

STARSHELL

FALL 2021 | ISSUE 93

NAVAL ASSOCIATION OF CANADA

**Operation Caribbe: Countering
Illicit Trafficking**

**A Canadian Patrol Submarine:
What are the Options?**

**Strategic and Operational
Considerations for
Shipbuilding**



Starshell

From the Editor
Adam Lajeunesse



ISSN-1191-1166

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STARSHELL magazine is published three times per year (with occasional special editions) by the Naval Association of Canada (NAC). The editor is solely responsible for the selection of material. Contributions are encouraged and should be sent direct to the editor at adam_lajeunesse@outlook.com.

NOTE: All material must reach the editor no later than the 15th day of the month prior to the month of publication. All photographs submitted for publication must be accompanied by suitable captions and accreditation. Photos should also be high-resolution (at least 200dpi). Changes of address are to be sent to the executive director, David Soule, ExecutiveDirector-NAC@outlook.com.

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STARSHELL is circulated electronically via email and displayed as a flipbook accessed through the NAC website.

Cover Image: A Hercules providing top cover for Tusker 912 (CH149) while conducting hoist training with HMCS *Windsor* off the coast of Nova Scotia. (Image: MCpl Matthew Sebo, RCN Facebook)

As Covid-19 slowly recedes the Navy has picked up its operational tempo around the world. In headline-making operations, Canadian ships have scored record breaking drug busts in the Arabian and Caribbean Seas while HMCS *Harry DeWolf* completed the first transit of the Northwest Passage by a Canadian naval vessels since HMCS *Labrador*'s maiden voyage in 1954.

In this edition of *Starshell* we look at some of these operations and delve into important questions surrounding the Navy's future. The RCN recently announced that it has stood up a team to study the replacement of our Victoria-class submarines. To provide some context to Canada's efforts, Norman Jolin offers an in-depth analysis of the RCN's replacement options from around the world. Tim Choi, meanwhile, looks at the strategic implications of domestic shipbuilding and discusses the strategic advantages that it provides. Roger Cyr offers a different take on the potential make-up of Canada's future fleet and the NAC celebrates the awarding of the Admiral's Medal and its role in a host of projects across the country.

As always, we at *Starshell* encourage our readers to reach out with ideas and material for publication. The strength of the NAC is in the collective experience and engagement of its membership; that knowledge is important but can only make an impact when it is put forward. As the Navy revitalizes its fleet over the coming years, your ideas can play a role!

Adam Lajeunesse

Editor, *Starshell*

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Starshell Number 93 (Fall 2021)

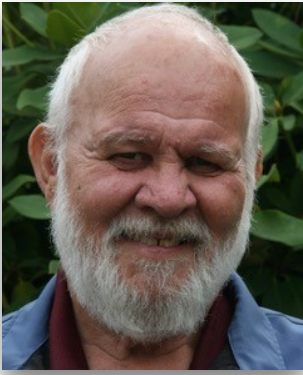
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MCpl Sebastien Ramirez Naranjo and MCpl Andre Almeida aboard HMCS Calgary, conduct a hoisting exercise with the Royal New Zealand Navy during Operation Projection (Image: Lynette Ai Dang, HMCS Calgary)



From the Bridge

Bill Conconi, National President

The Elephant in the Room

The elephant in the room

By elephant here I refer to issues we are all aware of, maybe even discuss, but don't get to a successful end point. A prime example is membership.

When I joined the NOAC/NAC we were about twice the size we are now and we were all 20 years younger, new members have come on but more have left, primarily due to changing demographics. A parallel reality has been that, generally in the population, organizations like ours have all struggled with this issue. Some of the main reasons people joined organizations was to access information and to meet like-minded people. Today, access to information and people, has drastically improved due to the internet and other media sources. We used to rely on our associations for new relevant information, Google now is the preferred method for many.

Another factor, I believe to be true in my experience, is what I call, "collective return on investment." When we think of Return on investment (ROI) we tend to think of the individual. What benefits do I get for being a member as compared to my costs of joining? In my view this is the wrong question. We need to think of "us", as opposed to "me". Our true value comes from our collective strength and the synergy we create by being together. This has been exacerbated these last few years by COVID, but hopefully we will now be able to move on and truly capitalize on our combined energies.

At NAC-VI we have been able to restart our luncheon and speaker program. Filling the gaps have been some very good meetings via Zoom/Go to Meeting – ably organized by members from across the country. What we miss is the face-to-face socialization time before and after. For me, and others, while social media allows engagements, it remains awkward and is not like interacting in person. Research tells us this social interaction is an equal and important component and good discussion helps us make sense of what we have just heard or observed.

Parallel to this, we have grown in many ways, just not in member numbers. Our website is excellent, our Naval Affairs Program is widely respected, and our NAC News continues to reach and inform more people. We have had similar growth in our audience with our Twitter, Facebook, and LinkedIn accounts. Our overall audience is expanding as our actual membership numbers stall.

We have a well managed endowment fund that is making a difference with endowed assets in excess of one million dollars. An excellent opportunity to show our value to our communities and perhaps to provide leverage in creating an enhanced awareness of who we are.

This raises the question, what should we do? A few things become apparent. It is not enough to just try harder. We need to get outside the box, perhaps look at membership a new way. Perhaps disconnect membership

from dues paid annually. Look at other funding models. We are also told that engaged members feel more connected and, as result, are more willing to get and stay involved. Note, engaged does not mean attending a luncheon or speaker series, but playing a role in delivering the event. The activity does not have to be big. We always start best when we start small, (collecting tickets at the door, setting up chairs, introducing a speaker, being a mentor to a new member, etc.).

We need to get outside the box and not be limited by what we have tried before. Think in terms of an active program, new ways to reach out to targeted groups, seek other groups we can affiliate and communicate with. I am sure with some thought you can think of more. One example would be: how can we engage introductory members in an active way?

We have the needed tools. We have an excellent CRM (Customer Relations Management) program in Wild Apricot that can track engagement and help us reach out. We have members with the expertise to use it to our advantage. We now just need the action plan.

Finally, I would like to take a moment to remember my predecessor. Past President Jim Carruthers, who never missed an opportunity to promote NAC. On his watch we became the NAC as opposed to the NOAC and, for some, this remains a controversial change. We moved from a collection of Branches to a National Organization that has Branches. We continue to

evolve. We are a work in progress. We need to take advantage of our collective strength and together build our future.

Keep in touch with the NAC

If you are receiving NAC News, but are not a member, please consider joining. Or, keep in touch through social media.

