commander Atlantic, given at the introduction of the Sea King in 1963.

Until someone comes along with a magic box containing all the answers (and no one will), we must work continuously to improve our capabilities in *every* respect.

While the RCN is not a large Navy; neither is it a small Navy. We are recognized as being rather expert in the field of anti-submarine warfare. If indeed there are experts in this field, then the RCN would qualify in terms of experience alone, having had a quarter century of it. I like to think we do our share of pioneering as well. The qualities of inventiveness and expertise do not necessarily go hand in hand with size.

I should like you now to take note of the fact that the concept of operating multi-purpose, large, sonar-equipped helicopters from destroyer escorts is a Canadian one, and I am confident it will prove to be an important contribution to the strength of our Western defences.

The problems of anti-submarine warfare, however, are many and varied. To solve them requires a tremendous and continuing effort by military forces, civilian scientists and engineers, and by industry, applying its vast pool [of talent].

The Sea King helicopter is one example of the combined efforts of many people in many places.¹

So how did innovation affect the Sea King and permit it to maintain its operational relevance despite a changing tactical and strategic environment? And was the innovation the result of a top-down or bottom-up process?

The question is germane since in May 2018 it was announced that all Royal Canadian Air Force (RCAF)



A trio of HO4S-3 helicopters sit on the deck of HMCS Bonaventure in 1957. Although their successors, the Sea King, received most of the credit for pioneering helicopter operations from small decks, much of the early proof-of-concept work was carried out with the HO4S-3.

Credit: MIKAN 4951209, Library and Archives Canada

operational test and evaluation (OT&E) efforts, the wellspring of innovation, would be concentrated under the command of the RCAF Aerospace Warfare Centre (RAWC) in Trenton, Ontario. 434 Squadron, also based in Trenton, will manage and coordinate all test and evaluation activities through individual test flights at various locations according to aircraft type. The declared intent of the new air force testing and evaluation policy is “to address the air power challenges of today and the future through the execution of prioritized, command-driven test and evaluation.”²

Previously, air force operational testing and evaluation was, in large measure, coordinated at the tactical level and submitted through the chain-of-command to higher headquarters for approval. This bottom-up approach ensured that tactical-level concerns were communicated to those who controlled policy and doctrine and, most importantly, the purse strings.

As will be argued below, experience with the Canadian Sea King indicates that in large measure, it was a combination of the bottom-up and the top-down approaches that succeeded in introducing the innovative concepts that were necessary to keep the Sea King operationally relevant.

This bottom-up approach was evident even before the decision was made to acquire the Sea King and operate it from the fleet's destroyer-escorts. The East Coast Naval Air Station, Shearwater, began helicopter flying trials onboard HMC Ships *Buckingham* (1956) and *Ottawa* (1957)



Credit: LS Dan Bard, Formation Imaging Services, Halifax, NS

A CH-124 Sea King helicopter provides over-watch for a boarding party from HMCS *Toronto* in the Arabian Sea during *Operation Artemis* on 17 January 2014. The helicopter has the distinctive optical and infra-red sensor 'ball' mounted on the nose, enhancing its surface surveillance capabilities.

using a temporary flight deck installed over the ship's anti-submarine mortars.³ These trials were followed in 1960 with the evaluation of a rudimentary hauldown system. The system consisted of a line secured to the cargo hook of an RCN HO4S-3 helicopter fed through a block secured to the ground on the business end of which were several sturdy *matelots* who proceeded to haul the helicopter down. Based on the results of these preliminary trials, Fairey Canada, located close to Shearwater, was tasked by naval headquarters to design and manufacture a Helicopter Hauldown and Rapid Securing Device which quickly became known as the Beartrap.

When the Sea Kings eventually arrived at Shearwater in the summer of 1963, operational test and evaluation functions were carried out by VX 10 (Experimental Squadron 10). Apart from the acceptance of the new helicopters from United Aircraft of Canada Limited in Montréal, the squadron's Sea King efforts were primarily dedicated to the completion of Project Directive 102 (PD 102), the evaluation of the Beartrap.

Trials began in 1963 with a specially instrumented helicopter onboard HMCS *Assiniboine*. It was not until November 1968 that the final 'clearance for service use' for all the Improved *St. Laurent* and *Annapolis*-class escorts was issued. PD 102 proved to be a far more lengthy and complex evaluation than had been anticipated and innovation at the local level was key to reaching a successful conclusion.⁴

The completion of the Beartrap evaluation in November 1968 was just in time. In 1970, VX 10 was closed down due to the organizational changes brought about by integration/unification of the armed forces. Responsibility for testing and evaluation of the Sea King was transferred to the Central Experimental and Proving Establishment at Uplands, near Ottawa, which was shortly thereafter renamed the Aeronautical Test and Evaluation Establishment and moved to Cold Lake, Alberta – an awfully long way from salt water.

It was not until 1979, following much pressure from the coast, that a Sea King operational testing and evaluation

unit returned to Shearwater in the form of the Helicopter Operational Test and Evaluation Flight (later Facility) (HOTEF). While the period 1970-1979 was not a total wasteland as far as improvements to the Sea King's technical readiness were concerned, on the operational side, the only significant upgrade came in the form of the addition of a 'weather' radar as part of a flight safety package. Of course, the helicopter squadrons quickly adapted this flight safety enhancement to operational advantage.

Following the establishment of HOTEF, the first significant improvement to the Sea King's anti-submarine warfare capability came from the development of an onboard passive acoustics suite to replace the helicopter's rather anemic tethered active sonar. The various projects associated with this development formed part of a multi-year, multi-faceted, multi-project endeavour which eventually had a significant impact on the development of the acoustic systems for both the new Cyclone maritime helicopter and the *Halifax*-class frigates. While major contributions were made by defence research labs through funding provided from higher headquarters, the prime motivation was the vision and determination of a group of personnel at HOTEF and in the fleet over many years – without an active strategy or governing body.⁵

The most significant illustration of the impact of the bottom-up approach to the improvement of the combat capability of the Sea King came during the pre-deployment phase of *Operation Friction*. This operation involved the deployment of three warships and five embarked Sea Kings to the Persian Gulf as part of Canada's enforcement of UN sanctions against Iraq following that country's



Credit: Corporal Shilo Adamson, Canadian Forces Combat Camera

Despite innovative modifications to enable its expanded mission sets, the Sea King's *raison d'être* is never far from sight and mind. Here, a Mk. 46 anti-submarine torpedo is being wheeled away from the helicopter onboard HMCS *Fredricton* in the Red Sea in November 2009.



Shearwater continues to introduce new naval aviation capabilities to Canada. Here, staff operate the CH-148 Cyclone Flight Simulator at the Sikorsky Maritime Helicopter Training Centre on 4 June 2015.

invasion of Kuwait in August 1990. The first requirement was to determine the roles, missions and aircraft configuration for *Operation Friction*. This was carried out on the East Coast over the course of a weekend and it was immediately assessed that in order to achieve the mission objectives, the Sea King would have to be modified from a dated anti-submarine warfare (ASW) weapons system to a capable surface surveillance platform.

As a result, six helicopters were stripped of their ASW equipment and fitted with self-protection and surface surveillance equipment.⁶ This included, among other items: a forward-looking infra-red camera and night-vision goggles; Global Positioning System (GPS) navigation equipment; an infra-red jammer and flare dispensers to protect against heat-seeking missiles; a radar warning receiver and chaff dispensers to confuse radar-guided missiles; and a light machine gun mounted in the aircraft's cargo door.

While higher headquarters played an important role in this herculean task, numerous participants have confirmed that the process was driven from the bottom up. This was a credit to the capabilities of those involved and a shining example of what can be achieved when leadership sets the goal, provides the funding and then steps out of the way to allow the lads, and lasses, to get on with the job.

Over the decades that followed, HOTEF and Shearwater continued to push ideas to enhance the combat capability of the Sea King. Some projects were quite small – such as the use of digital photography to enhance surface surveillance – while others were quite large. The latter category is best illustrated by the Augmented Surface Picture project which ultimately permitted the real-time transmission of

full motion video, imagery, two-way plot information and two-way chat while in flight.⁷ And it all began with efforts in the HOTEF lab to provide improved connectivity between the Sea King and RCN ships.

What is the takeaway from all this? With the new air force operational testing and evaluation policy seeming to limit innovation to those concepts that conform to a Procrustean 'prioritized, command-driven test and evaluation' mandate, it would appear that the Cyclone helicopter community may not be encouraged to show the same level of initiative as was apparent during the Sea King era.

This is not to recommend that testing and evaluation should only be driven from the tactical level or that there is no role for other agencies such as defence research labs, contractors or indeed, higher headquarters. None of the Sea King-related projects described above would have seen the light of day without their input.

What is important to recognize, however, is that it is at the tactical level, where the rubber meets the ramp, that capability deficiencies are the most apparent and that solutions can best be identified. This reality must be carefully balanced with the desire to established prioritized, command-driven test and evaluation priorities.

After all, as Rear-Admiral Brock noted above, "[t]he Sea King helicopter is one example of the combined efforts of many people in many places." It can only be hoped that this approach will be applied to the Cyclone as well. 🍷

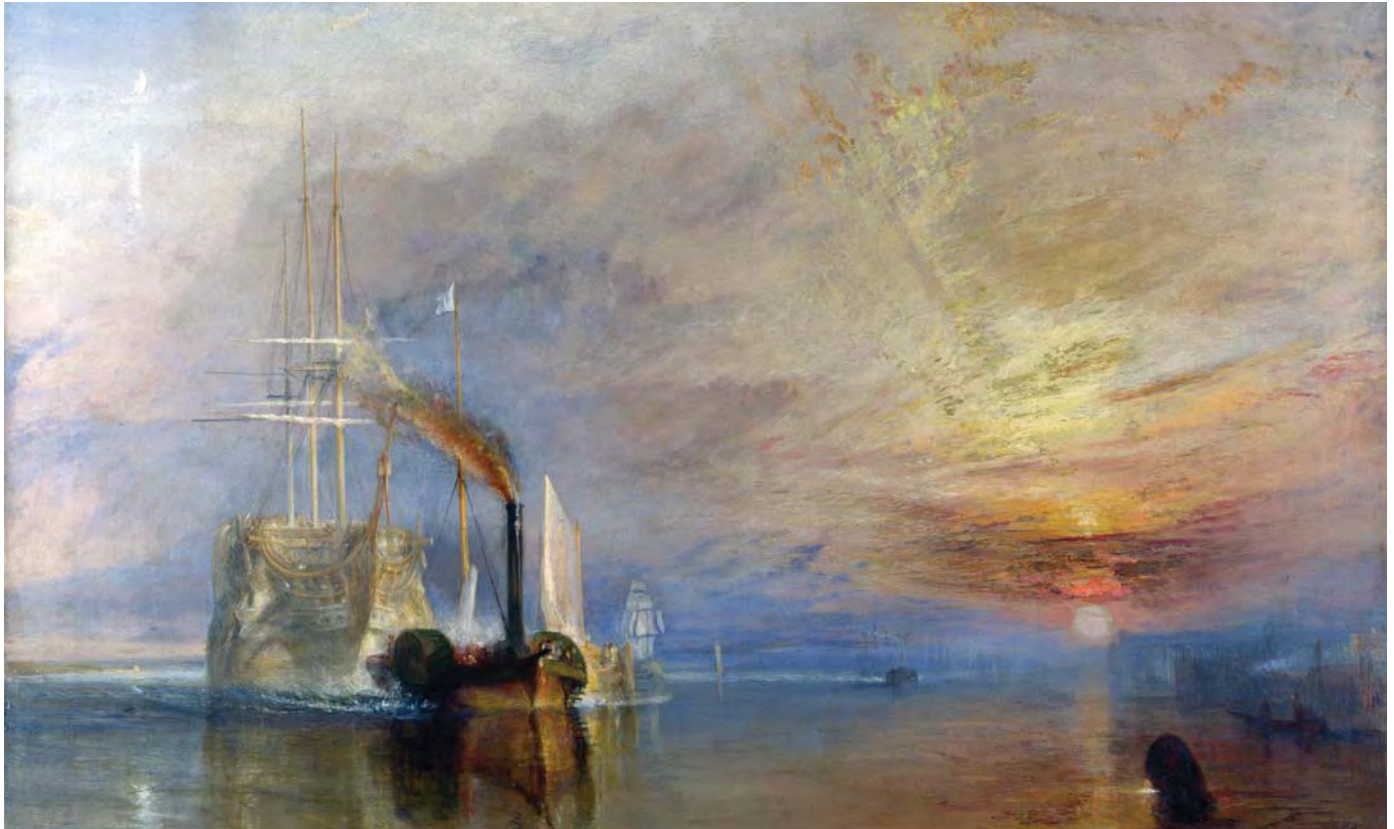
Colonel (Ret'd) John Orr

Notes

1. Address by Rear-Admiral Jeffry V. Brock, RCN, Maritime Commander Atlantic, on the occasion of the introduction of the Sea King helicopter into the Royal Canadian Navy, 28 August 1963. As quoted in John Orr, *Perseverance: The Canadian Sea King Story* (Shearwater, Sea King 50th Anniversary Committee, 2013), pp. 268–270.
2. "434 Operational Test and Evaluation Squadron," Royal Canadian Air Force, Canadian Forces Aerospace Warfare Centre, available at <<http://www.rcacf-arc.forces.gc.ca/en/squadron/434-squadron.page>>.
3. An RCN Sikorsky HO4S-3 carried out the trials in *Buckingham* and a loaned RCAF Sikorsky H-34 flew the trials in *Ottawa*.
4. For more information on the test and evaluation of the hauldown device (HHRSD), see Chapter 7 "Trials and Tribulations – VX 10 and PD 102," in Orr, *Perseverance*, pp. 59–62. Also see Peter Charlton, *A Monograph on the Integration of Sea King Helicopters and RCN Destroyers – from 1962 to 1966* (Ottawa, ON: self-published, 2003). Copy held at the Shearwater Aviation Museum Archives.
5. For further discussion of the development of the Sea King passive acoustic capability, see Mark Aruja, "Sea King Passive Acoustics: The Canadian Story" in W.A. March (ed.), *Wings for the Fleet: Fifty Years of the Canadian Sea King, Sic Itur Ad Astra*, Canadian Aerospace Power Studies, Volume 5 (Ottawa: Canada, Department of National Defence, 2015), pp. 56–70.
6. In all, eight Sea Kings were modified with what came to be known as the 'Gulf-Mod.' Five deployed for *Operation Friction*, one remained in Shearwater for operational testing and evaluation, while a further two were modified for HMCS *Huron* during her subsequent deployment to the Gulf.
7. For more on the development of the Augmented Surface Picture, see Major Dwight Bazinet and Captain Kel Jeffries, "They Told Us It Couldn't be Done But We Didn't Believe Them," *Canadian Naval Review*, Vol. 9, No. 1 (Spring 2013), pp. 10–14.

Sailing to Byzantium: A Eulogy to the Sea King

Jeff Tasseron



Credit: Joseph M.W. Turner, via The National Gallery

Joseph M.W. Turner's 1839 *The Fighting Temeraire* is one of the most famous paintings of the Royal Navy's transition from sail to steam. Trafalgar veteran HMS *Temeraire* is shown being towed by a steam-powered tugboat to the breakers in 1838. The original painting hangs in the National Gallery in Trafalgar Square, London.

....O, Titan *Téméraire*,
Your stern-lights fade away;
Your bulwarks to the years must yield,
And heart-of-oak decay.

A pigmy steam-tug tows you,
Gigantic, to the shore –
Dismantled of your guns and spars,
And sweeping wings of war.
The rivets clinch the iron-clads,
Men learn a deadlier lore;

But Fame has nailed your battle-flags
Your ghost it sails before:
O, the navies old and oaken,
O, the *Téméraire* no more!

Extract from "The *Téméraire*," Herman Melville

In the National Gallery in London, there hangs a work of art entitled "The Fighting *Téméraire* tugged to her last berth to be broken up, 1838." It was painted in 1839 by English artist J.M.W Turner, and depicts the hulk of HMS *Téméraire* being hauled by steamship to a shipbreaker's

yard to be dismantled – her brass and fittings to be removed, and her timber to be broken up and sold to house-builders and furniture-makers. The picture, with a sombre yet luminous palette of yellows and browns, is a romanticized depiction not only of the passing of a noble warship out of service, but also of the march of technology. With the plume of the steam tug's coal smoke obscuring the ghostly rigging, and the burning sun setting over distant towers, the painting evokes a nostalgic, mournful sense of the closing of an era, and the final, somewhat dreary, end of something that was once great and good.

With the December 2018 retirement of the CH-124 Sea King now complete, and the remaining fleet of aircraft awaiting disposal, one might be inclined to regard Canada's oldest and most deployed combat aircraft much in the same vein as the mighty *Téméraire*. Certainly, the parallels are many. Like *Téméraire*, the Sea Kings were very much an expression of the best technology that their time could offer, but they were ever-fated to labour somewhat in anonymity. Similarly, throughout the operational history of both vessels, their greatest accomplishments were not as much rooted in the excellence of their design



The sun sets on a CH-124 Sea King helicopter in Smithers, British Columbia, during **Operation Lentus** 18-5 on 27 August 2018 – the last summer before retirement.

(however compelling), but in the use to which their crews put them, under duress and peril. Finally, much like *Téméraire*, the Sea Kings struggled to remain relevant and capable through to the end of their service; foreordained to be superseded by newer and presumably better ships, yet curiously resilient in reputation despite the slings and arrows of the years. So now, as the day is upon us when the last Sea King is rolled from the hangar and placed on a flatbed to be taken away, is the CH-124 Sea King fated to become Canada's *Téméraire*?

A Second-Rate Ship

With the exception of her role in the Battle of Trafalgar in 1805, HMS *Téméraire* actually had a mostly uneventful service life during the Napoleonic period in which she saw operations. Ordered in 1790, her keel was laid down in 1793, and she was launched in 1798. Commissioned as a 'ship of the line' – that is, intended to take station on a gun line during major naval engagements, *Téméraire* was identified as 'second rate' according to the Royal Navy classification system. This indicated that while she had three full gun decks (and in fact carried nearly as much armament as a larger, 'first-rate' ship), *Téméraire* was of generally cheaper construction, smaller and slower. However, given that second-rate ships were much less expensive to build, and were generally more survivable under adverse sailing conditions, they tended to serve in the farther deployed operating stations of the Empire, which were often considered too risky for first-rate flagships.

For its part, at the time of its introduction into Canadian service in 1963, the Sea King embodied a revolutionary design that reflected the increasingly mature operational

capability of rotary wing aircraft. Initially selected by the Royal Canadian Navy (RCN) to replace the Sikorsky HO4S-3 'Horse' anti-submarine warfare helicopter in the aircraft carrier HMCS *Bonaventure*, the Sea King was soon operating from the decks of the navy's destroyer escorts. This laid the foundation for modern shipboard helicopter operations – a concept that has been widely copied around the world. Nevertheless, primarily due to the cardinal sin of having many small wings moving in a rotary fashion, rather than two large ones moving not at all, the Sea King was doomed to 'second-rate' status from the outset – even more so upon the transition of naval air operations to the Royal Canadian Air Force (RCAF).

That said, like *Téméraire*, this second-rate craft proved extremely resilient and well-suited to operations in the far-flung skies and on the oceans of the world. Perhaps not the most beautiful aircraft, with its bulbous sponsons, aggressive boat-like jawline, and propensity to leak fluids more or less continuously, there was always something purposeful and utilitarian about the Sea King. Particularly as its operational roles expanded, and the community hung ever more esoteric pieces of additional kit on it – flare and chaff dispensers, electro-optical/infra-red cameras, missile warning and jamming devices, various door guns – the inner beauty began to come to the fore.

This was where the real genius of Sikorsky's masterpiece – the Sea King – shone through: a strongly-built keel, well-timbered (so to speak), with structural members that could be removed or repaired in place. With more or less predictable stress load paths and excellent corrosion predictability, its engines and gearbox were well matched. It

was heavy, relatively wind-resistant and yet not ponderous near the deck, with even a touch of nimbleness in the hands of an experienced flier – particularly when suitably motivated by a suddenly rolling ship! To stand under the Sea King when slinging or refuelling was to be reminded of the power of its design, to be simultaneously beaten by the brutal downwash and sound, while remaining astonished by the quickness of its motion, and by the sheer bumblebee improbability of such a large object suspended in flight directly over one's head.

Undaunted in Battle

Despite an exceptionally long and incredibly varied service history, totaling more than 55 years, it must be said that by most conventional measures of combat aircraft, the CH-124 Sea King had an illustrious but relatively peaceable operational pedigree. Although nearly continuously deployed, and usually in considerable numbers, this Cold War weapon never dropped a torpedo in anger in the service of Canada. Even with a door gun mounted and well-operated, it could never be mistaken for a gunship. The few shots ever fired in anger were probably of greater moral comfort to the crews than mortal danger to the enemy.

Nevertheless, as any mariner will confirm, a true enemy was always close at hand in the form of the treacherous elements and the unforgiving ocean. In this arena, the Sea King proved itself to be without peer. From the very beginning, Canadian naval aviation prided itself on operating the largest aircraft from the smallest decks in the worst weather. A well-practiced detachment could put its aircraft into the air in less than 12 minutes from a dead

sleep – and often did. In the dark of a North Atlantic night, with a 35-knot gale and sea state 6, every launch was a combat mission, every landing a test of nerve and skill.

It must also be acknowledged that black humour and blacker coffee fueled Sea King operations as much as JP-5. It was called an 'all weather aircraft' because all weather got in, and it was never a leak that was cause for concern, rather the lack of one. On a regular basis, day in and decade out, the Sea King saw service that would have destroyed most other aircraft. But sometimes, usually for want of spares, it just wouldn't go, and sat in the hangar week after week until the maintenance crews thought they would be better off rolling it overboard. And sometimes, thankfully infrequently, measured against the thousands of hours and the long years, a Sea King faltered and failed – a burnt capacitor here, a gearbox anomaly there, rivets made of the wrong metal and not caught, and dead shipmates to remember in mess dinner toasts and cairns on mountain tops and in the faces of wives and children. We began with 41 Sea Kings, and we end with 24, each one of those departed ships carrying with it a small piece of the collective history of the community – if fortunately not a grave marker for its crew, then certainly a memorial to the memories of those who flew it and fixed it and gave it a greater life than that to which most inanimate objects could ever hope to aspire.

The Stalwart Warrior

Indeed, during its long years, the Sea King definitely lived well and got around. Once the basic procedures for shipboard flight operations had been laid down, and



A Sea King helicopter, nicknamed Blackhorse, flies next to HMCS St. John's during Operation Reassurance in the Baltic Sea in March 2018. This view shows off the helicopter's boat-like 'keel' and somewhat awkward sponsons.

Credit: Cpl Tony Chaud, Formation Imaging Services



The Helicopter Hauldown and Rapid Securing Device, or Beartrap, was introduced on the RCN's destroyers, enabling Sea Kings to operate from small decks in almost any condition. Here, a Sea King approaches HMCS Assiniboine some time before September 1964. The rectangular Beartrap can be seen on the deck.

in particular once the Helicopter Hauldown and Rapid Securing Device (or Beartrap) had been installed in the RCN's destroyer fleet in the mid-1960s, the stage was set for deployments in every ocean. Beginning in steamers and the mighty *Bonnie*, a generation of intrepid old salts learned hard lessons and honed their craft plying the deeps (and skies) of the cold Atlantic and mighty Pacific. The conditions were hard. Aircrew roundsmen roped in to make the hazardous trek from the flag deck, back over the superstructure to the comforting red gloom of the hangar, with ice dams as large as two fists on the knotted lines, and the HF antenna whips so coated with ice they seemed like glistening tree trunks, pointing starward.

There, in the hangar, once the hatch was closed and dogged shut, was the Sea King – as patient as an old hound, swaying and creaking on its oleos as the waves made the chain lashings swing and the warm expansion joints above the boilers open and close. For young aircrew and maintenance personnel, there were so many rites of passage one could lose count: crossing the line, doing the pipes in the wardroom, that first 12-hour deck cycle, being sent for a length of shore line, driving the replenishment-at-sea, approach, standing second officer of the watch, star shots for beers, punching the ship's navigator bloody in the forward rope stores with a lucky fist, a visit to the Black Angus in San Juan. When it wasn't cold it was hot – paint ship routine in Puerto Rico, pasta alongside in Trieste, dolphins and fin whales off of Mallorca. In an eye blink, the young face that looked at you in the mirror became the Major or Warrant Officer, taking the detachment to sea, sorting out the knuckleheads, receiving a dressing down from the XO or Captain, then closing up later with them for a restorative coffee.

And always the backdrop, the bird – everything at sea and ashore revolved around the Sea King. Fickle, demanding, hard to fly, harder to fight, hardest to fix. In the crew rooms and messes there were always the big talkers, the outsize egos – but in the aircraft, all bowed before the King. All were humbled, neither man nor woman ever escaped their moment of fear or doubt at the controls; all were broken, and those found worthy were recast, stronger than before, members of a fraternity that stretched and stretched, but didn't break.



"...all bowed before the King." Here, HMCS Winnipeg's Sea King hovers above the ship during Exercise Poseidon Cutlass 17 on 16 July 2017.

*...I think that we
Shall never more, at any future time,
Delight our souls with talk of knightly deeds...
For now I see the true old times are dead,
When every morning brought a noble chance,
And every chance brought out a noble knight...*

*And slowly answer'd Arthur from the barge:
"The old order changeth, yielding place to new,
And God fulfils himself in many ways,
Lest one good custom should corrupt the world.*

Extract from "Idylls of the King: The Passing of Arthur," Alfred, Lord Tennyson

As the Cold War wound down, Sea Kings found employment supporting Canada's contribution to the first Gulf War in 1990-91, and soon thereafter saw service ashore in Somalia in 1992-93 in support of *Operation Deliverance*. Sea King detachments conducted flight operations in the far North, supported NATO, contributed to United Nations operations in East Timor, and conducted counter-piracy missions off the East Coast of Africa. Sea King crews rescued sailors, conducted medical evacuations, delivered disaster relief assistance, and saved lives in Haiti. When Canada needed an aircraft suitable for low and slow air interdiction, it turned to the Sea King. Support to the Olympics in Vancouver? Check. Need to transport a large load of illicitly cultivated marijuana to a suitable site for destruction? A Sea King can do that as well. Still the consummate Cold War weapon, the Sea King also learned to love – tons of water and food to a land ravaged by earthquake, and a young girl, her hand crushed, delivered to comfort and care.

With the passage of years, and as operational needs continued to evolve, it steadily became clear to all – even to detractors – that the Sea King was something special, both as an aircraft and as a symbol of resilience for a flying and sailing community. Perhaps one of the most intriguing footnotes to the history of HMS *Téméraire* is that prior to her pivotal role at Trafalgar, there had been talk of decommissioning the ship. Starved of maintenance funding, she had been allowed to sink into decrepit condition, and was not felt to be seaworthy any longer. It was only through a substantial infusion of funding (amounting to almost 25% of her original purchase price) that *Téméraire* was reconditioned and returned to the fleet in good order. So too with the Sea King, which despite making a brilliant showing in support of *Operation Friction*, suffered greatly due to maintenance funding reductions predicated on the imminent arrival of the new replacement helicopters that were supposed to come in the 1990s.



A CH-148 Cyclone flies over HMCS *St. John's* in February 2019 during a day sail.

After the post-election cancellation of that program in 1993 the Sea King fleet continued to degrade, and by the late 1990s was clearly in need of a major refit program to ensure its continued safety and mechanical viability. This critical maintenance intervention resulted in significant structural rejuvenation of the aircraft, and paved the way for the introduction of new engines and gearboxes. Though not often mentioned as one of the key factors in the overall success of the aircraft in its final years of service, without this extensive reinvestment, the Sea King fleet would not likely have been viable for long enough to allow an uninterrupted transition to the CH-148 Cyclone, and certainly would not have been able to perform operationally as it did throughout the last decade.

The Once and Future King

Although lauded as a symbol of heroism and hardiness at Trafalgar, where she came to the aid of Nelson's flagship at a critical point, fending off and ultimately capturing two French vessels, by 1812 *Téméraire* had been removed from service. She then passed from the unexceptional-yet-dignified status as a second-rate ship to become a prison hulk and, later, a storage depot. Though the painting depicts HMS *Téméraire* with masts and furled sails, by the time she was auctioned for the value of her timbers and hardware, the ship was a shadow of her former glory, with neither masts nor rigging. Turner's image thus romanticizes what can only be regarded as an ignoble end – a powerful former symbol of British military naval might rendered obsolete by technology, perhaps accompanied in decline by the qualities of martial spirit and determination, the very 'heart of oak' that imbued the proud vessel with such vitality during her prime.

It is here, thankfully, where the analogy between HMS *Téméraire* and the Sea King begins to falter. For although the retirement from service of the Sea Kings indeed marks the changeover of an older technology to a newer – mechanical systems giving way to fly by wire, and radar and

sonar equipment that has been obsolete since the 1980s now being superseded by highly integrated sensor suites – in a twist of irony we see a surprising return to something quite akin to the geopolitical and military strategic situation that faced the Sea Kings at the very outset of their service. Instead of the ghostly *Téméraire*, identifiable only by the battle flags fame has nailed to her mast, and with a role and utility now as obsolete as the sails that once carried her to battle, are we not now seeing a resurgence of the need that drove the Sea Kings to persevere over 55 years to ensure that they were always ready for whatever role was demanded?

It may not be much to celebrate, that Canada still needs naval air, and perhaps will need yet more in the future. But at the very least, as we see new crews grappling with how to bring the newest incarnation of the Sea King, the CH-148 Cyclone, into service, there should be some comfort that the keel around which the maritime air community will be rebuilt – the shared heritage of its men and women – has been strengthened rather than weakened by the passage of time.

But what of the noble ship itself? It may seem all well and good to talk of the people, and the ethos left behind as a legacy, and the growing need of this newly uncertain world but what of those last proud warriors, the final remaining individual aircraft? Are they not to be trucked to the scrap heap, sold for such value as can be extracted from them, destined for the same sad fate as that noble ship being pulled down the Thames so long ago, silhouetted against a setting sun? After all, is this not a eulogy?

In fact, it is not. For as I write these words, at the end of February 2019, the remaining 15 airworthy aircraft of the CH-124 Sea King fleet have been sold. Not for scrap, or to molder away as gate guardians, or to be turned into holiday glamping cottages – although, in fairness to the Steedman family, they did a lovely job of renovating their ex-Royal Navy Sea King; I particularly admire the addition of a proper lavatory to replace the much-beloved helicopter voice control/relief tube. While the details of the transaction cannot yet be shared, pending finalization of demilitarization requirements and US State Department third-party transfer approvals, the intent of this acquisition is to refit, renew and ultimately return some or all of the aircraft to operational status. With the average age (in flight hours) of the fleet being less than half of that of comparable aircraft still in service, and particularly given the exquisitely thorough maintenance performed on the Sea Kings throughout their RCN and RCAF service life, it is entirely possible that the CH-124 will indeed take its rightful place among the pantheon of the world's longest-serving military aircraft. If so, it will join such luminaries



Fifteen Canadian Sea Kings have been sold to as-yet unknown buyers. With many operators around the world, the possibilities are numerous. Here, a Sea King operated by the Norwegian Air Force conducts a training exercise near Norway in January 2018.

as the C-47 Dakota, the C-130 Hercules and the B-52 Stratofortress, all of which have remained in service, in form fundamentally unaltered from their original conception.

And so, while the ultimate fate of the fleet is far from certain, it appears that the time for a true eulogy for the Sea King has not yet arrived. Therefore, instead of returning to the theme of HMS *Téméraire*, and to the description of the painting of that worthy vessel being towed to her final fate, I would close with the words of a different British artist, William Butler Yeats:

*... An aged man is but a paltry thing,
A tattered coat upon a stick, unless
Soul clap its hands and sing, and louder sing
For every tatter in its mortal dress,
Nor is there singing school but studying
Monuments of its own magnificence;
And therefore I have sailed the seas and come
To the holy city of Byzantium.*

Extract from "Sailing to Byzantium," William Butler Yeats

We have all sailed the seas together, with this fine helicopter. Sometimes it has been a friend, other times a foe, for some, it has been an obsession, but it has always been a companion. And so, each in our own way, we have all arrived at Byzantium. 🍷

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Third Base: The Case for CFB Churchill

José Assis Giammaria



Credit: Anonymous Donor, Wikimedia Commons

Canada's third naval base? The Port of Churchill has long been dominated by the grain elevator and workhouse, flanked by grain storage bins.

In August 2016, the port of Churchill, Manitoba, abruptly stopped operations. In the past, shipping season operations consisted of loading grain on to a handful of freight ships for export overseas. But economic factors shifted demand for grain shipping services elsewhere after the government of Stephen Harper ended the Canadian Wheat Board monopoly in 2012. As a result, Omnitrax, a company based in Denver, which purchased the port and the railroad connecting it to the south of Canada in the 1990s, froze assets to cut costs. This means that despite government rhetoric about Canada's Arctic sovereignty claims, the only fully-fledged deep water port in the Canadian North was not operational for more than two years, and its rail link was left to fall into disrepair.

Economic concerns in the North are important and, increasingly, so are security and sovereignty concerns. According to the recent report by the House of Commons Standing Committee on Foreign Affairs and International Development, the geopolitical situation in the Arctic is expected to become more complex in the decades to come, as state actors such as Russia and China increasingly demonstrate strategic interests there.¹ And yet, Canada does not have a permanent base in the Arctic. There is, of course, the continuing construction of a refuelling facility at Nanisivik, Nunavut, which is expected to become operational in summer 2019. But, although an important future element of Canada's maritime capabilities, this

facility is a far cry from naval bases of Canada's European Arctic neighbours.

This article will first look into reasons why the absence of an Arctic naval base is a potential strategic problem for Canada. Then it will discuss why developing such a base in Churchill may help solve this problem, and provide economic benefits in the North at the same time.

The Problem: Lack of a Permanent Arctic Naval Base

Both the previous Conservative and the current Liberal governments emphasized Canadian sovereignty in the Arctic in their statements and strategy documents. Part of affirming sovereignty means having a government presence there. The Conservative government announced plans to build a "docking and refuelling facility" at Nanisivik in 2007.² However, the project was scaled back in 2012 due to mounting costs to become, essentially, a "gas station" for ships operating in the Northwest Passage.³ The Liberal government promised to focus on sovereignty in the Arctic in its 2017 defence policy *Strong, Secure, Engaged*, mainly by boosting surveillance and monitoring. Nothing was mentioned about naval bases.⁴

The Harper/Conservative government introduced a long-term shipbuilding program, which the Liberal government kept. This program will build several ship types that will increase the ability of both the Royal Canadian Navy



Credit: Clare Kines

Associate Minister of National Defence, Julian Fantino (second from the right), participates in the official ground-breaking ceremony for the Nanisivik Naval Facility on 15 July 2015.

and the Canadian Coast Guard to operate in the North. The National Shipbuilding Strategy (NSS) includes six Arctic Offshore Patrol Vessels (AOPVs). These ships are not icebreakers but they are ice-capable ships designed to spend time in the Arctic during the summer navigation season. The first AOPV, HMCS *Harry DeWolf*, has been launched and is expected to become operational in the summer of 2019. However, there is no permanent Arctic base for these ships, and that could be a problem in the long term, as the region becomes more accessible and its geopolitical significance grows.

Why is it important for Canada to have a base in the Arctic? Both the classic naval theorists, such as Alfred Thayer Mahan, and modern scholars, such as Geoffrey Till, point out that favourable geography alone, although important, does not lead to the development of sea power. Rather, it is the efficient allocation of resources by the government that serves as a primary factor in gaining maritime capabilities. Some countries which have the perfect geography to focus on maritime capabilities, such as New Zealand,

suffer from ‘sea blindness,’ and ignore their unique maritime position in their public policy.⁵ Others, like the Dutch in the 17th century, England in the 18th and 19th centuries, and the United States in the 20th century, have taken advantage of their geography to pursue government policy aimed at gaining, retaining and increasing their sea power.⁶ A key question then will be: does Canada want to develop its maritime capabilities in the North and take full advantage of its unique Arctic geography and status as one of the five Arctic coastal states?

The remoteness of the Canadian North creates a natural security barrier, but that same remoteness contributes to the challenge of managing its security, economy and environment. The cost of sustaining any government maritime policies in the Arctic could be prohibitive, which was the main reason why the Harper government had to scale back and/or postpone its ambitious projects in the North. As a result, Canada’s maritime strategy has a gaping hole when it comes to the Arctic.