Join the NAC

navalassoc.ca/branches/

View our newest Naval Affairs work

navalassoc.ca/naval-affairs

Archived weekly NAC new links

navalassoc.ca/naval-affairs/nac-news/

Follow us on Twitter

@navalassn

Should you wish to donate or leave a memorial visit:

[NAC Endowment Fund](#)

NAC reference to assist veterans and/or seniors is located at [Veteran's Corner](#)



HMCS Harry DeWolf conducts training drills during Operation Nanook (Image: Jaclyn Buell, CAF)



The Front Desk

Moving Forward

... Trying not to Look Back

David Soule, Executive Director

Well, it is that time of year again and in many ways the year has passed far too quickly. It is tempting to try and look back and try to rationalise why you did not finish a task or do something you had planned to. For many tasks, these remain on “the list” and quite frankly it probably does not matter whether they were done or not – opportunity lost, well maybe. So, what to do? – I would suggest we look forward and not back too much. Life is returning to “more normal”, branches are organizing some face-to-face social activities, and we are using more social media tools for our “products” that have allowed more members to participate no matter where they live. One could almost thank the pandemic as it in forced us to use new ways to communicate that have made branch events available to all members. We face some challenges and many of these have been there long before Covid. Membership, as our President reminds us, remains “the elephant in the room”. However, we know we must at the very least “keep the elephant from moving around too much and taking up all the space,” (though it is preferable if the elephant just left!) The solution may not be what has been tried and tested over time but adjusted to reflect new realities. You can refit a ship but at the core is a crew (read the members) that really ensures any change is effective and worthwhile.

The 2022 NAC National Program

As you all know, committing to an in-person program has been difficult over the past two years and how we approach the 2022 plan is no different. That said, these opportunities and

plans may now actually be realized. So, here are my thoughts on what to expect. Please note some of this is notional (remember: be optimistic – no more negative waves Moriarity) and we should have a more firm grasp on the feasibility and timing for this program in the coming month.

BOA Gala Dinner – Ottawa. This event is planned to occur as part of the BOA memorial events to be held the weekend of 1-2 May. There may be additional NAC activities planned around these events with details to follow. The revenue the Gala generates remains a key enabler for our naval affairs program and indeed NAC’s future as an organization.

Arctic Workshop/Conference – Halifax – Fall 2022 (TBD)

Due to COVID circumstances, well beyond the event planners’ control, this activity, originally planned for 19-20 October 2021 was postponed. Discussions are underway with the RCN in Halifax to establish best dates for this event to take place. NAC and the Brian Mulroney Institute of Government at StFX, in partnership with the RCN, will remain as hosts for this workshop. The theme will be “Arctic Maritime Partnerships – Options and Opportunities for Cooperation in the North American Arctic.” NAC Vice-President Bruce Belliveau and his team from NSNAC is working with Adam Lajeunesse (from the Institute at StFX and our NAC naval affairs research coordinator). This workshop will not be conducted in the more usual NAC conference format, in that attendance will be limited by

invitation only. A number of NAC members who have expertise in this area will be participating and a small number of NAC members may be able to attend. We are also investigating the best and most affordable way to make relevant portions of the plenary sessions available to all NAC members, either live or after the event. More to follow.

AGM 2022 – Mid June 2022 via GoToMeeting

Monthly Speaker Meetings – various NAC Branches – these events will be announced as scheduled and will be “held” on GoToMeeting and other similar social media as available. Event notification will be made using WildApricot messaging and in NAC News.

To Our 2021 Sponsors – A Big NAC Thank-You!

I would like to thank, on behalf of all of you, those organizations who stepped up and supported NAC in 2021: BAE Canada, Irving Shipbuilding, Seaspan Shipyards, Lockheed Martin Canada, Babcock Canada, and Prospectus Associates. Their support has been critical to our naval affairs program and other outreach activities (this includes the publication and distribution of NAC papers to decision makers on subjects such as the National Shipbuilding Strategy, why the Canadian Surface Combatant and future submarine requirement are critical programs for our Navy). Without our sponsor support, these programs and initiatives would not be possible. And in case you want to ask - we will display corporate logos, advertising in Starshell, links to their websites and feature/link to company initiatives when provided. However, our sponsors are “hands-off” in regard the content and point of view in our “products” (and they have never asked). So “hats-off” to them! We are all in this together – supporting our Navy!

Remembrance Day 2021

From all reports by other members who attended Remembrance Day ceremonies across the country, this year’s Remembrance Day seemed very special. I

was honored to lay the wreath on behalf of the NAC at the National Day of Remembrance Ceremony at the National War Memorial in Ottawa this year. It was quite an emotional day. There definitely was spirit of optimism (folks just wanted to be there and share their feelings and pride of country) and deep reflection about this day in the air. For me it was a day of mixed emotion. I was proud to represent you and interact with the public and other members of like organizations. It was an opportunity to be present and folks really just wanted to be there. That said, for me, it was also a day to remember the sacrifice of a great uncle, Rifleman George Bisson, who 80 years ago, at the ripe young age of 36, joined the Royal Rifles of Canada. He was captured at Hong Kong in 1941 and died a prisoner of war in Japan in 1944. Like many others he did not want to be a hero, just an ordinary citizen who wanted to do his duty as his older brother had in the First World War. All to say an emotional day.

Your NAC Needs you

As many of you know I will be stepping down as the National executive director as of the 2022 AGM. We also need a treasurer, (a position some know is always difficult to fill). From a national perspective this has been made somewhat easier with a more automated approach to accounting and assistance from our NAC National coordinator. Have no fear, I won’t be running away, but we do need someone to set up. If you are interested (and like some good gossip) please contact me by email or give me a call.

The 2021 Endowment Fund Campaign is Underway. Donate to Your fund

Many of you will have received this year’s EF Donor letter. I urge you to consider donating to this, your fund. Over the past year some \$48,000 in grants have been allocated to a wide-range of deserving groups and activities. These support maritime related activities like Sea Cadet programs and education, maritime museums (on land or afloat) and support to veterans, to name a few. This effort can only be sustained by your donations. The National Board wants to thank Admiral (Ret’d) John Anderson, RCN, and his committee for their efforts over the past year.

This is never an easy task.

We want to make a concerted effort on social media to advertise what organizations are awarded the grants so NAC gets credit for our contributions. Feel free to send me and Starshell's editor Adam Lajeunesse your pictures, links, etc ... for any presentation related for the grant your branch is sponsor for.

Administration - Some Worthwhile Disruption Will Continue

As you are all aware we have moved our email service and products such as NAC News to the WildApricot platform. This transfer has continued over the summer and we are now transitioning NSNAC and Calgary into the WA family. NAC TO is next, and I will be reaching out to remaining branches to see how we can assist to make you part of the family. Gerry Powell our membership coordinator for this project may have already contacted you in person. This is not a one-size fits all approach so we can adapt to meet branch as well as member needs in terms of support. We will also continue the process of enabling members to renew membership online if so desired. This aspect is taking some time to implement but we are determined to make it work.

New NAC Children's Book – “Over the Horizon”

If you are looking for a Christmas gift, then you are in luck. Our third in the series of children's books, “Over the Horizon”, a story about maritime helicopters, is about to be made available for sale at the very affordable price of \$10/copy (\$15 if you need it mailed). An order form is included at the end of this edition of *Starshell*. The author is our naval affairs coordinator, Dr Ann Griffiths and I think you will enjoy this offering.

This book, and our first two offerings, are available for sale at this [link](#). “Over the Horizon” is currently only available in English. “Mom's in the Navy” and “Undersea Adventure” are available in French and English. If you know of a school or library that could use either or both language versions of these books please let me know. We will be

supplying copies to the Family Resource Centres on both coasts and I will be working on a plan to donate to local public libraries as well once COVID restrictions are lifted.

SALTY DIPS Volume 11– “Some Things Pass. Some Things Change. Some Just Stay the Same.”

The eleventh volume of “Salty Dips” is now available for purchase through Friesen Press. This is a first for the committee – using a professional publisher/book seller to publish as well as market the book. This approach was taken to provide potential buyers the opportunity to buy a print on demand soft or hard cover copy as well as offer options to buy an e-book version in a wide-variety of formats through other sellers. This also means Salty Dips will have a much larger market exposure. It has certainly been a learning experience for those involved but we truly believe this is a way ahead and we think you will enjoy this edition. So, need a Christmas gift that may make you forget about a raging storm outside or to take the chill off a cold winter's eve? Salty Dips Edition Volume 11 may just be that gift.

A Submarine Christmas Carol

A TV advertisement I saw recently reminded me of a Christmas event many years ago. The operations officer in the submarine I served in organized a Christmas party at his home which was preceded by a neighbourhood Christmas carolling stroll door-to-door. It was a very cold and windy December night for Halifax and even though we were well bundled in our warmest winter clothing all were losing a little Christmas spirit as we sang around the local area. Most folks were very polite and listened to us, others simply looked out the window and shut the blinds but the biggest insult was the last house on our journey. An older gentleman answered the door, listened to half a carol and then slammed the door on us – no “thanks for the Christmas cheer but tis cold for me” or “your singing is great but I've gotta run so Merry Christmas” or Why don't you all come in, I'll even give you all a libation to warm up” – all we received for our efforts was a loud grunt “Bah Humbug” and a slammed door. Being the pirates we

were, the initial thought was to egg his windows or worse... but being rather cold and with voices strained we shuffled away – and cheered up knowing the operations officer’s house was very, very close by and in it was more than an ample supply of food and drink. Moral of the story – If a group of submarine carollers appears at your door this Christmas don’t slam the door on them – either invite them in for a libation or if you must tell them to leave, tell them to dive and “Run Silent and Run Deep”. And a “Merry Christmas to all”!

NAC Awards

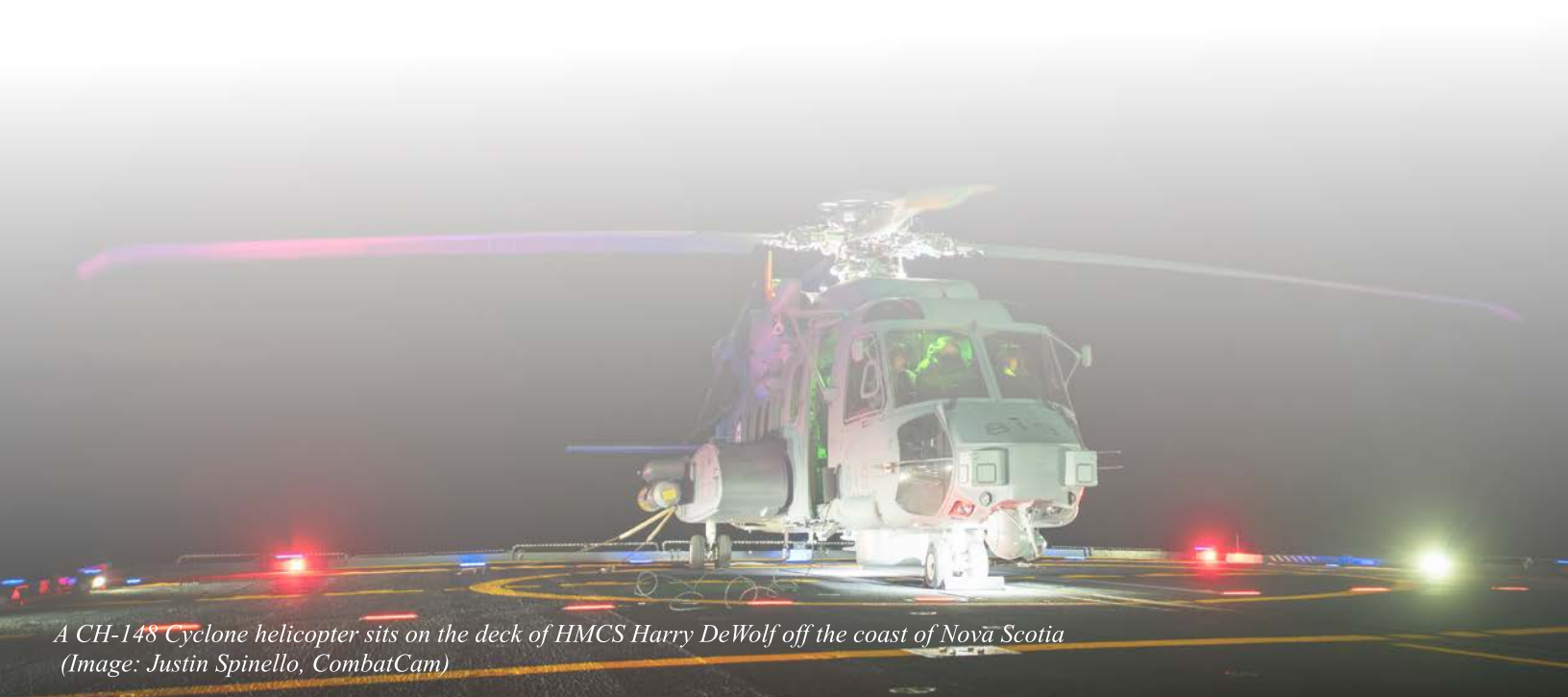
On behalf of your NAC National BODs and the Awards Committee, I am pleased to announce the following awards for 2021:

Concluding Remarks

I want to wish everyone a Happy Holiday Season. Hopefully you are able to connect with family and friends this year (and remember to wear your mask!). I also want to thank you for your support this past year and I want to extend a special thanks to those members who from time-to-time have passed on a kind word or helpful advice to me or Rod Hughes (Mr NAC News). It certainly keeps us focussed on providing service to you the member.

Well, it is time to close. Hopefully you have read this “Front Desk” with a bit of a sense of humour. As I have said many times, please do have a laugh or two every day (even if at yourself), be kind to those who work in the service and health industries and remember the logo on my favourite ballcap says “Life is good!” It truly is, and we are blessed to live in this great country Canada.