On the one hand, the Canadian navy and Coast Guard are being modernized in the National Shipbuilding Strategy. On the other hand, sea power does not arise only from having ships alone. Mahan wrote about the importance of securing naval bases where warships could stop to re-supply and repair. Such bases allow for the command of the sea, if located strategically.⁷ A vivid example of such a base is Gibraltar, which England secured in the 18th century and retained ever since. China is currently in the process of developing maritime bases in the South China Sea, much to the chagrin of other states which claim the islands on which China is building.

A 2018 report by the Centre for International Governance Innovation (CIGI) notes that Nordic countries and Russia invest significantly more resources into Arctic



Credit: US Embassy Canada

The town of Churchill as seen from the primary port building on 9 June 2012.



Credit: Davie Shipbuilding

Canada's primary polar icebreaker, CCGS *Louis St. Laurent*, departs Davie Shipbuilding after a refit in June 2014.

infrastructure and sea power than Canada.⁸ Even a brief glance at the Russian Arctic coast reveals the scale of that investment. There are at least a dozen military bases and facilities, many of which are scheduled for modernization.⁹ The same is happening in Norway which has not only declared the Arctic as a priority in the government strategy documents, but also followed up with heavy investments into infrastructure in the region, including transportation and communications.¹⁰ (It should be noted, however, that the maritime conditions in Norway are very different than in Canada because, despite its northern location, much of the water along the coast of Norway remains ice-free.)

As indicated in an April 2019 government report on climate change, the Canadian North is warming up at a rate twice as fast as the rest of the world.¹¹ This means that the region will soon become more accessible for maritime traffic. But the necessary infrastructure to manage and support this traffic is lagging behind. The state of the Canadian Coast Guard fleet and slow rate of its modernization and vessel replacement illustrates that. Some Arctic experts say that the infrastructure investment in the region will start to pay off for the Nordic countries and Russia in the next two decades in terms of increased capabilities to access resources and control the sea routes.¹² Therefore, to keep up with the changing global geopolitical situation, the changing environment and the changing economy, Canada needs to develop its Arctic facilities, or at least modernize the existing ones. However, nothing of the sort is currently taking place with the exception of the facility at Nanisivik.

The Solution: The Port of Churchill and Icebreakers

Churchill, Manitoba, could be a perfect candidate for an Arctic naval base – to supplement the commercial port

already there – for a variety of reasons. First of all, it is in a location which has already been used as a military base, although this was many years ago, not to mention the fact that there already exists a permanent population with skills required to run a port.

Second, at least some infrastructure necessary for a maritime base already exists in Churchill. It is connected to the south both by rail and by air, as it is a tourist site during the summer. It is the only Arctic port in Canada that has a direct rail link to the south of the country and to rail networks in the United States. Thus, it can be more easily supplied and maintained than a distant outpost on a barren island in the Northwest Passage. As well, there is already a marine fuel tank farm there.

Third, Churchill is a deep water port, and it provides a potentially lucrative commercial shipping link with Europe and the rest of the world. Although exports and imports via Churchill have not been robust, which is why the port was closed, there is no reason why this could not be changed given upgrades to the rail service and the port. Churchill provides a convenient shipping port for goods grown or resources extracted in Western Canada to cross the Atlantic. The distance from Calgary to Churchill, for example, is 1,525 kilometres, whereas from Calgary to Halifax is more than 4,000 kilometres, so goods could be loaded on to ships for transport from Churchill. By sea, however, it should be noted that Churchill is far away from the rest of Canada – it's about 2,756 nautical miles from the port in Halifax to the port in Churchill.¹³

As the Arctic sea ice continues to melt, the importance of Churchill will only grow, and increased shipping will require protection and monitoring. The growing strategic importance of the Northwest Passage (and Churchill) in the not-so-distant future, at least on its commercial side, is well recognized both at home and abroad.¹⁴ As an



Credit: Hudson Bay Railway

Photos from summer 2017 provided by Omnitrax show washout damage to the Hudson Bay Railway tracks to Churchill. This location was only one of many damaged by the floods that year. Omnitrax chose not to repair the line due to costs, eventually selling it to Arctic Gateway Group. The line has since been repaired and rail traffic has resumed.

example, a Chinese diplomat visited the town just after the port was closed, and potential Chinese investors inspected the port in May 2018.¹⁵

Fourth, developing a permanent naval base would help with the issue of infrastructure maintenance at the port. Having this port administered by a private entity has already shown that it is not necessarily more efficient. The federal government and Omnitrax battled in court over whose responsibility it was to do repairs of the rail link damaged by floods in May 2017.¹⁶ In late August 2018, the Canadian government forked out \$117 million to cover both repairs and maintenance costs for the next 10 years, in order to facilitate the sale of the Omnitrax assets in Churchill to Arctic Gateway Group (AGG), a Canadian private-public partnership, which includes a group representing affected/interested northern communities.¹⁷ After AGG took over control of Omnitrax's assets, the railway was restored back to operational state in just 40 days.¹⁸ Thus, the Canadian government essentially bailed out an American private company which ran Churchill's crucial infrastructure into the ground. Moreover, it is only a limited fix because developing a permanent naval base to supplement the existing commercial port and the related infrastructure would require more extensive investment and effort.

Another element to enhance the utility of a permanent naval base in the Arctic is to build a fleet of modern icebreakers, or modernize existing ones. This point relates more to the Canadian Coast Guard (CCG) than to the navy as it is the CCG that operates icebreakers and generally plays a larger role in the Arctic than the navy. Currently, navigation season in the Northwest Passage and Hudson Bay is only a few months, from about mid-July to early November. This means that supplies can be delivered to port facilities by sea only during this relatively short window. During the rest of the year, Churchill would have the advantage of resupply via rail, whereas Nanisivik, for

example, can be only resupplied by air outside the short navigation season, which makes its operational costs very high. Icebreakers could help prolong navigation and extend the period when facilities could be used and supplied.

The issue is that Canada's fleet of icebreakers is very old and very small considering the size of Canada's northern territories. Again, the country is lagging behind its Nordic counterparts and Russia when it comes to icebreaker technology and investment into building the fleets.¹⁹ For example, Russia has 46 icebreakers with another 15 either under construction or planned, and Finland has 10. To compare, Canada has only seven aging icebreakers, and has plans to build one new vessel.²⁰ And, as noted earlier, icebreakers are operated by the coast guard not the navy, so the maritime base in Churchill could accommodate the CCG and other government departments as well.

The icebreaker component of Canada's naval strategy in the North has suffered the same problem as the facility at Nanisivik. In 2013 the planned number of new icebreakers was slashed from two to one, and its construction postponed for four years as the government decided to prioritize the procurement of Joint Support Ships (JSS) in the National Shipbuilding Strategy (NSS). Since both contracts were awarded to the same shipyard, the ships have to be built in sequence – and the JSS were given the green light first. As a result, even if it is not postponed again, the new icebreaker may only be ready by 2021.²¹ For this reason, in August 2018 the government agreed to sole-sourcing the purchase of three used icebreakers from Davie Shipbuilding as a stopgap until replacements are built.²²

Some people might ask why Canada needs icebreakers if the ice is melting in the Arctic. The answer is that, despite climate change and the rapid warming in the North, at least some of the Northwest Passage will still be covered with ice during winter in the foreseeable future, due to the nature of currents and the way sea ice is formed in

Canadian Arctic waters.²³ If the current rate of climate change in the Arctic holds, the role of the icebreakers could be extended to supporting commercial shipping lanes or escorting tourist vessels through the Canadian northern straits. But even before that becomes necessary, Canada needs icebreaker capability because it is necessary for defence and sovereignty operations in the region.

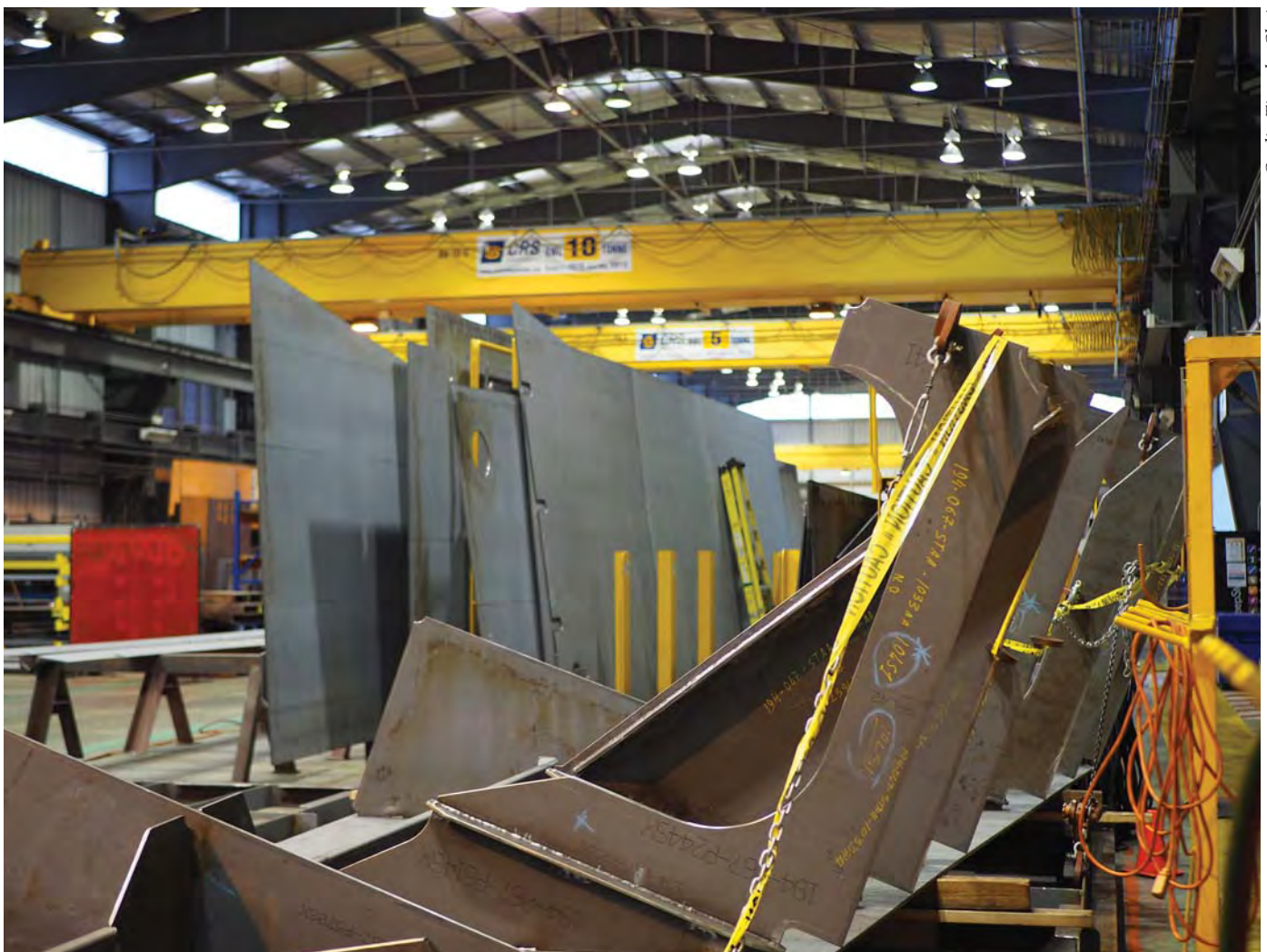
Apart from serving as a base for the AOPVs and coast guard icebreakers, there are a number of other advantages to having a permanent port in the Arctic. It could serve as a hub for developing crucial elements of regional infrastructure, most important of which is transportation. The Canadian Arctic remains largely inaccessible and very difficult to reach, unlike the Norwegian High North with easier access by sea or by air, or the Russian Arctic seaboard which has a few deep water ports accessible by rail.²⁴ Another important infrastructure component is communication, a sector where Canada also lags behind the Scandinavian states. For instance, communities in the

Canadian Arctic rely mostly on Internet connection via satellite, while the Nordic states are successfully building 4G and 5G wireless networks.²⁵

In addition, the presence of a permanent naval – perhaps shared with the coast guard – base would help stimulate population growth and the local economy in and around Churchill. A quick glance at the assets belonging to the two currently active naval bases in Esquimalt and Halifax reveal that both have a significant number of buildings, residential units, roads and other properties under their management.²⁶ It would undoubtedly take time to develop all that infrastructure, but it could be done cheaper and easier in Churchill than at any other site in the North.

Conclusion

One of the essential conditions for developing naval capabilities, as pointed out by sea power theorists, is having strong bases where fleets can go to rest, repair and resupply. While Canada has access to three oceans (the Pacific,



Credit: Timothy Choi

A section of the first Joint Support Ship awaits further assembly at Seaspan Vancouver Shipyards on 13 December 2018. The Joint Support Ships were prioritized over the polar icebreaker.



The city of Dudinka is one of several deepwater port cities along Russia's Northern Sea Route, and lies at the mouth of the Yenisei River.

the Atlantic and the Arctic), it has permanent naval bases only on two of them. Given the growing importance of the Arctic for coastal states' security and economy, Canada is taking steps to augment its maritime capabilities in the North. The shipbuilding strategy includes six Arctic-capable warships and an icebreaker. Ottawa is also scheduled to open a naval refuelling facility in Nanisivik, Nunavut, this summer.

However, this is not enough. It would be logical to have a permanent base in the Arctic, too. In fact, Canada already has a good location for such a base – the port of Churchill, Manitoba. There is no denying that Churchill is far from the majority of the population of Canada and difficult to access by sea, but it has a permanent population, it is accessible via railway, and it is a deep water port with existing marine fuel storage facilities. This port of strategic significance was allowed to deteriorate to the point when the private operator company refused to repair the damaged railway. Not only will rebuilding this port close a gaping hole in Canada's maritime policy, but it will also serve as a stepping stone for the growth of infrastructure in the Canadian North in general. Other Arctic states, such as Norway and Russia, have already invested heavily in infrastructure projects in their respective northern regions. Canada urgently needs to find the political will to do so as well. 🇨🇦

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The Strategic Contribution of the *Harry DeWolf*-Class to Canadian Defence and Security

Gaëlle Rivard Piché and Lieutenant-Commander James Brun

In fall 2018, Irving Shipbuilding launched the first Arctic Offshore Patrol Vessel (AOPV), a significant milestone for the National Shipbuilding Strategy (NSS) and the Arctic Offshore Patrol Ship program. The *Harry DeWolf*-class will be the first naval platform to be delivered under the NSS. The first ship will be followed by five more vessels, all scheduled to be completed by 2024. A lot has been said and written about the new class of ice-capable warships, the first of its kind since HMCS *Labrador* was transferred to the Canadian Coast Guard (CCG) in 1957.

For good reasons, most of the discussion surrounding the new *Harry DeWolf*-class focuses on the ability of these new ships to operate in the Arctic, to protect and defend Canada's third ocean, and the nature of the threats and challenges they are likely to face in the Arctic over their life span. Yet, little has been said about how the AOPVs will contribute to advancing Canadian strategic interests in the Arctic and beyond. The AOPVs constitute a significant addition to the Royal Canadian Navy's (RCN) fleet, both in terms of capability and overall capacity.

Strong, Secure, Engaged: Canada's Defence Policy (SSE) has set ambitious missions and objectives for the RCN and the Canadian Armed Forces (CAF) more broadly, perhaps a

reflection of the increasingly complex and volatile international security environment. The *Harry DeWolf*-class will significantly contribute to the RCN's capacity to fulfill these missions. Indeed, the AOPV is a strategic capability that will increase the RCN's capacity to perform a large range of missions, from search and rescue and sovereignty patrols in Canada's Arctic waters, to capacity building and constabulary functions in regions of interest to the Canadian government. While the *Harry DeWolf*-class is not a combatant, it is a polyvalent and flexible ship that fills a significant capability gap in the RCN's fleet. At home and abroad, the AOPVs will contribute to CAF core missions, and support other government agencies and international partners.

SSE and Strategic Forecast

Published in June 2017, *SSE* provides much-needed direction to the CAF in regard to their core missions, concurrent operations and required capacity. According to the document, the CAF must be prepared to: defend Canada and North America; contribute forces to the North Atlantic Treaty Organization (NATO) and coalition operations; lead and contribute to peace and stabilization operations with the United Nations, NATO and other partners;



Credit: Irving Shipbuilding

The first Arctic Offshore Patrol Vessel, *Harry DeWolf*, is seen here being lowered into saltwater for the first time during its September 2018 launching in Halifax.



Credit: Captain Annie Morin

An officer onboard the **Kingston-class** Maritime Coastal Defence Vessel HMCS **Yellowknife** scans for potential threats as the ship arrives in Guatemala during **Operation Caribe** on 4 April 2019. With their size, range and endurance, the AOPVs will likely be employed on future such missions in Latin America.

support partner capacity building; assist other domestic departments and agencies in support of national security as well as disaster and emergency response; and conduct search and rescue missions.¹ This long and diverse list highlights the wide range of roles the CAF must be ready to play, often simultaneously.

Of course, several of these missions will take the CAF to the Arctic. To that end, the defence policy mandates the CAF to “increase presence in the Arctic over the long-term and work cooperatively with Arctic partners.”² The archipelagic nature of the Canadian Arctic leads us to assume that the RCN will play a key role in defending sovereignty and ensuring the security and safety of Canadians in the region. As such, the RCN and the CAF are facing a new operating environment that is often unpredictable, always challenging and of which they only have limited knowledge.

Yet the Arctic is not the only region warming up. The geopolitical world is also heating up. The return to great power competition as a key factor dictating international security and stability also poses a significant challenge to Canada.³ SSE details how maintaining peace and security in regions of interest to Canada will require greater engagement of the CAF. When it comes to the RCN, recent capacity-building activities off the western coast of Africa, maritime security operations under *Operation Reassurance* in and around Europe, and constabulary operations against drug trafficking in Latin America suggest a greater operational tempo and extended international reach for the navy.