Gold	Silver	Bronze
Margaret Morris - NLNAC	Charles O’Leary – NAC Montreal	Bruce Belliveau – NSNAC/National
Ken Lait – NAC-O	Richard Burchall – NAC-TO	Jody Doll - NABC
Bill Conconi – NAC-VI	Mark Phillips – NAC-TO	Patrick Hunt – NAC-VI
David Soule – NAC-O	Nick Leak – NAC-O	Paul Seguna – NAC-VI
Barry Walker – NAC-O	Michael Hoare – National/NAC London	Tony Dearness - NLNAC
	Robert Lucas - NLNAC	Don Peckham – NLNAC



*A CH-148 Cyclone helicopter sits on the deck of HMCS Harry DeWolf off the coast of Nova Scotia
(Image: Justin Spinello, CombatCam)*



The Naval Association of Canada - L'Association Navale du Canada
NAC Endowment Fund- ANC Fonds de Dotation

PO Box 42025 Oak Bay
2200 Oak Bay Avenue, Victoria, BC, V8R 6T4

November 4, 2021

Dear fellow NAC member,

Your Endowment Fund (EF) Trustees continue to focus on two key objectives; building the value of the endowment and furthering its three purposes: remembering the past, supporting today's Navy, and building the future.

The Fund awarded grants totaling \$48,000 in 2021 to assist with Sea Cadet scholarships (through the Royal Canadian Sea Cadet Education Fund) and support to Sea Cadet activities in the Montreal area. Post-secondary Scholarship support was also provided to the Quadra Education Foundation (for former sea cadets trained at HMCS *Quadra*) as well as to the Nova Scotia Branch in support of their bursary essay project. You also continued to provide support for the funding of the Shipbuilder Statue in North Vancouver. As in previous years you supported the Veterans Memorial Lodge at Broadmead (Victoria), and the Maritime Museum of BC. For the first time, a small grant was made to the Canadian War Museum in support of their mobile education program. You also supported the development of a Navy Tribute project at HMCS *York* in Toronto and provided some seed money to a Naval Museum of Manitoba project. Further support to HMCS *Sackville* was provided as was funding for the Multi-faith Housing Veterans House in Ottawa.

The Fund report was published in the 2021 Spring/Summer edition of *Starshell* (pages 8 and 10). I recommend you access and [read it here](#).

Your Fund serves as a catalyst in supporting suitable branch and community projects. For 2021, we received grant proposals totaling over \$80,000. As your Fund becomes better known, we Trustees anticipate a similar or larger request for support in 2022. To consistently sustain approximately \$50,000 in annual grants the investment portfolio needs to grow to at least \$1.25 million (based on a 4%

investment return after fees). An increase in donor support would facilitate moving towards both objectives. We seek your help in doing this.

Please be generous in completing and returning the attached donation form ([can also be found at this link](#)).

Admiral (Ret'd) John R Anderson, CMM, CD, RCN
Chair, NAC Endowment Fund,
On behalf of the Trustees

Doug Plumsteel

Richard Lewis

John R Anderson

Michael Zwicker

Bryn Weadon



Images: Clockwise

1) King Wan presenting the NAC EF grant cheque to Rod McColy, President of the Vancouver Naval and Maritime Museum in support of the Shipbuilding Statue. In attendance are, Larry Fournier and Bob McIlwaine.

2) President of NACVI, Bill Conconi, presenting the NAC EF grant to Brittany VIS, Executive Director of the Maritime Museum of BC.

3) Shown in the photo is a cheque presentation taken outside the main entrance of the CWM (from the left): Howie Smith, the NAC Project Officer, Megan Ollivier the Senior Fundraising Officer at the CWM, and Tim Addison, the Ottawa Branch President

4) Shown in the photo (from the left), the Past-President, Howie Smith, is seen presenting a cheque to Commander (Ret'd) John Bell, Vice-President of the RCSCEF.





Images: Clockwise

- 1) Joel Obadina: "2021 HMCS QUADRA Education Fund recipient. He is in 2nd year at the University of Saskatchewan studying cellular physiology and pharmacology with plans to pursue medicine".
- 2) Cindy Cui: "2021 HMCS QUADRA Education Fund recipient. She is studying 1st year computer science at UBC".
- 3) Bruce Belliveau, President of NACNS presenting the NAC Endowment Fund grant to Bill Woodburn October 2021.
- 4) Bill Conconi presents a NAC EF grant cheque to Mandy Parker, VP Philanthropy and Communications at Broadmead Care Lodge for their creative arts program in keeping the residents minds active and creative



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USCGC Forward and HMCS Saskatoon's team conduct a transfer of contraband and detainees – on of the final steps in a successful interdiction operation (Image: Cpl M. MacIssac)

Operation *Caribbe* - Countering Illicit Trafficking, One Interdiction at a Time

LCdr Nadia Shields, CD and Lt(N) Riley Perrior

LCdr Nadia Shields is the Commanding Officer of HMCS *Saskatoon* and Lt(N) Riley Perrior was the Operations Officer during their ship's deployment. This article is based on the events that occurred during one of the interdictions that HMCS *Saskatoon* was involved in during Op *Caribbe*

On the morning of March 24, 2021, Her Majesty's Canadian Ship (HMCS) *Saskatoon* received intelligence of a suspected vessel smuggling narcotics off the coast of Panama. Their exact destination was unknown, but that was part of the tactical challenge *Saskatoon* had to face. The crew had to determine not only where the smugglers were heading, but also when the best time to intercept them would be. It's never as easy as turning towards them and driving as fast as possible.

There has to be an intimate understanding of

relative velocity between the ship and the target, and to plan an intercept that maximizes surprise and speed. Due to the small nature of these vessels, they are nearly undetectable by a ship's radar, so the use of surveillance aircraft, also known as Maritime Patrol Aircraft or MPAs, is crucial.

Once all this information was factored in, *Saskatoon's* team came up with a plan to intercept. In most cases, the crew can plan out as far as 24 hours in advance for such interceptions, but in some instances, a plan can be implemented in as little as 15 minutes.

For the crew of *Saskatoon*, this was their first bust and it was an exhilarating experience to say the least! Even though the ship attempted to manoeuvre into position ahead of the smuggling boat and time the intercept to occur at night, our ability to receive air coverage limited *Saskatoon* to daylight hours. No matter, *Saskatoon's* crew was ready for the challenge.



As the ship neared the intercept point, the crew made all preparations to launch its small boats that would complete the intercept with the embarked U.S. Coast Guard Law Enforcement Detachment, or LEDET for short.

Saskatoon's embarked LEDET members are some of the most highly trained law enforcement officers on the high seas. They are not only experts in small arms and close-quarters combat, but their investigative skills and training to seek out hidden narcotics are unparalleled.

With this team away, *Saskatoon's* small boats began their transit to intercept. What happened next was a collection of deliberate planning and excellent execution with several moments of quick thinking and a dash of luck, culminating in a chaotic, tense, but exhilarating few minutes.

With the small boats in pursuit, the MPA overhead providing updated instructions to assist in the intercept, the team started closing the distance to the suspected smugglers. *Saskatoon* was close behind, but remained outside of visual range to avoid giving away our position and losing the advantage of surprise. Soon, after the small boats were only one and a half nautical miles from the target, they were spotted. The target boat quickly came up in speed and turned away from *Saskatoon's* team. "They're running!" reported the MPA. Knowing the element of surprise had been lost, both *Saskatoon* and their small boats came to best speed and closed the distance.

Concurrently, the MPA became overt (dipping below the cloud cover without an attempt to conceal its position) and did a low-fly-over of the smugglers boat as if to say, "There is no point in running, we see you and you can't hide from us." Suddenly the target

boat stopped. “They’ve stopped! They’ve stopped!” reported the MPA. “Quick they are switching fuel tanks, get in there!” exclaimed the MPA to the small boats, now only 1,000 yards behind the target. “Hang on!” said the boat coxswain as he widened the throttle for maximum speed. And then, silence.

After what seemed like 30 minutes, but in actuality was only 30 seconds, the radio crackled “We’ve got ‘em!” Cheers rang out on the bridge and in the operations room. *Saskatoon* had just successfully intercepted its first target. But the job was not over. The LEDET then had to get to work determining the legality and nationality of personnel on board, the type and quantity of contraband they were smuggling, and question the smugglers for any relevant information that could lead to further busts.

This was the first of three busts for *Saskatoon*, totalling more than 3,000 kg of cocaine with an estimated street value of \$210 million USD.

HMCS *Saskatoon* is ready to deploy once again on Op CARIBBE in early 2022. Follow our sailors on facebook (www.facebook.com/hmcssaskatoon), twitter (@HMCS_NCSMSask), and instagram (@hmc_saskatoon) as we share our preparations and adventures!



"Family: Teamwork makes the Dream Work," HMCS Saskatoon crew and Law Enforcement Detachment 108 deployed on Op Caribbe 21 (Image: HMCS Saskatoon facebook, 13 April 2021)

*HMCS Saskatoon conducting boat operations in the Eastern Pacific as part of Operation Caribbe
(Image: Cpl M. MacIssac)*



Operation CARIBBE

WINTER – SUMMER 2021

From January 22 to August 9, Canada contributed to U.S. -led Enhanced Counternarcotics Operations in the waters off the coast of Central America, to help control and disrupt drug trafficking and organized crime in the region.



Approximately **12,200** kg of cocaine kept off the streets of North America

HMCS *Brandon*
HMCS *Saskatoon*
HMCS *Moncton*
HMCS *Shawinigan*
CP-140 Aurora aircraft

186 days at sea
~**150** flight hours in the Caribbean Sea and the eastern Pacific Ocean



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A CANADIAN PATROL SUBMARINE

WHAT ARE THE OPTIONS?

NORM JOLIN



Canada's current defence policy, entitled *Strong, Secure, Engaged*, supports the maintenance of a submarine capability, as part of balanced mix of platforms to meet the nation's domestic and international needs.¹ Canada's existing submarine capability is represented by four Victoria-class diesel-electric submarines, armed with heavyweight torpedoes, which are arguably the only strategic weapon in the Canadian Armed Forces (CAF) inventory. It is not the intent of this article to argue why Canada needs submarines nor explain their strategic impact, suffice to say that since their inception at the beginning of the 20th century they have been a strategic capability which nations have used to influence the outcomes of major conflicts with substantial effect. That said, submarine operations have evolved, and the days of submarines being primarily engaged in commerce warfare are long gone and since the 1950s their focus has been predominantly anti-submarine warfare.

Modern submarines bring a different mix of capabilities to the defence enterprise, be it covert Intelligence, Surveillance and Reconnaissance (ISR) or area denial of strategic waters to potential adversaries, to strategic anti-submarine warfare and as a counter to missile firing submarines, particularly ballistic missiles. Furthermore, they can be employed domestically in the defence of Canada and internationally "as an instrument of national power"² – they are a very flexible capability.² It is for this reason, that Canada has maintained at least a small submarine force.

In response to the announcement earlier this year by the Commander of the Royal Canadian

Navy (RCN) that a small team was being stood up in preparation for a replacement submarine project, I was invited to offer an analysis of the options facing this team. Moreover, the recent decision by Australia, as part of a new AUKUS alliance,³ to cease their conventional-submarine replacement project in favour of nuclear-powered submarines, has added further grist to the speculation of what submarine Canada should be looking at to replace the four Victoria-class submarines.

Background

For some Canadians, the recent Australian decision brings back memories of Canada's short foray into a fleet of nuclear-powered attack submarines (SSNs) in the 1980s.⁴ In fact, the original project, entitled the Canadian Submarine Acquisition Project (CASAP), was to acquire a conventional submarine replacement for the three Oberon-class diesel-electric patrol submarines that had been built for Canada in the 1960s.⁵ However, the Mulroney government's 1987 defence policy decided Canada needed an Arctic under-ice capability and the project was re-scoped to acquire 10-12 SSNs and renamed CASAP-SSN.⁶ Regrettably the costs associated with operating nuclear-powered submarines proved too great and the CASAP-SSN project was stopped in 1989. Unfortunately, this was the same time the Cold War was ending, and the original submarine

replacement project subsequently became an early casualty of reduced defence expenditures.

In the 1990s Canada needed to address a huge budgetary deficit and federal government programs were slashed under Program Review.⁷ With the defence budget being the largest source of discretionary spending, and both the Canadian Patrol Frigate (CPF) project and the Tribal Update and Modernization Project (TRUMP) delivering a new surface fleet, there was no funding for a replacement submarine force, nor with the collapse of the Soviet Union was there a sellable rationale for maintaining a submarine capability. That said, the UK was going through similar defence reductions and made the tough decision to retain a nuclear only submarine fleet, thereby declaring their four new Upholder-class SSKs surplus to requirement.⁸ In 1998 the Chrétien government agreed to purchase the four Upholder-class submarines (re-named the Victoria-class⁹ in Canada) as an interim solution, entitled the Submarine Capability Life Extension (SCLE) project, until such time as a replacement project for the Oberon's could be stood up.¹⁰ Twenty-three years later Canada is now on the cusp of forming a Canadian Patrol Submarine Project to deliver a submarine capability before the service lives of the Victoria-class submarines end.

To conduct a meaningful assessment of the submarine options facing Canada, it is important to understand the context that will frame what a future



HMCS Victoria (Photo: LS Zachariah Stopa, MARPAC Imaging Services)

Canadian submarine should look like, examine some unique factors, and clarify a number of assumptions.