Flexible and multi-purpose ships are required to face such diverse challenges in widely different operating environments. To that end, over time and in line with the NSS, the plan for the RCN is to acquire platforms and modernize its equipment in order to maintain a “balanced mix

of platforms, including submarines, surface combatants, support ships and patrol vessels, in sufficient quantities to meet our domestic and international needs.”⁴

In the evolving strategic context, an ice-capable, multi-function naval platform constitutes a significant addition to the RCN fleet. In comparison to other G7 countries, the RCN is a small navy that must demonstrate versatility and adaptability in order to address the multiple security and defence challenges it faces. Canada is a large and northern country and its military operates with allies in a variety of missions and regions – an RCN ship needs to be able to accommodate these diverse Canadian requirements. While it is not a surface combatant, in the coming decades, the *Harry DeWolf*-class will constitute a key asset in the RCN fleet to achieve different missions along the operational spectrum. Indeed, although war-fighting is the RCN’s *raison d’être*, the bulk of the navy’s activities falls lower on the spectrum of operations.

AOPV Capabilities

The AOPV brings onboard capabilities that allow for much-needed versatility. For evident reasons, emphasis has been given to its capacity to operate in icy conditions. In line with the RCN’s Statement of Operational Requirements,⁵ a guiding document for the AOPV design, the *Harry DeWolf*-class can safely navigate “in medium first-year ice which may include old ice inclusions.”⁶ In technical terms, the AOPV hull structure and machinery configuration are designated by the International Association of Classification Societies as Polar Class 5.⁷ Additionally, to account for the nature of naval operations, Canada has reinforced the AOPV’s ice belt at the bow, stern and quarters, increasing its overall capability in ice. *Harry DeWolf*’s ice trials will confirm the conditions in which the ship can navigate. What is important to remember is that the AOPV is an ice-capable vessel, not an icebreaker. It will not facilitate the passage of vessels navigating

Canadian polar waters. This responsibility falls to the Canadian Coast Guard (CCG), which is set to acquire a polar icebreaker and three commercial icebreakers under the NSS. Set to replace CCGS *Louis S. St-Laurent*, the polar icebreaker will be Canada's most capable icebreaker, able to operate in the Arctic year round. Its construction will follow the completion of the Joint Support Ships. Dedicated to the support of economic activities in Canada's waterways, the CCG's three new commercial icebreakers will also be able to operate in the Arctic when conditions allow.

A second key capability of the AOPV is its long range and autonomy. The *Harry DeWolf*-class will be capable of sustaining operations for up to four months with limited logistical support as it has an enviable storage capacity. This is particularly important when considering the type of missions the platform will be tasked to do. In the Canadian Arctic, coastal communities are few and far between, there are few ports that can harbour military ships,⁸ and access to basic commodities (food, potable water, fuel, etc.) is limited. Abroad, humanitarian crises and natural disasters also pose important logistical challenges to responders. With an endurance of 6,800 nautical miles at a 14 knot cruising speed, the autonomy of the AOPVs will increase the ability of the RCN to reach and operate in remote areas without deploying frigates and Joint Support Ships, which cost more to operate. Indeed, it is estimated that the daily cost of operating a *Halifax*-class frigate at sea during domestic operations will be almost 50% higher than the equivalent cost for an AOPV.

Third, as noted, the *Harry DeWolf*-class ships will be versatile, in large part because of their equipment. The crew, equipment and supplies can be arranged based on the mission they will be undertaking. AOPVs will carry several small boats including rigid-hulled inflatable boats, multi-role rescue boats, landing craft for personnel and vehicles, and two fully enclosed life rafts built to shield the crew from harsh climate conditions. Each AOPV will also have the capacity to embark six standard shipping containers, holding whatever the mission calls for, from underwater survey equipment for scientific research to medical supplies for humanitarian assistance and disaster relief. In addition, the AOPV vehicle bays will be able to carry pick-up trucks, all-terrain vehicles and snowmobiles to travel on land or ice. In order to load and unload these vehicles and containers, the ship has a self-contained 20-ton crane, an extremely useful capability in a remote operating environment and in smaller ports.

Fourth, while the AOPVs will not be war-fighters *per se*, they will still hold a force projection capability. One of the most common criticisms has been the ships' insufficient

combat capabilities, especially in comparison to their Danish and Norwegian equivalents.⁹ Even if they are lightly armed, the ships will be able to embark and operate a CH-148 Cyclone helicopter, a capability that increases the ships' surveillance zone and tactical reach tremendously. It will also have a 20-person accommodation space onboard that will provide flexibility in the embarkation of special teams, such as the RCN's Naval Tactical Operations Group, a US Coast Guard Law Enforcement Detachment, or Special Forces. With an expansive boarding party locker, state-of-the-art small boats, and a Mark 38 Mod 3A 25mm cannon which can be remotely operated, the *Harry DeWolf*-class will be able to conduct boarding operations and act as an enforcer when required. Finally, its communications suite will offer significant command and control abilities, and provide reliable inputs into the maritime picture. As a result, the AOPV will be able to act, for instance, as the command ship for a mine counter-measure task group. Such capabilities will be useful in the Arctic, as well as in other regions in which the RCN is likely to operate, alone or as part of a Canadian or multinational task group.

Guarding the North

While the nature and the immediacy of the threat against Canada's North has been debated at length,¹⁰ the CAF and the Canadian government see no immediate or direct military threat to the Canadian Arctic.¹¹ Great power competition will certainly shape the Arctic strategic environment over the coming decades, but the more pressing issue concerns the effective exercise of sovereignty in Canada's most remote and austere region. As pointed out by Major-General William F. Seymour, deputy commander



Credit: Irving Shipbuilding

ABCO Industries in Lunenburg, Nova Scotia, will be building 12-metre landing craft for the AOPVs, allowing the ships to land personnel and small vehicles in places lacking marine infrastructure.



Credit: Irving Shipbuilding

*This stern view of **Harry DeWolf** shows clearly the 20-ton crane mounted on the deck.*

of the Canadian Joint Operations Command, “sovereignty ignored is perhaps sovereignty lost.”¹² The AOPV is an important step for the CAF as a whole toward increasing its presence in the Arctic to exercise and assert Canadian sovereignty.¹³

To that end, the AOPVs will monitor the maritime approaches to Canadian northern waters and the country’s polar sea lanes, including the Northwest Passage. Indeed, as another set of eyes and ears in an immense territory, the *Harry DeWolf*-class will be the first military capability to navigate the Arctic waters regularly. It will improve Canada’s understanding of marine traffic patterns, ultimately increasing the CAF capacity to detect, deter and defend against threats. As a support to other government agencies, it will also bolster Canada’s capacity to enforce legislation on its own territory and provide assistance in case of emergencies. The RCN will be able to welcome on-board representatives from different domestic agencies to conduct a wide range of activity in Canada’s northern waters, including Royal Canadian Mounted Police and Canadian Border Service Agency agents, fishery officers from Fisheries and Oceans Canada, and scientists from Environment Canada and Defence Research and Development Canada. As such, the AOPVs’ key capabilities described above will enable the ships to meet current Canadian objectives in the Arctic.

Looking forward, maritime traffic in the Northwest Passage will certainly continue to increase. The region is opening up as temperatures in the Arctic continue to rise. Nonetheless, at least in the short term, navigation conditions will remain difficult, reducing the attractiveness of Canadian northern sea lanes for commercial and military activities. The length of the navigation season has varied quite significantly over the last years, and the conditions are often unpredictable. For example, Nanisivik was completely cut off at the end of August 2018 due to unusually early and heavy ice movements, delaying activities to finalize the new naval berthing and refuelling facility on Baffin Island. In fact, most of the year, the Canadian Arctic continues to be inaccessible to surface vessels, even ice-capable ones.

As the strategic environment evolves over the next 20 years and the waterways open, it is possible that state competition and threats against Canadian interests in the region will become more acute. In such a scenario, the modular capability of the AOPVs will be extremely useful. Indeed, the RCN will be able to bring onboard containerized technologies for different missions, including mine and submarine detection systems, which are key capabilities in a naval task group. Furthermore, like other RCN ships, the *Harry DeWolf*-class may go through refit and life extension modifications, which will make it possible

to re-assess the capabilities the AOPVs require to face the contemporary threat environment. This may include adding significant teeth to the platform if required. In the meantime, considering the length of the navigation season in the Arctic and despite the fact that the AOPVs have been designed and procured with polar operating conditions in mind, the ships are likely to spend most of their time in warmer waters.

Operating in Southern Waters

In the last decades, restriction on the number of ships available due to the modernization of the *Halifax*-class frigates and the early decommission of some key platforms, including HMCS *Protecteur* and HMCS *Algonquin*, put a lot of strain on the RCN fleet. The *Kingston*-class Maritime Coastal Defence Vessels (MCDVs) have become increasingly engaged in international operations, including in the Caribbean Sea and along the West African coast. For an institution that has learned over the years to do more with less, the AOPVs will be a welcome relief.

When not in the Arctic, it is likely that the *Harry DeWolf*-class will patrol the Atlantic and Pacific Oceans to the full extent of Canada's Economic Exclusion Zone. AOPVs will relieve *Halifax*-class frigates and future Canadian Surface Combatants of sovereignty operations, fisheries patrols and other constabulary functions in support of other government departments, allowing the RCN's surface combatants to be employed by Canada in missions where the risk threshold is higher and a warfare capacity may be required. Currently, MCDVs augment the RCN's frigates in these low-risk, yet important roles. The *Harry DeWolf*-class will bridge the capabilities of the *Halifax*- and *Kingston*-classes at a fraction of the cost of operating a frigate, while delivering substantially more capability than the MCDVs. Specifically, the AOPVs will be larger, faster, better armed and more versatile than the MCDVs.

AOPVs will certainly be deployed on missions taking them beyond Canadian waters. The *Harry DeWolf*-class Concept of Use document articulates a role for AOPVs in missions like *Operation Caribe*, Canada's contribution to a joint multinational counter-narcotics operation in the Caribbean Sea and eastern Pacific Ocean.¹⁴ Canada has a standing contribution of patrol aircraft and warships, primarily *Kingston*-class vessels, to the mission each year, and plays a significant role in drug seizures and interruptions. Additionally, first in 2017 and then again in 2018 under *Operation Projection*, Canada deployed ships to West Africa on capacity-building and maritime interdiction operations. The RCN sailed again to the Gulf of Guinea in February 2019 to engage with local maritime security forces. Patrol vessels such as the AOPVs and

MCDVs are better suited for this type of mission than combatants, which are generally not operated by developing states targeted for capacity-building activities.

Finally, the *Harry DeWolf*-class will provide the government of Canada with a reliable mechanism to respond quickly and effectively to humanitarian crises and natural disasters around the world. Combined with their command and control and helicopter capabilities, the equipment and storage space onboard, the AOPVs will give the RCN a platform from which emergency response operations can be maintained without impeding on the population and strained resources ashore. As climate change continues to affect sea levels and weather patterns around the world, the government of Canada and the RCN are likely to be increasingly asked to intervene at home and abroad to provide support to civilian populations and assist partner states in responding to major emergencies and disasters.

Conclusion

Vice-Admiral Ron Lloyd, Commander of the RCN, summarized it well at the future HMCS *Harry DeWolf*'s naming ceremony. He stated that "[o]ur presence in Canada's North will be extended, and our ability to support a



Members of the RCN's Naval Tactical Operations Group provide a demonstration to visitors on the deck of HMCS *Calgary* during Maritime Security Challenges 2018 off of Victoria, BC, 15 October 2018.

Credit: Timothy Choi



Credit: Corporal David Veldman

Petty Officer First Class Chris Oldham, Coxswain of the MCDV HMCS *Kingston*, observes a Moroccan Navy ship during Phoenix Express 2019 in the Western Mediterranean Sea on 3 April 2019.

breadth of global operations will be enhanced. Today is an exciting day that brings us one step closer to tomorrow's future fleet."¹⁵ The *Harry DeWolf*-class is a flexible and multi-purpose platform that will enhance significantly the ability of the RCN to conduct a wide range of operations in various environments. It will not only increase the CAF's reach and presence in the Arctic, but it will also supplement the *Halifax*-class, as well as the future Joint Support Ships and Canadian Surface Combatants.

In an increasingly complex security environment, the AOPVs will provide the RCN with the flexibility and capacity to respond effectively to challenges and threats to Canadian defence, security and safety, unilaterally or alongside Canadian allies. In that sense, the *Harry DeWolf*-class constitutes a key addition to the RCN fleet and will certainly play an important role in supporting other government departments, and a strategic role in ensuring Canadian security at home and abroad. 🍷

Notes

1. Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy*, Ottawa: Government of Canada, 2017, p. 17.
2. *Ibid.*, p. 14.
3. Paul Wells, "Chief of Defence Staff Jonathan Vance on what China is doing to Canada," *Maclean's*, 3 December 2018.
4. Department of National Defence, *Strong, Secure, Engaged*, p. 35.
5. Royal Canadian Navy, "Statement of Operational Requirement: Arctic/Offshore Patrol Ship (AOPS)," 9 September 2016.
6. International Association of Classification Societies, "Requirements considering Polar Class," 2016, available at <http://www.iacs.org.uk/download/1803>, p. 11-2.
7. Daniel Loughheed, "The Royal Canadian Navy's New Arctic and Offshore Patrol Vessels," *Marine Technology*, January 2018.
8. Closed in 2016, Churchill was the only deep water port in northern Canada. Nonetheless, other harbour facilities can accommodate the AOPV across the region. On its first northern deployment, HMCS *Harry DeWolf* is expected to visit Pond Inlet, Nanisivik, Resolute Bay, Kugluktuk and Dutch Harbor (USA).
9. Rob Huebert, "The Case for a More Combat-Capable Arctic Offshore Patrol Ship," *Canadian Naval Review*, Vol. 10, No. 3 (2015), pp. 4-9; Robert Smol, "Canada's New Arctic Patrol Ships Little More than Floating Security Guards," *iPolitics*, 11 April 2018.
10. For a good summary of the debate among some of the most prominent Canadian academic experts, see Franklyn Griffiths, Rob Huebert and P. Whitney Lackenbauer, *Canada and the Changing Arctic: Sovereignty, Security, and Stewardship* (Waterloo: Wilfrid Laurier University Press, 2011).
11. Government officials agree that "no state currently poses a military threat



Credit: Irving Shipbuilding

As ship's sponsor, Sophie Gregoire Trudeau pulls the rope that smashes a bottle of Nova Scotia sparkling wine on the hull of *Harry DeWolf* during its naming ceremony on 5 October 2018, at Irving Shipbuilding in Halifax.

- to Canada. However, ... Canada faces a number of non-military threats to its security, such as terrorism, illicit trafficking of narcotics, and human and weapon smuggling." Canada, Parliament, House of Commons, Report of the Standing Committee on National Defence, *Canada and the Defence of North America*, June 2015, available at <http://www.ourcommons.ca/DocumentViewer/en/41-2/NDDN/report-13/page-57>.
12. Canada, Parliament, House of Commons, Standing Committee on Foreign Affairs and International Development, Minutes of Proceedings and Evidence, 42nd Parliament, 1st Session, No. 105, 19 September 2018.
 13. Rightly so, Timothy Choi argues: "it appears highly unlikely that the [AOPV] will ever come into a situation in which it will fire in anger, even if it could.... As a vessel whose mission is limited to that of sovereignty assertion, rather than defence per se, keeping the [AOPV] as a monitor of the North may be the more practical course." Timothy Choi, "What the Critics Gets Wrong: A Realistic Appraisal of Canada's Arctic Offshore Patrol Ships," *On Track*, Vol. 20, No. 11 (2015), p. 52.
 14. Royal Canadian Navy, "*Harry DeWolf* Class Arctic/Offshore Patrol Ship Concept of Use," 27 November 2015.
 15. "Editorial: 'Advancing Arctic Sovereignty,'" *Toronto Sun*, 8 October 2018.

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Canada Concludes Fourth Command of CTF 150



Credit: MCpl PJ Letourneau, Canadian Forces Combat Camera

Commodore Darren Garnier (right) and Captain Leif Maxfield, Royal Australian Navy, CTF 150 Chief of Staff, speak during the Combined Maritime Forces Commander's Update Briefing in Manama, Bahrain, during **Operation Artemis** on 20 March 2019.

On 6 December 2018, Canada assumed command of Combined Task Force 150 (CTF 150) under the leadership of Commodore Darren Garnier. Canada has been contributing to CTF 150 through Royal Canadian Navy warships, Royal Canadian Air Force maritime surveillance, and/or staff to operate at headquarters since the beginning of the partnership in 2001. This was the fourth time Canada has led the multinational counter-terrorism task force, located at Combined Maritime Forces (CMF) Headquarters in Manama, Bahrain. The deployment is part of *Operation Artemis*, the Canadian Armed Forces' (CAF) ongoing contribution to counter-terrorism and maritime security operations in Middle Eastern and East African waters.

Canadian Naval Review (CNR) had the opportunity to ask Commodore Garnier a few questions about the mission.

CNR: What is Combined Maritime Forces (CMF) and CTF 150?

Commodore Garnier: CTF 150 is one of three task forces employed under the American-led Combined Maritime Forces (CMF), which is a naval coalition of 33 countries that promotes security and stability in the international waters of the Middle East and East Africa region. CMF was formed in the aftermath of 9/11 as a way to bring together regional partners to ensure peace and stability and the free flow of goods and commerce in Middle Eastern and East African waters.

CMF has grown exponentially over the years and we continue to seek regional partners to help us in our mission. The coalition partners are countries from all over the world, with Brazil being the latest to join. The three task forces are led by staff from the various coalition partners and CMF headquarters includes representatives from all these countries. It's a colourful exhibition of uniforms when we have our briefings.

As for CTF 150 specifically, we work with coalition partners

to deter and deny terrorist organizations any benefits from employing the high seas for smuggling illicit cargo including narcotics, UN-embargoed weapons, and Somali charcoal. Profits from drug trafficking in the region are a known source of funding for terrorist and criminal networks. This represents a common threat to the security and prosperity of the region.

We know that heroin and hashish are being trafficked from the northern Indian Ocean down through traditional shipping routes to the eastern Arabian peninsula. The heroin trade is largely moving to the East Coast of Africa down to the Mozambique channel where it is offloaded and, subsequently moved on to destinations around the world. Profits go to fund groups such as the Taliban and other terrorist-like organizations that seek to do harm around the world, destabilize populations, and undermine international efforts to secure the sea lines of communication.

CNR: What is your role as Commander of CTF 150?