Strategic Factors

Strong, Secure, Engaged presses the RCN to “respond across a wide spectrum of maritime situations” including working more in the Arctic and supporting operations ashore – tough challenges for the Victoria-class submarine, as it was never designed to meet Canadian requirements.¹¹ Furthermore, this policy favours a priority for the defence of North America over expeditionary operations – policies that are unlikely to differ with successive governments no matter their political ilk. That said, the ability to conduct expeditionary operations remains a reality as governments react to events of the day that are often far from Canada’s shores. In short, the rationale for procurement will be domestic, but the reality of their operations will likely be expeditionary in support of Canada’s defence and foreign affairs.

Canada has two coastal naval bases in southern Canada, at Halifax, N.S. and Esquimalt, B.C., where significant naval support infrastructure exists (including submarine support). These are the home ports for the Atlantic and Pacific fleets respectively, a factor that will not change and is an important consideration in future crewing decisions. As hospitable as the cities of Halifax and Victoria are, a quick look at a map shows that Canadian geography quickly becomes staggeringly spartan as one goes north, where there is little to no infrastructure available for support. Once clear of the harbour, a Canadian submarine is truly on its own.

This leads onto the subject of submarine design, as submarines must meet specific national requirements, which for Canada are both domestic and expeditionary. The good news is these requirements are not conflicting; they both demand a submarine with an ocean-going capability and long endurance. Moreover, in defence of North America, Canada’s relationship with the United States of America is unlike any other security arrangement in the world. History has taught us of the critical need to maximize a national supply chain with deference to a North American supplier and hence a preference for commonality and interoperability with US Navy

equipment. Finally, there is security – Canada is a member of the Five Eyes (5EY) security alliance, which is becoming more and more definitive with a reluctance to share information or technology outside the 5EY community.¹²

Canadian Domestic Factors

To follow-on from above, being Canadian has its challenges and there are factors that are not always intuitively obvious but must be considered. Specifically, when looking at what a Canadian submarine must look like, the following factors are important, as the government, and in particular the bureaucracy that supports the government, must be sold on the requirement and its affordability. Because submarine operations are inherently secretive it is difficult to trumpet what a Canadian submarine capability brings to the table without quickly entering a classified discussion. Also, submarines are expensive to operate. Early inaccurate and rough acquisition and support cost estimates can be detrimental to long-term government support if costs are seen to be escalating out of control. That said, one must also be aware of sticker shock in numbers as Canada is required to report total project costs (every single cost associated with the project) not just per unit sail away costs, a difficult road for project teams to walk. In short, selling submarines to the Canadian government has always been very difficult and the fiscal conditions of a post pandemic economy are not optimal.

Some further thoughts:

- A Canadian submarine must be oceangoing to meet the realities of Canadian waters, including the Arctic, whilst having long endurance without access to support facilities. Thus, the discussion of nuclear propulsion naturally comes to the fore as the obvious solution. While not the subject for this paper, Canada has investigated nuclear propulsion twice before and both times it was concluded to be unaffordable – this has not changed. Furthermore, after the recent announcement of the of the AUKUS alliance, Prime Minister Trudeau responded, “this is a deal for nuclear submarines, which Canada is not currently or

anytime soon in the market for.”¹³ The point being, a decision to pursue nuclear powered submarines must have continuous strong political support, which would entail more than just cost concerns, as it will necessarily encompass safety issues, public reaction, nuclear-proliferation concerns, and Canadian foreign affairs. Moreover, a programme of this magnitude will take decades to deliver and must therefore survive many different governments. In sum, Canada’s future submarine will likely not be nuclear-powered.

- Of the submarine itself, it will have to be able to conduct lengthy deployments, longer than those submarines which the European navies operate closer to home, with their closer supporting infrastructure. While habitability in a submarine will never be luxurious, crew comforts must be a significant consideration; in addition, the crew will be mixed gender. The submarine must also be ‘environmentally correct’, particularly when working in the Arctic which demands holding tanks for waste as overboard discharge is not an option.
- The submarine will have a modern combat system of which 5EY issues will predominate on specific equipment selection. It will also need to support various weapons, specifically a heavyweight torpedo as well as long range strike weapons. It must also be able to launch, recover, and control autonomous vehicles. Furthermore, all these systems must be interoperable with key allies, most importantly the U.S. Navy.
- The submarine fleet must be supportable – the need for a North American supply chain, maximizing Canadian sources wherever possible, is key to supporting that capability.
- The submarine needs to be able to be in service prior to the end of service life of the Victoria-class (late 2030s).

Assumptions

Considering the factors listed above, there is no current submarine design in production that specifically addresses all the identified issues, although there are some that are very close. To put

forward a meaningful comparison of potential candidates I am assuming the future Canadian Patrol Submarine:

- Will be designed by a western submarine designer, which may be different from the builder and the combat systems integrator. I have discarded Russia and China for security reasons.
- Will be a large non-nuclear-powered submarine, that will displace in excess of 3,500 tons to allow for endurance, environmental, and habitability considerations.
- Will incorporate proven technology that minimizes crew size without significant risk to lengthy missions.
- Will have a modern combat system that supports modern weapons and is fully interoperable within the 5EY community.
- Will launch, recover, and control autonomous vehicles.

Submarine Builders

Having defined what a future Canadian patrol submarine could look like, the question becomes: who can build a submarine of this size today? While the builder may be the designer as well, that is not always the situation as there are shipyards which construct foreign submarine designs under license. Assuming an allied, western nation which builds attack submarines today (not small displacement coastal submarines) the list includes American, European, Japanese, and Korean shipbuilders. But who is building an ocean-going submarine today?¹⁴

Most European submarine builders, notably Sweden, Germany, and Italy, design and/or manufacture submarines of less than 2,000 tons displacement which are tailored to their specific operational needs and shorter patrol requirements in the Baltic/North/Mediterranean seas. This is not to say they cannot build a larger submarine, rather they have had no reason to do so – thus the question becomes: what risk is there with modern submarine building yards which lack experience in building significantly larger displacement submarines? Moreover, will Canada consider engaging a

submarine builder that has never built a large displacement submarine?

At this stage it is useful to clarify who is building ocean-going submarines today:

- United States of America: The Americans have a policy of only building nuclear-submarines for the U.S. Navy. Regardless, the two submarine building yards (General Dynamics Electric Boat and Hunting Ingalls) are at maximum capacity with the Virginia-class SSN and the Columbia-class SSBN. The United States will not build a Canadian conventional submarine.
- United Kingdom: The only submarine building facility (BAE in Barrow-in-Furness) is at maximum capacity with the Astute-class SSN and the Dreadnought-class SSBN. They would likely not have the capacity to build a Canadian submarine concurrent with ongoing national priorities.
- France: Naval Group is building six Suffren-class SSN into the early 2030s and will then start on the construction of the replacement for the four Triomphant-class SSBN. They are marketing a conventional version of the Suffren-class (Short Fin Barracuda – see the former Australian Attack-class) and they may have capacity.
- Japan: Kawasaki Shipbuilding have built the Soryu-class conventional submarines (SSKs) in a continuous build (spiral development) the latest being the Taigei-class SSK. But will Japan build submarines for Canada?
- South Korea: The KSS III Dosan Ahn Changho-class conventional submarines are in production now by Hyundai Heavy Industries and Daewoo Shipbuilding & Marine Engineering.
- Spain: Navantia is building the S80-Plus class conventional submarine.
- India: Most Indian submarines are built under license (e.g. French Scorpène-class) however they have built one Arihant-class SSBN and are building another. That said, their building capacity is unable to meet national requirements and they are therefore not a consideration.

Given these considerations, the question of domestic production naturally arises. Notwithstanding the significant infrastructure investments made by Irving Shipbuilding and Seaspan under the National Shipbuilding Strategy (NSS), submarine construction is much more difficult than surface ship construction, including warship construction. Shipyards that build submarines have made a specialized investment in both infrastructure and personnel, specifically the ability to cold-roll very large amounts of high yield strength steel and maintain a cadre of very skilled welders. This is an investment that takes significant time to put in place, which cannot be underestimated.

Currently no shipyard in Canada has the infrastructure or personnel resources to build submarines. While some core capability may still exist in Québec from previous experiences in building components for submarines in the 1980s, constructing an entire submarine is a significantly different enterprise that would require substantial investment. It is feasible that Canadian shipyard could upgrade their infrastructure to build submarines, but it would depend on numbers. A one-for-one replacement for four Victoria-class submarines would probably not be economically feasible to set up a submarine build capability in Canada. However, if as recommended by the 2017 Report of the Standing Senate Committee on National Security and Defence, a class of twelve submarines were to be built that may be a different dynamic as the cost is amortized over more boats.¹⁵

Time

Understanding that defence projects typically take 18-20 years to deliver an initial capability and the Victoria-class will reach the end of their service lives in the late 2030s, the time it takes to build a submarine is a significant factor in any options analysis. An open-source search of current submarine construction is noteworthy in the varying times it has taken for current submarine builders to deliver a submarine:

- Japan: Soryu-class (JS *Ōryū*) - Laid down: November 2015 Delivered: March 2020 – 52 months
- Korea: KSS III-class (ROKS *Dosan Ahn*)

Changho) - Laid down: May 2016 Delivered: August 2021 – 63 months

- Italy: Type 212 Todaro-class (ITS *Romeo Romei*) - Laid down: December 2009 Delivered: July 2016 – 79 months
- Germany: Dolphin class (INS *Rahav*) - Laid down: 2008 Delivered: January 2016 – 96 months
- Sweden: Blekinge-class (HSwMS *Blekinge*) - Laid down: September 2015 Expected: 2027 – 144 months
- France: Barracuda-class SSN* (FNS *Suffren*) - Laid down: December 2007 Delivered: November 2020 – 145 months
- Spain: S80-Plus-class (ESPS *Isaac Peral*) - Laid down: 2005 Expected: 2023 – 216 months

* nuclear-powered submarine

Submarine Design

This is a thorny issue as the optimal submarine design for Canada simply does not currently exist. Ideally Canada would engage a submarine designer (which may or may not be the shipbuilder) to produce an *ab initio* design that meets all of Canada's requirements, whilst avoiding nuclear propulsion.¹⁶ The design would then be constructed by a submarine builder in conjunction with the Combat Systems Integrator (CSI). A straightforward process one would think, however, the realities of time (finite) and the Canadian procurement process (competition) will have a significant impact on this process.

The recent Australian experience with an *ab initio* design process for their Attack-class submarines (now cancelled) has shown this process can be inordinately lengthy. Additionally, the need for any submarine builder, designer, and CSI to be competed will further complicate the process. Therefore, an option would be to Canadianize an existing conventional submarine design, but that too has its challenges, particularly if the necessary modifications are significant and the design is dated. If the Canadian Surface Combatant (CSC) project is an example, Canada will prefer to see complete teams (builder/designer/CSI) formed to compete with a total turn-key solution.¹⁷ While this may be preferential for government procurement, it

potentially does not offer the best design solution. That said, it is more than likely the way Canada will proceed.

If Canada modified an existing conventional submarine design (that may or may not have been built) there would be several contenders:

- Swedish Blekinge-class - currently the design is less than 2,000 tons – but can Sweden design a bigger submarine? To remind, the SAAB Kockums Västergötland-class submarine was the parent design for the 3,400-ton Australian Collins-class submarines, so they have designed large submarines in the past.
- Japanese Soryu/Taigei-class – a submarine design that displaces in excess of 4,000 tons, it has the potential to meet Canadian requirements with minimal changes. That said, there is much we do not know about this submarine and whether the Japanese will sell the technology to Canada.
- German Type 216-class – this 4,000-ton design has never been built. With the exception of the 2,400 ton Israeli Dolphin-class submarines, all other HDW submarines are less than 2,000 tons. That said, the Germans have a formidable reputation for designing and building submarines and cannot be discounted.
- French Short-Fin Barracuda-class – this 4,500-ton submarine design was to be built for Australians. The question will be whether the design will be able to meet Canadian requirements as it is a modification of an SSN design – not a conventional submarine design.
- Spanish Issac Pearle-class (S 80) - first of class of this 3,400-ton submarine is undergoing trials after a lengthy design and build process that encountered significant difficulties.
- Korean KSS III-class – a 3,700-ton submarine, the first of an eventual nine submarine class is currently undergoing sea trials. Again, there is much we do not know about this submarine and whether the Koreans will sell the technology to Canada.



JMSDF Soryu class submarine (Photo: Wikimedia commons)

Given the long association between Canada and the Netherlands, and the mutual commonality in requirements, the submarine design the Dutch select for the replacement of their four Walrus-class submarines should be of particular interest to Canada.

Procurement Factors

Procurement in Canada is a very structured process where the winning bidder must satisfy the operational requirements while being competitive in both cost and economic offsets. The point to understand is that, in a project of this size, the Department of National Defence (DND) is but one player in the process, with Public Services & Procurement Canada (PSPC) and Innovation, Science & Economic Development Canada (ISED) having an equal voice in final procurement decisions. In short, it is the Government of Canada, not the Navy, that makes the final decision based on several factors, of which the submarine design is but one.