Commodore Garnier: My role is to lead the men and

women of CTF 150 that are employed here as part of Canada and Australia's commitment to the region. Our three main lines of operation are:

1. Denying terrorists the use of the high seas for the free flow of illicit goods that may contribute to the funding of terrorism;
2. Working with our regional partners to build relationships and deepen our understanding of some of the challenges in the region; and
3. Building capacity and confidence with regional partners.

CNR: What has been Canada's contribution to CTF 150 and what are the challenges Canadian (and other) units face in achieving multinational interoperability/integration?

Commodore Garnier: In addition to the 29 CAF-member headquarters staff in Bahrain, supported by seven members of the Royal Australian Navy, Canada increased its contribution to *Operation Artemis* by contributing HMCS *Regina*, its embarked CH-148 Cyclone



A CP-140 Aurora flies past HMCS *Regina* and NRU *Asterix* on 31 March 2019, during *Operation Artemis*, somewhere in the Arabian Sea area.

Credit: MCpl PJ Letourneau, Canadian Forces Combat Camera



The crew of HMS *Dragon* stand over their fourth drug haul, the largest to date in CTF 150's history, during the ship's latest deployment in December 2018.

helicopter, an embarked Naval Tactical Operations Group enhanced boarding team, Naval Replenishment Unit (NRU) *Asterix*, and a CP-140 *Aurora* aircraft.

As for the challenges units face in achieving interoperability, it is important to understand the challenges and work through it. The limitations in standardized communications and tactics, national caveats and mandates are part of the interoperability challenge in CMF. We accept it and work to find solutions. What we have are willing countries who believe in the mission – that solves a lot of problems. One of the biggest things I have learned during my tenure in command is that no two situations are the same. What worked once, may not work a second time, but you need to push through and challenge conventional thinking and problem solving. The success is well worth the effort.

CNR: What is the extent of the area of operations and a perspective on overall operations in the theatre?

Commodore Garnier: The CTF 150 area of operations is 3.2 million square miles, encompassing the Arabian Sea, Gulf of Oman, Gulf of Aden, Somali Basin and southern Red Sea. To put it into Canadian perspective, that's roughly the size of Quebec and Ontario combined.

This is a complicated and dynamic battle space that requires an innovative approach to operations. I prioritized regional engagement and capacity building,

understanding that enabling regional stakeholders is a key strategic outcome.

CNR: What is your relationship with Commander CTF 151 and 152, and the command structure within which all operate?

Commodore Garnier: The strength of the coalition is our ability to operate together. We have developed deep, effective and enduring relationships with the other task forces, often balancing our available forces, particularly intelligence, surveillance and reconnaissance (ISR) assets, to support the wider objectives of CMF. There is always commonality in our mission sets and opportunities for us to support each other's effort.

CNR: What are the key challenges faced by CTF 150 in its operations both as a force, and by you as its Commander?

Commodore Garnier: There are two key and inter-related challenges – ISR and force flow. The area of operation is a massive piece of water space and requires robust and continuous ISR to build our situational awareness and guide our operational planning. This requires the right assets available at the right time. Similarly, we need to generate capable ships at sea to intercept and interdict illicit activity. I have been very fortunate to command a task force of incredibly capable warships like HMAS *Ballarat*, HMS *Dragon* and HMCS *Regina*, which have achieved a great deal of success. It's important that CMF



Credit: Mass Communication Specialist 2nd Class Samantha P. Montenegro, US Navy

Vice-Admiral Jim Malloy, Commander, Combined Maritime Forces, presides over CTF 150's change of command between Commodore Darren Garnier, left, and Commodore Alveer Ahmed Noor of the Pakistan Navy.

member states understand the benefit here and consider the advantages of deploying national resources (people, ships and aircraft) to contribute.

CNR: What is the ability of units to maintain core skills not related to the current task, and readiness for other tasking?

Commodore Garnier: This is an ongoing effort for commanding officers at sea. We are always training, building our expertise and working to maintain core skills. Ships build readiness training into their daily routines – it's an integral part of life at sea.

CNR: What successes were achieved under your command?

Commodore Garnier: The Canada-led CTF 150 task force completed a highly successful tour by directing 18 boardings from coalition partners, which led to seizing and destroying over 33,000 kilograms of illegal narcotics, with a regional wholesale value of over \$41 million USD. This marked the second largest volume of illegal narcotics seized in CTF 150 history. Member countries that contributed to CTF 150 success during this rotation include Australia, Canada, France, Pakistan, the United Kingdom and the United States, all working together in direct support in pursuit of the goals of Combined Maritime Forces.

In December 2018, Royal Navy warship, HMS *Dragon*, broke a record when the ship conducted the largest narcotic interdiction in CMF history, seizing and destroying just shy of 10,000 kilograms of illegal narcotics from two dhows while under our command. Also in December, the Royal Australian Navy (RAN) warship, HMAS *Ballarat*, seized the largest dollar value of heroin in CMF history with 766 kilograms. Our task force ended on a high note when on 7 April 2019 Canadian warship, HMCS *Regina*, operating under our command seized and destroyed 2,569 kilograms of hashish in the Indian Ocean.

What does this mean? Well, millions of dollars worth of drugs have been taken off the oceans and streets of various states around the region and the world. So if we weren't here doing this work, that's millions that would be destabilizing populations, creating situations that would lead to further unrest and instability, including terrorism around the region. While always difficult to quantify, we're making a difference.

CNR: Thank you for your time Sir.

Commodore Garnier relinquished CTF 150 command to Commodore Alveer Ahmed Noor of the Pakistan Navy on 11 April 2019. The next Canada-led rotation is scheduled for November 2020. 🇨🇦

Making Waves

Sea Blindness and Australia's Second Sea

Brian K. Wentzell

It is interesting to examine countries with coasts on more than one ocean. Which coast is emphasized illustrates much about the country's history. Thus in Canada, the focus has historically been on the Atlantic Ocean. Only recently has focus changed to the Pacific coast and even more recently the Arctic coast. For Australia the focus has been on the Pacific Ocean, and not the Indian Ocean.

David Brewster, writing for the Australian Strategic Policy Institute, has highlighted the importance of the Indian Ocean as a waterway to world markets from the west and northwest of the Australian continent. His article, entitled "Australia's Second Sea: Facing Our Multipolar Future in the Indian Ocean," exposes Australia's national blindness to the importance of this ocean to the economy and security of the country.¹

The state of Western Australia, the largest state in the country, is a very significant source of national resource wealth derived from large mineral deposits and liquified natural gas from reserves found on land and adjacent ocean waters. These exports represent about 42 per cent of all such exports from Australia. In addition, there are significant agriculture exports and the waters off western Australia also provide food from the fisheries. During the two World Wars, safe anchorages and support facilities for naval and military forces were located in Western Australia. The population of the state is about 2.6 million out of a national population of near 25.1 million in 2018.

Despite the importance of the Indian Ocean, the geographical focus of Australian defence policy has been to the north and east of the continent since 1945 – in other words, toward the Pacific Ocean. The Korean and Vietnam Wars together with various emergencies in Malaya/Malaysia, Indonesia, East Timor, and the continuing concern about North Korea and nuclear weapons have focused military policy, resources and operations. In what Australians have traditionally considered as the politically benign Indian Ocean, the only long-term commitment is sharing the command and staffing of Combined Task Force 150 with Canada for the interdiction of contraband in the north Indian Ocean area. Otherwise, the Indian Ocean is considered a relative backwater by the political leaders of the country.

It was only in 1978 that the government of Australia commissioned its west coast base for the Royal Australian

Navy (RAN), HMAS Stirling, at Garden Island, off Fremantle, Western Australia. The base is now the home of all *Collins*-class submarines, five *Anzac* frigates and a single fleet tanker. There is also a heliport to support helicopters assigned to the ships. Other resources, including the landing ships, air warfare destroyers, coastal patrol vessels and mine warfare forces would have to deploy from the east coast and northern areas to counter a major maritime threat in the eastern Indian Ocean.

The Royal Australian Air Force has three air bases, two of which are in a maintained but inactive status in the north coast area of Western Australia, and the other is a training airfield shared with the Republic of Singapore Air Force near Perth, which is on the southwest coast. Aside from two training squadrons, there are no dedicated combat, early warning, maritime patrol or cargo aircraft based in the region. In an emergency, such aircraft could be deployed from the eastern bases but there is little infrastructure to handle a significant increase in operations.

The Australian Army's Special Air Service (SAS) Regiment is based at Swanbourne, near Perth. This unit is a very experienced permanent force regiment. There is also the reserve 13 Brigade in Western Australia. The Pilbara Regiment, similar to the Canadian Rangers, is part of this formation and its purpose is to patrol the remote northwest and northern coasts of the country. In any emergency requiring resources beyond the SAS Regiment, the army



Fleet Base West, or HMAS Stirling, is Australia's west coast naval base, and was formally commissioned in 1978.



The Landing Helicopter Dock HMAS *Canberra* sails next to the Sri Lankan Navy Offshore Patrol Vessel *Sayurala* on 29 March 2019 during Indo-Pacific Endeavour 2019.

would have to deploy units and equipment to the region.

While there are definitely more assets located on the Indian Ocean side of the country than in the recent past, as noted, other naval, air force and most army resources would need to be deployed from the eastern half of the country to engage a major threat in the Indian Ocean area. The national blindness to Indian Ocean risks continues to be substantial. The government appears to consider the Indian Ocean to be benign, despite the fact that this is certainly an overly broad assessment of a vast area with many different elements. The long absence of an immediate threat has hidden the risk.

Australia would be wise to take another look at the Indian Ocean. The expansive nature of China's Belt and Road Initiative poses an emerging threat. The ongoing conflict between Pakistan and India is another continuing threat as both countries have economic and social ties to Australia. Whilst the Middle East conflicts seem never ending, the relations with Iran have deteriorated significantly in the past few years, and the illegal trade of drugs, weapons and other contraband thrives and constitutes a continuing threat.

The recent sailing of a task force consisting of the Landing Platform Dock HMAS *Canberra*, two frigates, an operational support ship, with embarked helicopters for an exercise in Sri Lankan waters appears to be an initial step to show a national interest in the security of the northern Indian Ocean area. But there is still work to be done to convince Australia to pay attention to its 'second sea.'

David Brewster has written an important paper that is a call to action aimed at the Australian government and the citizens of his country. Just as the Arctic Ocean has emerged as an important security issue for Canada, the Indian Ocean has likewise become a real security issue for Australia. 🇺🇸

Notes

1. David Brewster, "Australia's Second Sea: Facing Our Multipolar Future in the Indian Ocean," Australian Strategic Policy Institute, March 2019, Australia.

Ships, Sailors and Pawns

Ann Griffiths

There are a number of points of tension between Russia and Ukraine. I would like to discuss just one of them – the incident that occurred in November 2018 in the Kerch Strait. At the time of writing, 24 Ukrainian navy sailors have been held in a high security Russian prison for 150 days, and three Ukrainian navy ships have been in the hands of Russia for the same period. Russia shows no sign of giving either the sailors or the ships back. A new President in Ukraine may ease the situation, but that is yet to be determined.

The November 2018 incident that led to this state of affairs was not the first maritime incident in the Kerch Strait between Ukraine and Russia since the collapse of the Soviet Union in 1991. In October 2003 there was an 'incident' between Russia and Ukraine about an island in the strait. Russia claimed that the 1954 transfer of Crimea to Ukraine had only included the continental parts of Crimea, even though Tuzla Island had been administered by Crimea since 1941. Russia decided to build a dam from the peninsula on its side toward the island to, ostensibly, prevent erosion. It did this without consulting Ukraine, but the construction of the dam stopped exactly at the Russian-Ukrainian border. The dam led to an increase of the intensity of the stream in the strait and the deterioration of the island. To prevent this Ukraine decided to deepen the strait. On 21 October 2003 the border service of Ukraine arrested a Russian tugboat that had crossed the border of Ukraine to conduct surveillance of the island.

After this incident, a protocol was created and the ship was handed back to the Russian border authorities. Disputes about right of passage were resolved by the "Contract Between the Russian Federation and Ukraine on Cooperation in the Use of the Sea of Azov and Kerchensky Strait" which was ratified by both countries in early 2004. The Preamble to the 'contract' states that it is "[g]uided by the relations of friendship and cooperation between the peoples of Russia and Ukraine."



*The Ukrainian gunboats **Berdyansk** and **Nikopol**, along with the tug **Yany Kapu**, remain in Russian custody after their capture in November 2018. This photo was published 27 November 2018 by the current head of the 'Republic of Crimea.'*

According to the contract, vessels of both countries can freely access the Sea of Azov. Article 2 states:

1. Commercial vessels and warships, as well as other state vessels under the flag of the Russian Federation or Ukraine, exploited for non-commercial purposes, enjoy the freedom of navigation in the Sea of Azov and the Kerch Strait.
2. Merchant ships under the flags of third States may enter the Sea of Azov and pass through the Kerch Strait, if they are sent to the Russian or Ukrainian port or return from it.
3. Warships and other state vessels of third States, exploited for non-commercial purposes, may enter the Sea of Azov and pass through the Kerch Strait, if they are sent on a visit or business trip to the port of one of the parties on its invitation or resolution agreed with the other party.

Should there be a disagreement, Article 4 states that "[d]isputes between the Parties relating to the interpretation and application of this Treaty shall be settled by consultation and negotiation, as well as by other peaceful means at the choice of the parties." Problem solved!

But then in March 2014, Russia helped itself to Crimea. Relations between Russia and Ukraine soured. The Sea of Azov agreement was still in force, but would Russia abide by it?

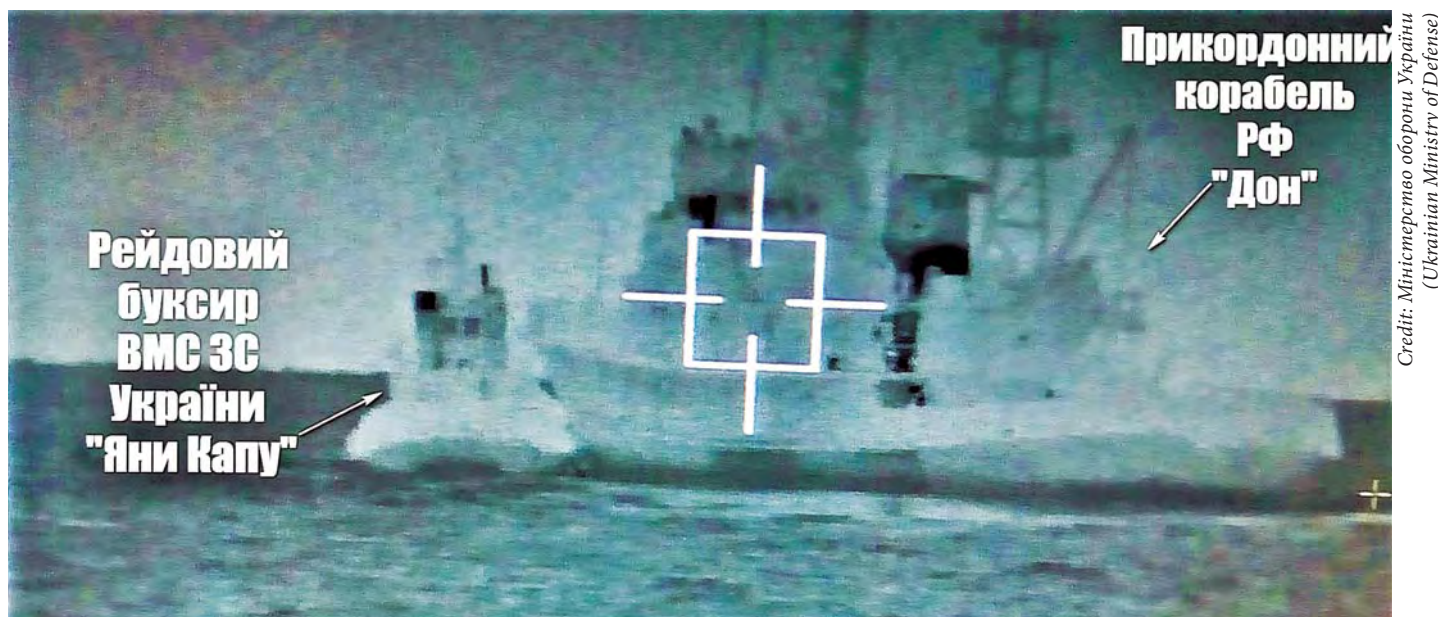
By taking Crimea, Russia now controls both sides of the Kerch Strait and access to the Sea of Azov. In May 2018, Russia opened a 19-kilometre bridge across the strait to connect Crimea to the mainland of Russia. Russian control of Crimea and the bridge have made it difficult for

Ukraine to access its major port, Mariupol, in the Sea of Azov. Russian authorities are inspecting and delaying – delays of several days are common – vessel traffic into and out of the Sea of Azov, which Ukraine has complained represents a virtual blockade of the port.

The situation simmered. Russia claims that tension increased in March 2018 when the Ukrainian coast guard seized a Russian-flagged fishing boat, in the Sea of Azov, accusing the crew of entering territory 'under a temporary occupation.' The crew was not detained but the captain was, although he was released in early April 2018. (Russia launched a criminal case against Ukraine's State Border Service on charges of "hijacking an aircraft, watercraft or railway train" because of this incident.)

In September 2018 the Ukrainian Navy launched an operation to move a search-and-rescue ship and a tugboat from Odessa to Mariupol, the first Ukrainian Navy ships to the Kerch Strait since Russia annexed Crimea. The naval ships radioed their intention to enter the Azov Sea via the Kerch Strait as they approached, but did not request permission. This was purposeful, and a way of denying Russian control and asserting the Ukrainian claim. Russia did not hinder the ships' passage and they reached Mariupol. It is possible that Russia had not expected the Ukrainian operation, and so decided to allow the ships through.

But Russia was ready in November 2018. The incident on 25 November is now well known, although some details are still disputed. Ukrainian naval ships – artillery boats *Berdyansk* and *Nikopol* and tugboat *Yany Kapu* – attempted to complete a journey from the Black Sea port of Odessa to the Azov Sea port of Mariupol. As they approached the Kerch Strait, Russian coast guards ships accused the Ukrainian ships of illegally entering Russian territorial waters, and ordered them to leave. When the Ukrainians refused, citing the Russia-Ukraine treaty on freedom of navigation in the area, the Russian ships attempted to intercept them, and rammed the tugboat. When they tried to ram the gunboats, two Russian ships collided, and one was damaged. The Ukrainian vessels continued their journey, stopping near the anchorage waiting zone, about 14 kilometres from the bridge, where they remained for the next eight hours. During this time, the Russians placed a cargo ship under the bridge, blocking the route into the Sea of Azov, and scrambled two fighter jets and two helicopters to patrol the strait. In the evening, the Ukrainian ships turned back to return to Odessa. As they were leaving the area, the Russian coast guard pursued



An annotated infra-red image captured by one of the Ukrainian gunboats during the 25 November 2018 Kerch Strait incident shows the tug *Yany Kapu* (left) in physical contact with the much larger Russian Federation Coast Guard ship *Don*.

Credit: Міністерство оборони України
(Ukrainian Ministry of Defense)

them, later firing on and capturing the Ukrainian vessels about 23 kilometres off the coast of Crimea, in international waters.

Ukraine naturally complained. The Ukrainian government said it had informed the Russians of the planned passage through the Kerch Strait in advance. The ships had established contact with a Russian coast guard outpost and communicated their intention to sail through the Kerch Strait.

The Russian Federal Security Service (FSB) said it had incontrovertible proof that Ukraine had orchestrated this incident as a 'provocation.' The FSB said that Ukraine had not followed the official procedure required for passage through the strait – i.e., the port authority in Kerch should be informed 48 and 24 hours in advance, with an official confirmation four hours before the passage. It also said the Ukrainian ships had been manoeuvring dangerously and intentionally ignored FSB instructions in order to stir up tensions. Russian President Vladimir Putin said the incident was a deliberate attempt by Ukrainian President Petro Poroshenko to increase his popularity ahead of the Ukrainian presidential election in March 2019.

The three Ukrainian naval ships and the 24 crew members – six of whom were injured – were taken to Crimea. On 30 November, the crew members were transferred to Moscow and are being held in Lefortovo, a high security prison, while they await trial. They were charged with illegally crossing the Russian border. A conviction could lead to a six-year prison sentence.

If we ignore the propaganda coming from both sides, there

are several points that should be emphasized about this incident. I am certainly not an expert in international law, but it seems clear that Russia has broken a number of accepted international norms. First, both sides agree that Russian forces seized the Ukrainian naval ships while they were returning to Odessa and in international waters. Second, as already noted, Russia and Ukraine have an agreement that says that warships enjoy freedom of passage through the strait and into the Sea of Azov, and that any disputes will be settled peacefully.

Third, the Russian actions fit the definition of aggression as outlined by the United Nations. Paragraphs (c) and (d) of Article 3 of the 1974 Definition of Aggression, United Nations General Assembly Resolution 3314 (XXIX) state:

Article 3

Any of the following acts, regardless of a declaration of war, shall, subject to and in accordance with the provisions of article 2, qualify as an act of aggression: ...

(c) The blockade of the ports or coasts of a State by the armed forces of another State;

(d) An attack by the armed forces of a State on the land, sea or air forces, or marine and air fleets of another State; ...

Fourth, there are a number of elements of the UN Convention on the Law of the Sea (UNCLOS), to which both states are party, that Russia contravened. Even if we accept that the waters are Russian as Russia claims – and Ukraine vigorously denies – Russian actions are contrary to the right of innocent passage protected in international



Credit: Ukrainian Navy

*A large hole on the side of the Ukrainian gunboat **Berdyansk**'s superstructure illustrates the violent character of the 25 November incident.*

law. Article 17 of UNCLOS states that “ships of all States, whether coastal or land-locked, enjoy the right of innocent passage through the territorial sea.”

Fifth, sovereign immunity of warships has long been recognized in both customary international law and international treaties. As well, domestic legislation about this has existed for many years – for example, the United States has recognized this since 1812. These norms are reflected in the UN Convention on the Jurisdictional Immunities of States and Their Property, and the International Convention for the Unification of Certain Rules Relating to the Immunity of State-Owned Vessels, in addition to UNCLOS.¹ Article 95 of UNCLOS states that “[w]arships on the high seas have complete immunity from the jurisdiction of any State other than the flag State,” and this is affirmed in UNCLOS Article 32. There seems to be no ambiguity in this. As well, if a vessel is sovereign immune, it cannot be required to consent to a search, and police and/or port authorities may only board with permission of the commanding officer.² Presumably the Ukrainian ships did not give permission to the Russians.

Sixth, assuming that Russia has control of the straits – which Ukraine denies – and if we ignore the fact that the Ukrainian ships were in international waters, according to UNCLOS, Russia still cannot simply seize the ships and crew. According to Article 30, “[i]f any warship does not comply with the laws and regulations of the coastal State concerning passage through the territorial sea and disregards any request for compliance therewith which is made to it, the coastal State may require it to leave the territorial sea immediately.” It does not say that you can seize the ships; you require them to leave.

And again assuming that the Ukrainian ships were in Russian waters, and this time ignoring sovereign immunity, that still doesn’t help Russia. Article 27 of UNCLOS limits the criminal jurisdiction a state has on board a foreign ship. Article 27 says that with a few exceptions (such as the crime extending into the state, the crime disturbs the peace, the assistance of local authorities is requested, or to stop drug trafficking), “[t]he criminal jurisdiction of the coastal State should not be exercised on board a foreign ship passing through the territorial sea to arrest any person or to conduct any investigation in connection with any crime committed on board the ship during its passage.” There are two other problems for Russia here. Article 27(2) says that the state can’t pursue criminal matters after the ship leaves internal waters, and 27(3) says that contact with consular or diplomatic agents must be facilitated.



Credit: Valentin V. Morozoff, Wikimapia

The pillars supporting the Kerch Bridge connecting Crimea with mainland Russia dramatically restrict the space through which vessels can enter the Sea of Azov.

What about the crew members? In addition to protesting their incarceration in the first place, Ukraine says that Russia is breaking the Geneva Conventions in its treatment of the crew members. Ukraine says they are prisoners of war, and should be treated as such – including regular visits by consular officials. They are still in jail after a motion by the Russian state to extend their detention until July.



Meng Wanzhou, the Huawei executive whose arrest by Canadian authorities is suspected of causing retaliatory arrests of Canadians by Beijing, is seen here with President Vladimir Putin at an investment forum in Moscow in 2014.

On 16 April 2019, Ukraine submitted an appeal to the International Tribunal for the Law of the Sea (ITLOS) about the incident. It wants the ships back and the crew released. Hearings are to be held in early May 2019. Perhaps President Putin will be amenable to discussions now that the Ukrainian presidential election is over since he regularly stated that President Poroshenko sent the naval ships purposely to provoke Russia and increase his chances of re-election. Ukraine now has a new President, which may help. And indeed, several days after the run-off election, Russia allowed three of the sailors to phone home.

Conclusions

This incident illustrates several things. It illustrates that people are becoming political pawns. In this case, the Ukrainian sailors are pawns in the game of chess being played between Russia and Ukraine (and the West). Rule of law doesn't matter – people are arrested not for breaking real laws but to send a message. Now that the presidential election in Ukraine is over, the political utility of the sailors may have ended, but we'll see. It should be noted that using people as pawns is not a game only Russia plays. Indeed, several Canadians have been in custody

in China almost as long as the Ukrainian sailors, as blow-back for Canada arresting a Huawei official on a US extradition request.

Another lesson from this incident, the more important one, is that international law is a fragile thing. It depends on the agreement of sovereign entities. If they withdraw their agreement, then unless other states act to bring them into line, the law becomes hollow. Other states see that they too can do what they want without repercussions. Since 2014 Russia has ignored a number of international laws/norms, with few repercussions. Yes, there have been sanctions but, just in terms of this incident, the Ukrainian sailors remain in a Russian jail and the Ukrainian navy ships remain in Russian possession.

International law has always been built on uncertain foundations, but the foundations seem shakier now. Are we returning to a time when international law was something you followed when it suited your purpose, but not when it didn't? This, of course, primarily applies to strong states because they can get away with it. Russia does what it wants in Crimea and the Kerch Strait because it can. China does what it wants in the South China Sea because it can. The United States protests but its protests have become less and less credible because no one believes that when push comes to shove, it will act to force Russia to follow the rules. And the United States has also ignored international law when it is inconvenient.

Several thousand years ago, Thucydides wrote the Melian Dialogue in his account of the Peloponnesian War. In this dialogue he portrayed a world to which we seem to be returning when he wrote "the strong do what they can, the weak suffer what they must."¹

Notes

1. The Fletcher School of Law and Diplomacy, *Law of the Sea: A Policy Primer*, "Chapter 5: Sovereign Immunity," 2017, available at <https://sites.tufts.edu/lawofthesea/chapter-5/>.
2. *Ibid.*

'Future-proofing' the Type 26 Frigate

David Dunlop

The process of choosing the winning design for the Canadian Surface Combatant (CSC) has been long and arduous. Now that the Lockheed Martin/BAE consortium has won the contract to design the Type 26 CSC, it is time to debate what weapons and sensor requirements and capabilities will provide Canada and the Royal Canadian Navy (RCN) with the best bang for the buck on these 15 8,000-ton frigates over the next decades. These frigates will be nearly 50 per cent larger than the *Halifax*-class frigates and nearly as large as most modern destroyers. Designed

to be multi-modal and versatile, the Type 26 frigate is equipped with a reconfigurable mission bay for light boats, unmanned surface/aerial vehicles, and/or cargo containers. This will allow the vessels to be reconfigured depending on mission and requirements. *Leadmark 2050* is clear: while the CSC will undertake a variety of mission types, it will be designed primarily to operate in a high-end war-fighting environment. That makes sense since a ship designed to fight pirates and provide humanitarian assistance and disaster relief wouldn't fare well against modern anti-ship cruise missiles or torpedoes.

Operating in a high-end environment requires a Combat Management System (CMS) that tightly integrates the ship's weapons, sensors, communications and Tactical Data Links (TDLs) to allow it to defend itself, and take the fight to an adversary. This is especially true for air defence, as the nature of contemporary air threats means that the ship's crew may only have seconds to react to a missile coming over the horizon. The CMS 330 will be key to this task as it must gather and display data from the ship's sensors, activate active and passive countermeasures, and cue incoming threats to its weapon systems much faster than ever before.

There are three categories of air defence capabilities that the government must consider when deciding on the CSC Type 26 design: short- to medium-range; long-range; and ballistic missile defence (BMD). Having an effective short- to medium-range air defence capability is perhaps most important in terms of ship survivability. But being able to detect and engage threats at longer ranges will become just as important as threats become more advanced. So decisions made about the CMS now will have long-term effects down the road. Missiles such as the Evolved Sea

Sparrow missile, with ranges of around 50 kms, will likely form the main defence of the CSC's short- to medium-range air capability, so having a CMS that works well with it will be critical. Lockheed Martin (LM) Canada's CMS 330 is already integrated with the Evolved Sea Sparrow in mind.

In terms of providing a long-range air defence capability, things get more complicated. Two of three systems on offer (CMS 330 and 9LV) have not yet been integrated with long-range air defence missiles such as the SM-3 or SM-6 RIM-174 Extended Range Active Missile (ERAM) with ranges of over 150 kms. The RCN's needs dictate what systems are required, given the importance of long-range air defence in the CSC and area-air warfare roles that the government has already stated the Type 26 must fulfill. That is not to say longer-ranged missile systems cannot be integrated into the CMS 330, however system integration is a complex process and additional integration increases the risk of cost over-runs and delays. The Australian Type 26 faced the same problem. Australia's solution was to combine its 9LV/CEAFAR radar combination with the US Navy's Aegis CMS to facilitate the integration of future US missile systems to give the Australian Type 26 frigate a greater long-range air defence capability. By doing this, Australia is hedging the future viability of its frigates on the continued ability of the USN to be on the cutting edge of naval weapons and sensors technology. Having Aegis CMS along with the 3D SPY-1D (V) S band long-range radar on its Type 26 ships reduces the burden (and cost) of integrating future US weapons systems and sensors into the Royal Australian Navy's CMS architecture.

The Canadian government must think carefully about its approach to 'future-proofing' the CSCs to ensure that they can be upgraded as cost-efficiently as possible if it wants to include a sea-based BMD capability. Currently, the United States, Australia, Spain and Japan are the only four countries with an effective sea-based BMD capability to track and engage theatre ballistic missiles using a special configuration of the Aegis CMS, the SM-3/SM-6 missile system and the MK 41 Vertical Launch System (VLS). If Aegis BMD is included in the Type 26 CSC to complement either the UK Type 997 Artisan 3D search radar, or if a 3D version of the SPY-1 radar system is acquired, Canada will then be able to lessen future integration costs through collaboration with all four Aegis BMD allies. If Aegis BMD is not included, Canada would then be responsible for integrating future weapons systems and sensors into its CMS architecture which has the potential



Credit: Royal Australian Navy

The Australian version of the Type 26, the *Hunter*-class, features the domestically-produced CEAFAR 2 phased-array radars combined with the American Aegis Combat Management System.



Credit: US Navy

USS John Paul Jones fires an SM-6 missile on 19 June 2014, during a series of live-fire tests. The SM-6 is the latest variant of the Standard Missile family, designed to receive guidance data from external sensors to enable the missile to engage targets well beyond the launch vessel's own sensor range.

of increasing cost. Given the nature of threats the CSC is likely to face in the future, careful deliberation is required when deciding which CMS best meets Canada's short- and long-term requirements.

The incoming missile risk profiles associated with the LM/BAE CMS 330 are likely to be important factors in positioning the CSC Type 26 for future upgrades. Judicious planning should ensure that Canada is able to field an effective, upgradeable CSC that can fulfill the government's requirements now and in the future. A part of this would be that the government should reconsider the decision made by Prime Minister Paul Martin in 2005 not to join the US BMD program. If this decision is reversed, the Canadian government must then restart discussions with the Americans about the possibility of participating in continental and naval BMD systems. Canada remains largely alone among its major allies in not directly participating in some form of BMD.

The MK 41 VLS could be reconfigured from 24 to 48 or even 64 cells to accommodate a precision strike and BMD capability. The \$61 billion (CAD) allocated for the Type 26 build and equipment acquisition will ensure the RCN gets the best bang for the buck enabling a more robust anti-air warfare MK 41 VLS with a BMD capability along with

an Aegis-style platform as recommended to the government by the Senate Committee on National Defence in May 2017.¹ The first four Type 26 frigates could very easily have this extended anti-air warfare capability incorporated into their design.

While the CSCs will be based on the British design Type 26 Global Combat Ship, systems and capabilities will be tailored to Canadian requirements, a process which will ultimately produce a uniquely Canadian ship. Although the armament, sensors and combat system fitted to the Type 26 CSC will differ in some respects, there will still be significant commonality of components coming from the UK's *City*-class design, especially the propulsion system, main gun, close-in-weapons system, sonar systems, Type 997 Artisan 3D medium/long-range S band search radar (if the SPY-1 S-band radar system is not fitted) along with secondary X/I band radars. Updated extended-range Harpoon Block II+ ER surface-to-surface missile silos may also be fitted, although the SM-6 RIM-174 ERAM will also have a surface-to-surface missile mode.

Like the ship's weapons systems, the CSC's sensor suite on the Canadian variant remains to be determined, however a mandatory requirement for the Canadian platform is a fixed-phased array radar. What will remain unchanged is the ship's acoustically quiet hull, an essential feature for the kind of anti-submarine warfare on which the RCN has focused since the Second World War. The ship will also have an advanced sonar system with a towed array system for tracking submarines. In the realm of submarine detection and warfare, surface ships have long been enabled by helicopters. As such, the Canadian CSC will possess an expanded flight deck capable of landing aircraft similar in size to the Boeing Chinook. The hangar/mission bay may be able to accommodate two Sikorsky CH-148 Cyclone aircraft, which are currently being delivered to the Canadian Armed Forces. Should Canada adopt the LM/BAE Type 26 Aegis BMD program as Australia has done with the USN, these three close allies would have superior interoperability and capabilities unmatched by any other allied states.

Procurement of these vessels into the RCN will likely take place throughout the next decade gradually replacing the *Halifax*-class which is slated for retirement in the early to mid-2030s. Once brought into service, the CSC will be the backbone of the RCN for a generation, serving well into the 2050s. If Canada is to gain the most value for money in a project the effects of which are planned to span more than 40 years from construction to full operation to disposal, it needs to make smart decisions from the beginning. The weapons and sensors applied to the Type 26 CSC frigate, combined with short/medium-range Evolved

Sea Sparrow missiles and long-range SM3/SM6 missiles, paired with an S-band 3D radar and Aegis BMD system, make sense. The Type 26 would then provide the RCN with a ship specifically designed to have the most effective anti-submarine warfare hull, considering noise signatures and sensor and weapon use, but also the clearest winner in anti-air warfare capabilities and 'future-proofing.' 🍷

Notes

1. Senate Standing Committee on National Security and Defence, "A Plan for the Future," Eleventh Report, May 2017, Recommendation 15, p. 40.

China and Antarctica: A Lesson for Canada?

Brian K. Wentzell

China has indicated its interest in gaining access to the Canadian Arctic for alleged scientific research purposes. Before Canada approves such a request, it should study the Australian experience with China in Antarctica.

The Antarctic Treaty was signed in Washington on 1 December 1959 by 12 countries and entered into force in 1961. Australia was an original signatory of the treaty. Today, there are 53 member states. The People's Republic of China joined the treaty in 1983 and attained full consultative power status in 1985. Thus, China must adhere to all of the provisions of the original treaty.

The core provisions of the treaty provide that: Antarctica shall be used for peaceful purposes only; that scientific research is freely permitted; and the results thereof shall be freely shared and available to other signatories. The treaty did not recognise any pre-existing territorial claims by any state and the conduct of scientific activities by any signatory state should not give rise to or be used to support any territorial claims. Military activities are not permitted and the use of military resources for peaceful purposes must be fully disclosed. Each signatory has the right to inspect facilities and activities of all treaty members in Antarctica.

China established bases in the Australia sector starting in 1985. There are now five research bases, each equipped with long runways, research facilities, accommodations and other infrastructure designed support long-term stays. Little is known about the scientific activities conducted by the Chinese.

Although many countries saw the possibility of mineral mining as a driver for Antarctic exploration, such extraction was banned by the Protocol on Environment Protection of 1991. Nonetheless, the scientific research activities



The third Chinese Antarctic research base, Great Wall, is pictured in this 2011 photo.

of China have increased. Clearly, China is interested in Antarctica for reasons other than mineral extraction. Since 2011, China has created two new bases, improved aviation capabilities and built a second icebreaker to support its activities. However, it has never declared its scientific research intentions, thus we have no way of knowing what it is researching. The most obvious reason is for military or security reasons – although we don't know. This would likely explain why the country ignores the treaty requirement that the number and purpose of the military personnel at the premises be disclosed. It must be noted, however, that Australia has never exercised its treaty right to visit and inspect the Chinese bases. Is this a case of willful blindness on the part of the Australians?

There are suspicions that the Chinese are doing more than pure scientific research. Antarctica provides access to three continents – Australia, South America and Africa. The continent can provide a useful base for navigation and communications systems. As well, it provides training and research facilities for developing polar knowledge and skills that can be applied to the Arctic region. Hence, the Chinese concept of being a 'near Arctic' power is not totally without foundation.

Canada can learn from the Antarctic adventures of China. In my opinion, there is no good reason to grant a request from China to send a scientific mission into either Canadian Arctic waters or lands. Without any idea of what 'research' exactly the Chinese are conducting, it would seem ill-advised. China has already proved its disdain for Canada and its citizens through unmerited detentions of Canadian citizens, the exploitation of the Canadian political system and the arbitrary cancellation of canola imports from two Canadian suppliers. It is time for Canada to protect itself! 🍷

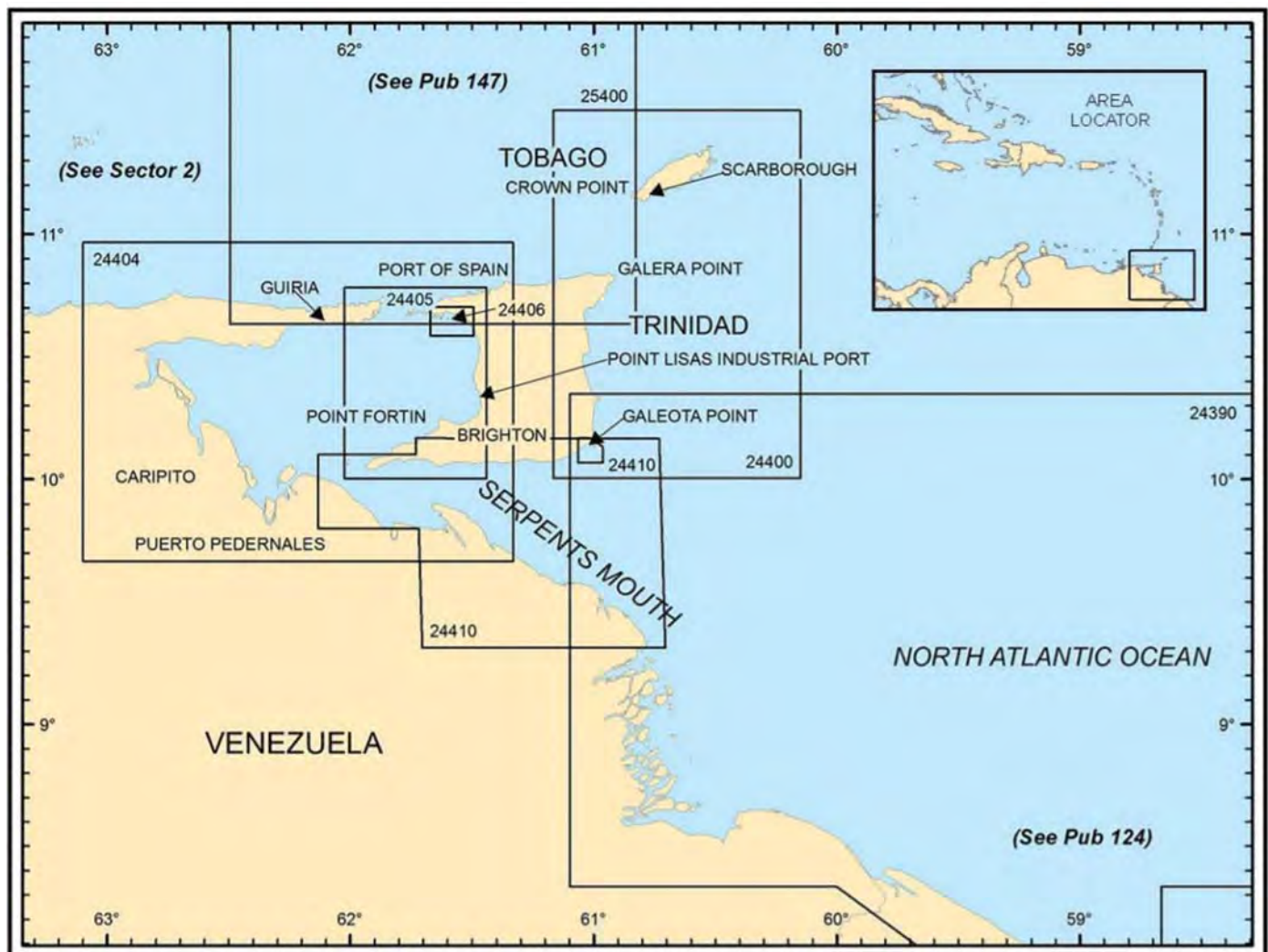
A View from the West: Pirates of Venezuela and Worrying Parallels with Somalia

Francesca Guetchev

Out along the Serpent's Mouth Channel, three fishermen reportedly were chased down at sea, shot at with machine guns, captured and held in captivity for seven days and released only upon payment of a \$35,000 ransom. Incidents of fishermen being assaulted, kidnapped, or robbed are becoming commonplace off the coast of Venezuela. Fishermen from Trinidad and Tobago have reported an increase of piracy in the Caribbean by impoverished Venezuelan fishermen, who are attempting to cope while their country is in economic chaos.¹ These accounts are all too familiar off the Horn of Africa, where Somali pirates have been carrying out attacks for nearly three decades. This form of illicit activity usually occurs as a

result of significant political events and economic decline that disrupt the social (and economic) fabric. Add to this a weakening government and weakening security institutions, and you create conditions that allow for illicit maritime activities to flourish. As the situation in Venezuela steadily declines, piracy has been increasing off the coast, reflecting worrying parallels with Somalia, a state that has been in various stages of failure since the 1990s.

While reported piracy attacks off the coast of Venezuela are low relative to those occurring off Somalia a few years ago, they are increasing. The International Maritime Bureau (IMB) reported that from 2013 to 2017 Venezuelan



Credit: National Geospatial-Intelligence Agency

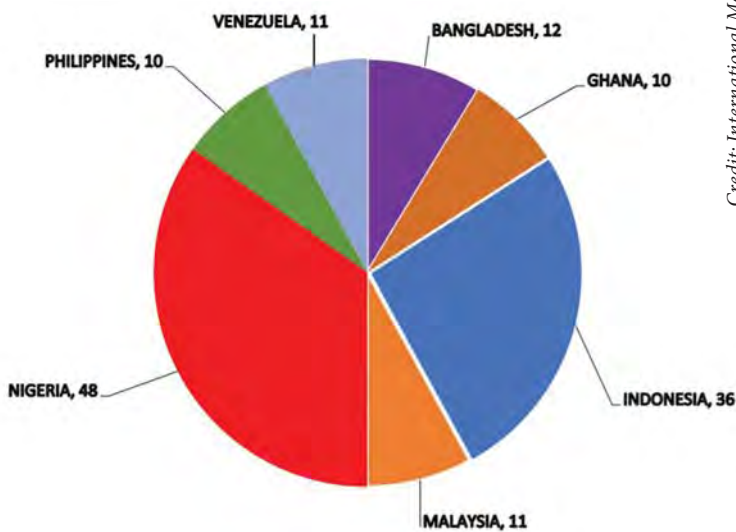
Serpent's Mouth channel is one of two waterways separating Venezuela's mainland from Trinidad.

piracy attacks increased from zero to 12 incidents. This trend is consistent with Venezuela's last leadership change in 2013 after President Nicolás Maduro assumed power following the death of President Hugo Chávez. The new government inherited an already faltering economy which has since worsened, especially as decreasing oil prices dealt a blow to Venezuela's oil export-dependent economy. Within a similar time span of five years, Somali piracy escalated following the collapse of central authority, famine and economic decline. At the height of Somali piracy in 2011, attacks skyrocketed from around 31 one year to 160 the next year.²

Somalia has struggled with piracy since the collapse of its central government in 1991 which left a power vacuum that factionalized gangs, warlords and jihadi extremists competed to fill. This state collapse and conflict prompted foreign intervention, which inadvertently contributed to the brutality of the conflict, as foreign states backed opposing factions and supplied them with weapons.³ Without a functioning government, state institutions critical to enforcing the rule of law, coupled with an absence of social safety nets, were unable to contain the civil war and persistent famine. With no functioning government, there was no functioning coast guard or navy to enforce maritime security. This opened Somali waters to foreign vessels that began fishing illegally and depleting the abundant fish stocks. In an effort to deter these foreign entities, impoverished Somali fishermen began forming armed groups and later adopting more aggressive tactics. As well, they got greater capabilities, like automatic weapons and rocket-propelled grenade launchers (RPGs), which were effective at greater distances and could cause more serious damage. Piracy became an alluring crime as successful attacks from robbery, collecting ransoms for ships and personnel that were hijacked, or seizing cargo along strategic lanes for maritime trade yielded high reward. Piracy flourished into an illicit economy in the semi-autonomous region of Puntland at the Horn of Africa because it offered employment incentives. It also benefited families and stimulated growth in local economies impoverished by civil war and famine.⁴ A starving and desperate population with a lack of maritime security facilitated the conditions for piracy to flourish.

Increasing piracy off Venezuela's coast reflects the governance problems and economic turmoil with which its citizens are desperately trying to cope. Under the leadership of Chávez from 1998 and Maduro starting in 2013, mismanagement and corruption of government institutions, plus the decline of oil prices in 2014, have led to a deteriorating economy and an increase of piracy. Both leaders pursued socialist policies by nationalizing the country's

Chart A: The following seven locations recorded around 69% attacks from a total of 201 reported attacks for the period



Venezuela was among the top seven locations around the world where piracy and armed robbery at sea were the most prevalent during 2018.

most important asset – its oil reserves – and putting political loyalists rather than technocrats in charge. This alienated crucial foreign investors and left Venezuela without the capital and expertise to maintain export capacity. Things went well when the price of oil was high, but when it declined in 2014, it left the government with unsustainable policies and massive foreign debt. The government then decided to devalue its currency, which contributed to record-high inflation that has in turn contributed to the current widespread food, consumer goods and medicine shortages. Under Chávez, the government imported commodities and sold them at subsidized rates. When President Maduro took over, inflation and decreasing oil prices made imports unaffordable, so the government decided to extend price controls and print more money which further devalued the currency. These measures only exacerbated the problem. Prices have dramatically increased. In 2018, a cup of coffee could cost around 400 Bolivars; in March 2019, it cost about 2,800 Bolivars. This 700% increase would equate to a cup of coffee in Canada increasing from \$3 to \$21 in a year.⁵

Venezuela's fishing industry has been affected by price controls and competition from subsidized imports. Artisanal fishermen, who mainly supplied the domestic market, found themselves unable to make a living as a result of these new measures. With many of these fishermen out of work, they were forced to rely on other means to get by. Like Somali fishermen, they turned to illicit activities as a result, such as smuggling food, contraband and people from Venezuela to Colombia and Trinidad and Tobago.⁶ Reports increased of impoverished



In addition to the relatively recent phenomenon of piracy, Venezuelans have also resorted to other illicit activities to supplement their income. Here, gasoline is allegedly being smuggled along the El Limón River in June 2013.

fishermen-turned-pirates illegally boarding ships, threatening the crews with weapons and/or robbing vessels, especially while at anchor. The International Maritime Bureau has cautioned ships in the area to remain vigilant as attacks are increasing in various locations including near Puerto La Cruz and Jose,⁷ and around the Columbus Channel, otherwise known as the Serpent's Mouth.

As the government continues to lose its grip on the economy, maritime security agencies are becoming ineffective. They have been unable to combat illegal activities being carried out by poor Venezuelans attempting to survive while their country is in political and economic chaos. The wages of the coast guard personnel, like many other Venezuelans, cannot sustain their families given the cost of living with hyperinflation. Thus, coast guard employees themselves can become agents of illegal maritime activities.

Piracy is often a symptom that appears when a state is experiencing turmoil. In Venezuela, the symptom is getting worse, mirroring what happened in Somalia. However, the good news is that the situation in Venezuela will undoubtedly not lead to the same level of piracy as occurred off Somalia. Venezuela is located in a region of interest to the United States, which has incentive to avoid an escalating security threat. US Southern Command, with the

support from allies such as Canada and members of the Lima Group, is actively engaged in maintaining security in areas of potential maritime threats.⁸ Unlike the region around Somalia, Latin America and the Caribbean have robust regional organizations and a long history of collective cooperation. This will contribute to countering illegal maritime activities, especially being carried out by Venezuela's pirates. 🇺🇸

Notes

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3. Jonathan Stevenson, "Jihad and Piracy in Somalia," *Global Politics and Strategy*, Vol. 52, No. 1 (2010), pp. 27-38.
4. Peter Kerins, "Somali Perspectives on Piracy and Illegal Fishing," *Oceans Beyond Piracy*, no date given, available at <http://oceansbeyondpiracy.org/publications/somali-perspectives-piracy-and-illegal-fishing>.
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Dollars and Sense: Evaluating Justin Trudeau's Shipbuilding Record

Dave Perry

With this the last issue of *Canadian Naval Review* prior to the 2019 federal election, it is worth sitting back to assess the Trudeau government's record on issues of importance to the Royal Canadian Navy (RCN). In the 2015 federal election campaign, the Liberal Party of Canada made several promises which had implications for the RCN in concrete ways. In office, the government has delivered, and actually over-delivered, on all of them. Reflecting back on the previous three and a half years, Prime Minister Justin Trudeau has led a shipbuilding-friendly government.

A Liberal campaign commitment in 2015 was to maintain defence funding at existing levels, including planned increases. This presumably meant honouring the multi-year funding to which Prime Minister Stephen Harper had committed in the 2015 budget, which built on the Canada First Defence Strategy's fiscal framework. This set aside a separate fiscal funding mechanism for the Department of National Defence (DND) distinct from the government of Canada's wider finances and committed to a three per cent annual increase in defence operating and personnel funds.

For the navy, maintaining this pledge was critical. Without it, the existing funding base for new ships, already too small, would have been curtailed, and the RCN and other services would have been fighting for enough operating funds to keep the fleet at sea. In actual fact, the government only kept to the campaign commitment on defence funding until the publication of its defence policy *Strong, Secure, Engaged* in June 2017. The new policy significantly exceeded that promise, injecting tens of billions of new funding into the defence budget for capital investments, operations and maintenance, and personnel. As a result, defence spending under the Trudeau government has increased beyond what it would have if it had stuck to its commitment to maintain the Harper government's funding levels. Had Trudeau only just honoured his original promise, the navy would likely have had to make some tough choices.

Instead, fulfilling a separate positive campaign commitment, the government made a significant new investment in the navy, albeit not by the method originally identified. The campaign platform suggested that additional naval investments could be realized by following through on the Liberal Party's ill-advised pledge not to buy the F35 fighter jets. Instead, the Liberal Party promised to



Minister of National Defence Harjit Sajjan announces the Liberal government's Strong, Secure, Engaged defence policy on 9 June 2017 at the Beatty Street Drill Hall in Vancouver. Through the next three years, the Liberal government allocated significantly more money for shipbuilding than initially promised.

purchase through an open competition (a bizarre contradiction having promised to exclude one competitor) a cheaper, but in their words equally capable, fighter jet and re-invest the savings in the navy. As of the time of writing, the government had not bought the F35 (nor any other new fighter jet) although it was working towards releasing a Request for Proposals for new jets in the spring of 2019. In the meantime, prior to the policy review that led to *Strong, Secure Engaged*, the government announced that the requirement for Canada's fighter jet fleet had increased to 88 aircraft from the planned purchased of 65. The costing exercise that supported the policy actually resulted in the project budget for new fighter jets being increased to between \$15 and 19 billion.

And yet, notwithstanding their source of funds drying up, and a multitude of other pressures, the Trudeau government was able to make additional investments in the navy, more than doubling the project budget for the Canadian Surface Combatants to between \$56-60 billion. Having added more money to the budget for Canada's future fleet of warships than it originally contained, the government clearly delivered on the commitment to make shipbuilding investment a priority.

Beyond the cash infusion, the government also delivered on the commitment to maintain the National Shipbuilding and Procurement Strategy, albeit renamed as the National Shipbuilding Strategy. Considerable progress has

Credit: Bombardier Albers Law,
39 CBG Public Affairs



Credit: Irving Shipbuilding

Flanked by modules to make up further units of the **Harry DeWolf**-class Arctic Offshore Patrol Vessels, Minister Sajjan announces on 2 November 2018 at Irving Shipbuilding that the government is committing to a sixth ship of the **DeWolf**-class, ending years of uncertainty over whether five or six would be built.

been made on each of the navy's shipbuilding projects. In October 2016, the competition was officially launched to select the design for the Canadian Surface Combatant. In February 2019 the government announced that the bid from Lockheed Martin Canada, based on the UK's Type 26 design has been selected for Canada's future warships. Lockheed subsequently signed design sub-contracts with Irving Shipbuilding and the process of reconciling Lockheed's bid with what Canada wants to build is now underway.

Beyond the CSC the Trudeau government also committed to build a sixth Arctic Offshore Patrol Vessel (AOPV) for the RCN. Construction of the AOPVs is occurring now, and adjusting the contract to build a sixth ship will help bridge the production gap between the completion of the AOPV project and start of construction on the CSC which will not happen for several years.

The government also took active steps to re-establish the navy's at-sea replenishment capability. This started with the decision to follow through with the Letter of Intent signed by the Harper government for an Interim Auxiliary Oiler Replenishment ship, MV *Asterix*, which entered service in the winter of 2018. Virtually all aspects of the contract have unfortunately been controversial because of the suspension of Vice-Admiral Mark Norman and subsequent charges laid against him for an alleged breach of trust during his role as Commander of the Royal Canadian Navy. This controversy has over-shadowed the contract's success and the fact that the ship has spent more than a year in operation, to great acclaim.

Looking forward, the government also made a major re-organization of Seaspan's order book to accelerate construction of the first Joint Support Ship. This happened first with the signing of a design and production engineering contract in February 2017, followed by construction of



Credit: Petty Officer 2nd Class Devin Langer, US Navy

The Naval Replenishment Unit **Asterix** leads a formation of international warships during RIMPAC 2018. Although over-shadowed by political controversy, the ship itself has proven to be a much-welcomed addition to the fleet.

early blocks of the fuel tanks for the ships in June of 2018. In February 2019 a decision was made that construction of the first Joint Support Ship would be completed before work would start on the Offshore Oceanographic Science Vessel.

These three projects only reached the stage they are at now because of the work of the Harper government which launched them. And their future progress will rely on the work of the government that forms after the fall 2019 election. But Justin Trudeau's government has exceeded the expectations on shipbuilding set by the Liberal Party of Canada during the 2015 election. 🇨🇦

David Perry is Vice President and Senior Analyst of the Canadian Global Affairs Institute.

Warship Developments: Large Surface Combatants

Doug Thomas

The term ‘task group’ is often used when describing a group of naval ships, and the composition of the task group is flexible. For the purpose of this column, we are looking at one of the components of a carrier battle group or carrier task group or amphibious task group assigned the duties of anti-air warfare coordination. This job falls to a large surface combatant, commonly a missile cruiser (CG) or missile destroyer (DDG). There may be more than one of them, depending on the size of the task group.

Up until the 1980s, many countries operated cruisers armed with guns – in other words, ships with ‘presence’ – many left over from World War II and sold to countries which wanted to make a statement to their neighbours about national power. As these ships wore out, they were not replaced. They became obsolete because smaller, less-expensive ships equipped with surface-to-surface missiles such as Styx (SS-N-2), Exocet or Harpoon could engage and sink the impressive-looking cruiser from beyond the range of its guns.

In the 1960s and 1970s, big gun-armed NATO and US Navy cruisers of 10,000 to 16,000 tons were modified or re-armed with missile launchers and magazines for the

American Terrier and Standard surface-to-air missiles. The Soviet Navy modified one of its *Sverdlov*-class cruisers in a similar manner. Large ships were needed because the missiles involved were huge, cumbersome, required a very heavy and complex launcher, and were not very effective. In more recent years, these ships have been paid-off, and replaced with purpose-built vessels with modern vertical launch systems such as the ubiquitous Mark 41, capable of housing and deploying a broad range of vastly more effective anti-air (including anti-ballistic missile), surface-to-surface, and anti-submarine missiles and rockets to replace the cumbersome weapons of days gone by.

Although cruisers are somewhat of a dying breed, the later ships of the USN’s *Ticonderoga*-class and a few cruisers in the Russian Navy (*Pyotr Velikiy* and *Slava*-class) are large surface combatants designed to provide area-air defence as well as command and control of large maritime areas. The Russian ships are fitted with cruise missiles for anti-ship and land attack, and because of their size the missiles can be numerous. This is especially true of *Pyotr Velikiy* (Peter the Great) which has been termed a battle cruiser, a name that brings a vision



Credit: Timothy Choi

USS **Little Rock** (CLG-4) was a Second World War **Cleveland**-class light cruiser converted for guided missiles. Although retaining the forward triple 6" turret, all aft turrets were removed and replaced by the large Talos anti-air missile (visible in light blue) launcher and associated electronics. Today **Little Rock** is a museum ship in Buffalo, New York.



Credit: Mass Communications Specialist 2nd Class Jonathan Jiang

Though similar in size to the cruiser *Little Rock*, USS *Zumwalt* is classed as a destroyer. During its maiden deployment *Zumwalt* visited Esquimalt, British Columbia, in March 2019 as its first foreign operational visit, attracting significant media attention.

of large, fast, lightly-armoured but heavily gunned capital ships of the early 20th century. Such cruisers can form part of the escort of a carrier battle group, can be an alternate command platform in case the carrier (usually the flag-ship) is damaged or sunk, or be the command ship of an amphibious or surface action group task group.

The USN had programs in the 1990s and early 2000s to build a Future Destroyer (DDX) class, and a Future Cruiser (CGX) class. Without going into great detail, that hasn't happened. The three surviving *Zumwalt*-class destroyers (14,000 tons!) are the remnants of a program to build 32 large surface combatants to support amphibious operations. The ships will trial new equipment and concepts for future types of warships.

Meanwhile, the People's Republic of China is spending vast amounts of national treasure on its navy, especially on aircraft carriers of which there will be at least four by 2030, including one or two with catapults and arrestor wires to handle high-performance fighter and strike aircraft. The Chinese are also building the Type 055s – large destroyers to act as escorts to the aircraft carriers. The USN classifies these 13,000 ton ships as cruisers. These are defined as a large, multi-mission surface combatant with facilities to carry a flag officer for command and control of smaller task groups, and to be the anti-air coordinator for carrier battle groups, a vital role in protecting those precious carriers.

Delay in implementing a cruiser program in the USN has led to improved versions of the *Arleigh Burke*-class



Credit: Li Ziheng, Xinhua

Poor weather conditions partly obscured the unveiling of China's first Type 055 destroyer, *Nanchang*, during the Chinese Navy's 70th anniversary naval parade off Qingdao on 23 April 2019. The Type 055s are frequently compared with the *Zumwalts*, as fellow new-build warships displacing over 10,000 tons.

destroyers being built, the latest being the Flight (Batch or model) III variant. Over 100 of the *Arleigh Burke*-class will be built in total, with multi-ship contracts being let to two shipyards. Since 2014, planning has commenced to replace the early *Arleigh Burkes* and the *Ticonderoga*-class cruisers with a new Future Surface Combatant (FSC). It is likely that the FSC will incorporate emerging technologies such as lasers and rail-guns, both requiring the generation of large quantities of electrical energy. They may use a derivative of the *Zumwalt*'s electrical drive system that propels the ship while providing electricity at levels needed for future directed energy weapons. These weapons show great promise and are potentially much less expensive than today's state-of-the art missiles. 🇺🇸

Book Reviews

Marine Corps at War, edited by Thomas J. Cutler (Series Editor), US Naval Institute Series, Annapolis, Maryland: Naval Institute Press, 2016, 176 pages, \$21.95 (paperback), ISBN 978-1-68247-042-8

Reviewed by Michael Kocsis

The US Marine Corps (USMC) is part of the tradition of the US Navy, but in important respects it is separate from the navy. The USMC is a part of the projection of US power at sea, but the function of the USMC is to prepare soldiers for fields of battle. The 16 articles contained in this volume explore the history and unique contribution of the Marine Corps as a branch of the US Armed Services. The articles in this book are drawn from past issues of *Naval History* and the Naval Institute's journal *Proceedings*.

Marine Major Edwin N. McClellan explains how the US Marines came into existence during the American Revolution. In 1775 General Washington took a risky step in standing up two battalions of soldiers to be trained as infantry but readied for service on naval vessels. Washington was reluctant to pull infantry away from state units of the continental army. Pressure from Congress prompted him to create a distinct service, the exact role of which was not yet clear, except that the "First and Second Battalions of American Marines" would be "acquainted with maritime affairs" and "once on board" they would "belong to the naval service" (pp. 3-4).

Carlos C. Hanks details the involvement of the marines in the Spanish-American War. The 'naval phase' of that conflict would ultimately prove decisive for American victory. But first the navy would have to establish a base for US operations in the Caribbean. The location selected for the base was Guantanamo Bay on the island of Cuba and the necessary territory was seized after a series of close engagements by a battalion of marines.

Two articles by Richard B. Frank examine the contributions of the marines in the Pacific War of World War II. First he recounts the Battle of Guadalcanal where a group of isolated marines seized a tract of shore and found the location for a critical US airstrip, which they hastily built. Second, Frank recounts the Battle for Okinawa, which he calls "The Pacific War's Biggest Battle." The full force of the marines was brought to bear on Okinawa against well-entrenched Japanese forces. The fight for Okinawa would become one of the key engagements of the Pacific War and a legendary chapter in the history of the Marine Corps.

Two articles by Lynn Montross examine amphibious landings during the Korean War. Amphibious assaults were fundamental to every stage of that war effort. Montross explains in a vivid way how marine units fought their way ashore and then "went up against one hill after another that had been transformed into a little fortress bristling with mortar and machine-gun positions" (p. 70).

An article by Marine Lieutenant William Leftwich Jr. examines the challenges that faced the marines in Vietnam. For better or worse, the Vietnam War transformed the role of the Marine Corps in two acute ways. The first was a shift away from exclusively combat-oriented operations to new 'advisory' roles. The second was a shift toward combined operations coordinated with air and land elements. Both transformations generated unique challenges and sparked intense debate inside and outside the US military.

Ed Darack's article recounts the experiences of a marine battalion in Afghanistan. He introduces readers to the extreme complexity of the Afghanistan war. Every facet of a marine unit's participation – from its first training to transportation and coordination with other elements through to its live operations – involved accounting for difficult topography and preparing for confrontations with multiple layers of opposing forces. Afghanistan, Darack explains, represented "an entirely different battlefield" (p. 161) in which the role of the Marine Corps once again needed to evolve.

The great attribute of this collection is its historical range. Because they reach across a wide span of history, the articles collected in this book allow readers to appreciate what commentators for more than a century have had to say about the Marine Corps and how they have understood its military potential. They also reveal a few common presumptions. The Marine Corps is an independent but highly adaptable branch of the US Navy. Its strengths and attributes have shifted with each passing generation, but the unique advantage of the US Marines is and has always been its capacity to deliver troops swiftly and tactically to the heart of the fight, anywhere in the world the fight might occur.

The storied past of the US Marines is well documented by historians. This volume is worth reading because the articles carry forward a discussion that has existed as long as the US Armed Services themselves about the role the marines should play, and about how that role ought to change to meet new challenges. 🍷

Naval Command, edited by Thomas J. Cutler (Series Editor), US Naval Institute Series, Annapolis, Maryland: Naval Institute Press, 2015, 192 pages, \$21.95 (paperback), ISBN 978-1-61251-889-3

Reviewed by Michael Kocsis

This collection brings together articles on the topic of naval command from the US Naval Institute's journal *Proceedings*. The first selection draws on arguments published originally by James Stavridis and Robert Girrier in their iconic book *Command at Sea*. That book championed a view known as 'absolute responsibility' which has been central to thinking about naval command for over a century. On the one hand, the authors concede that a Commanding Officer's ability to entrust power to his or her subordinates is essential to success. Hence, "COs who fail to delegate responsibility, or who lead solely from their staterooms via a continuous stream of emails, will almost certainly flounder" (p. 7). On the other hand, Stavridis and Girrier are better known for their doctrinaire reading of command responsibility. "A ship at sea is a distant world," they argue, "and in consideration of the protracted and distant operations of the fleet, units must place great power, responsibility and trust in the hands of leaders chosen for command" (p. 8).

Thirteen selections that follow Stavridis and Girrier set forth challenges, limitations and amendments to the absolute responsibility doctrine. W.B. Mack's article defines successful command in terms of proficiency in the "recognition, assumption and discharge of responsibility" (p. 70). By granting special importance to the third area, Mack honours the fact that discharging power and responsibility to junior leaders is vital to operational success.

Earnest King's article emphasizes delegation of command powers as a method to inspire confidence and creative thinking at the level of junior officers. His subject is the WWII-era policy known today as Executive Order 8984, specifying "Duties of the Commander in Chief of the US Fleet and the cooperative duties of the Chief of Naval Operations" (p. 83). King explains how the US Navy conceived and quickly established a framework of command responsibility in 1941 to encourage "decentralization and ... intelligent initiatives of the subordinate" (p. 88). To meet immediate naval challenges of the Pacific War, "great care" had to be taken "to obtain officers with high abilities, fresh from direct contact with sea-going forces" (p. 91).

Robert Mumford Jr. analyses an all-too-familiar dilemma for today's US Navy. He explains that "procedures are stressed to the exclusion of substance" and "excessive

rudder orders are ... issued, seniors telling juniors not only what they are expected to achieve, but *how* to reach that goal" (p. 128). In such an environment, junior commanders "feel overwhelmed and stifled by excessive direction" (p. 129) and as a consequence, the "qualities of independence, initiative, and judgment are no longer quite so important" (p. 130). The solution, Mumford says, is not new managerial layers in the form of surveys and inspections, but a new dispersal of decision-making powers engineered to promote unitary leadership. Even though Mumford's argument primarily takes on the issue of discretionary financial authority at the unit level (p. 136), it is really a bold call for transformation in accepted customs of naval command.

Carrying similar themes forward, A.E. True spells out the functions of command in a manner that respects administrative functions that constitute so much of the day-to-day work of commanders. His greater purpose is to remind readers that the critical consideration of any naval fighting force is *action*. To think of naval command as a set of powers stowed in the stateroom of the senior officer is incomplete and misleading. Effective command is preparation for engagement, and engagement in turn demands coordinated activity and effective delegation at each level of a ship's crew.

The articles included in this volume illustrate a critical debate about the absolute responsibility doctrine. It is true that at some level Commanding Officers carry a great burden of responsibility for their vessels, missions and personnel. But naval command is a deeper concept than received ideas about ultimate responsibility bring to light. King, Mumford, True and other experienced commanders remind us that the weight of command involves an assessment of how commanders assign authority to subordinates and of how their assignments are managed in the course of naval operations.

This installment of the US Naval Institute's *Proceedings* series is an invitation to examine these questions with fresh eyes and to think creatively about the proposition that command is an effort to balance powers traditionally associated with ultimate responsibility with the ability to entrust authority wisely to junior leaders. 🍷



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2019 CANADIAN NAVAL MEMORIAL TRUST Essay Competition

Canadian Naval Review will be holding its annual essay competition again in 2019. 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 or naval.review@dal.ca.

Contest Guidelines and Judging

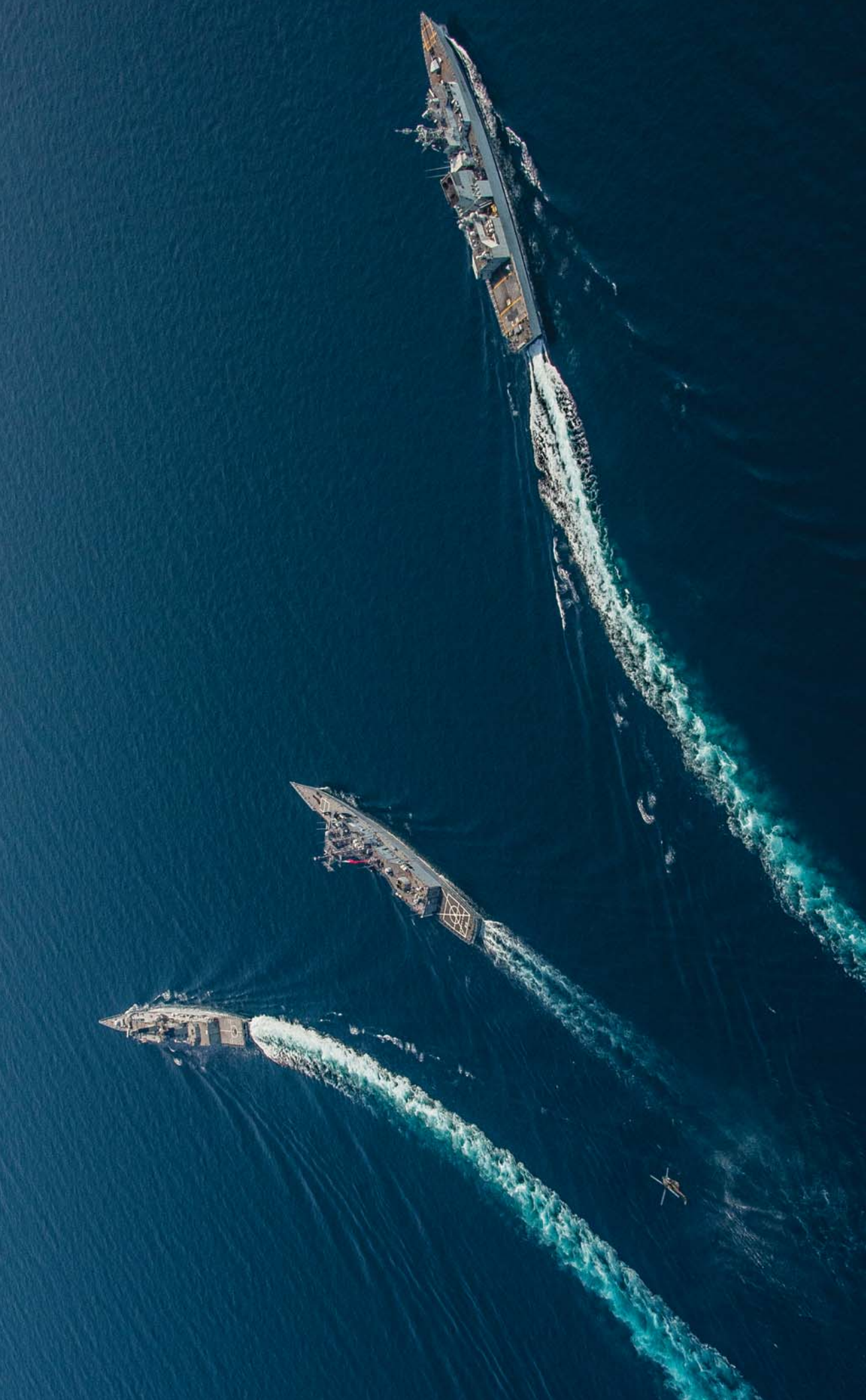
- Submissions for the 2019 *CNR* essay competition must be received at cnrcoord@icloud.com or naval.review@dal.ca by Monday, **30 September 2019**.
- Submissions are not to exceed 3,000 words (this number includes Notes, but excludes References). Longer submissions will be penalized in the adjudication 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.

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Romanian Navy ship *Regina Maria* (top left), Polish Navy ship ORP *General Kociuszko* (centre) and HMCS *Charlottetown* (right) break off during Exercise Sea Breeze in the Black Sea, 28 July 2016 as part of *Operation Reassurance*.

Credit: Cpl Blaine Sewell, Formation Imaging Services