Once the decision is made to stand-up a Project Office, a team is formed under ADM (Materiel)¹⁸ that includes serving military, DND civilians and representatives from PSPC, ISED, and other government departments. The Commander RCN, as

the project sponsor, will develop the Statement of Operational Requirements, however, it is the responsibility of ADM (Materiel) to manage the project – not the Commander RCN. This is a very complex process as the project is responsible for all facets of the procurement with input from:

- PSPC, as the contracting authority, who will demand an open and competitive process to select a winning bid. To do this they will put pressure on the DND's stated requirements to maximize the competition to drive down costs.¹⁹
- ISED – uses a rated scoring process that will generally be at least 10 percent of the overall bid score, and they will demand one hundred percent Industrial Technological Benefits. This has become the determining factor in recent Canadian procurement.²⁰

Conclusion

The Canadian Patrol Submarine Project will be a tough sell to a government recovering from the post pandemic fiscal reality. To do this, DND must put forward a well-articulated and affordable plan that will meet Canada's submarine needs: a large

displacement conventional submarine. Once the project is approved, the approach will likely be for a competition between multiple teams consisting of a builder, a submarine designer, and a combat systems integrator. Moreover, unless the total numbers justify it, a build in Canada option for the hull is considered to be unlikely, which will make offsets challenging for offshore companies.

Canada will likely modify an existing conventional submarine design instead of pursuing an *ab initio* design. Notwithstanding the eventual design decision process, every effort must be made to reduce build time, as the remaining service life of the Victoria-class is finite. As projects of this magnitude typically take 18-20 years to deliver the first unit, Canada is late to the game – hence the preference will be for a proven submarine builder, teamed with a proven submarine designer and a proven combat systems integrator to produce an affordable submarine.²¹

In the end it will be industry that will deliver Canada's future submarine, but to avoid the risk of project failure it is important that there be a continuous dialogue between government and industry to manage expectations and risk while building an affordable conventional vessel that addresses Canada's geographical challenges, both foreign and domestic.

Notes

¹ Canada, DND, *Strong, Secure, Engaged* (2017).

² Ibid.

³ AUKUS. See: www.wikipedia.org/wiki/AUKUS, accessed 16 October 2021

⁴ An SSN is a nuclear-powered general-purpose attack submarine

⁵ CASAP was to replace the three Oberon-class submarines based on the East Coast, as well as the West Coast submarine capability that was vacant since HMCS *Rainbow* (ex-USS *Argonaut*) was paid off in 1974.

⁶ See 1987 Defence White paper: Canada, DND, "*Challenge and Commitment*" (1987), 52-53.

⁷ Jocelyne Bourgon, "Program Review: The Government of Canada's Experience Eliminating the Deficit, 1994-1999," CIGI (2009).

⁸ An SSK is a diesel-electric (not nuclear powered) patrol submarine specialized for anti-submarine warfare.

⁹ See: Wikipedia, "Victoria Class Submarine."

¹⁰ See: Canada, "Status report on transformational and major Crown projects," accessed 16 October 2021.

¹¹ See: Canada, "Long-term investments to enhance the Canadian Armed Forces' capabilities and capacity to support peace and security," accessed 16 October 2021.

¹² See: Wikipedia, "Five Eyes."

¹³ See: Amanda Connolly, "Was Canada invited to join AUKUS? Officials mum but stress no interest in subs," *Global News*, 16 September, 2021.

¹⁴ For clarification purposes of the term "ocean-going" I am using a metric of a submarine with a dived displacement of greater than 3,500 tons.

¹⁵ Canada, Senate, "Reinvesting in the Canadian Armed Forces: A Plan for the Future," May, 2017.

¹⁶ *Ab initio* - is a Latin term meaning "from the beginning."

¹⁷ Of note, under the NSS, Irving Shipbuilding was selected through a competitive process to construct the RCN's large combatant ships (over 1,000 tons). Thus, the decision as to the CSC shipbuilder had been made and only the Warship Designer (WD) and Combat Systems Integrator (CSI) were competed under the CSC project – submarines were not part of the NSS.

¹⁸ Assistant Deputy Minister (Materiel) see: Canada, "Assistant Deputy Minister (Materiel) - Troy Crosby," accessed 11 October 2021.

¹⁹ Of note on 6 August 2021 the Government of Canada announced a policy that by 2024 a minimum of five percent of the total value of contracts are to be held by indigenous businesses. See: Canada, News Release, "Government of Canada announces federal-wide measures to increase opportunities for Indigenous businesses," accessed 11 October 2021.

²⁰ On Industrial Technological Benefits see: <https://www.ic.gc.ca/eic/site/086.nsf/eng/home> accessed 11 October 2021

²¹ The current Combat Systems Integrator for the Victoria-class submarines is Lockheed Martin Canada with the CCS 876 Command Management System.



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Strategic and Operational Considerations for Canadian Naval Shipbuilding

Timothy Choi

Recent opinion pieces in Canadian media, perhaps most vocally by former Assistant Deputy Minister (Material) Alan Williams, have painted bleak pictures of the Canadian navy's future: its new warships cost twice as much as reasonable alternatives, the shipyard responsible for their construction should be up for rebidding (including overseas proposals) to ensure more competitive bids, and the ships' operational costs would bankrupt DND for decades to come.¹ All these emphases on cost, however, ignore the strategic worlds in which the future RCN fleet will operate and where Canadian shipbuilding takes place. They also ignore the drastic increase in defence spending that has been budgeted in the current defence policy, *Strong, Secure, Engaged*, while making potentially outdated assumptions regarding warships' capital-to-operational costs ratio. This article seeks to expand the popular conversation regarding Canadian naval shipbuilding to incorporate non-monetary trade-offs while also bringing some nuance to existing cost concerns.

Firstly, some context: it may surprise Canadian readers to know that the world's largest navy is no longer their superpower neighbour to the south. Rather, that distinction now belongs to the same country currently holding Canadian citizens hostage as political pawns and which the Canadian government recognizes as carrying out an ongoing genocide: China has been churning out naval vessels of various sizes at a rate unmatched since the United States in the Second World War with no signs of slowing.² These are being supported by an ever-improving inventory of land-based anti-ship ballistic missiles which can hold at risk naval vessels thousands of kilometres into the Pacific. While the combat reliability, survivability, and crew competencies of the Chinese navy remain uncertain, each of their new warships are armed with modern anti-ship missiles that cannot be ignored – as the old saying goes, “quantity has a quality all of its own.” With ongoing maritime disputes astride the world's busiest sea lanes, it is clear the oceans will be a major

site of international competition between the liberal democracies and authoritarian states.

This means the Canadian navy needs ships that are as capable as possible to maximize Canadian confidence in sending them into harm's way as part of the country's foreign policies. For Canada, ensuring this capability is especially challenging due to the fleet being split between the Pacific and Atlantic coasts: it essentially operates as two smaller navies. Each fleet faces the rule of thumb that if you want one ship, you need three: one in regular maintenance, one in training/transit, and one deployed. To save costs, Williams suggested a mixed fleet of three expensive air-defence warships combined with a larger fleet of cheaper options, but this will not be operationally reliable: if the coast with only one air-defence ship needs it to deploy but it happens to be in drydock for maintenance, then that coast has no backup option. Such a problem would be ameliorated if at least three ships per coast had the same air-defence capability, but that would cut drastically into any cost savings. Given the half-century lifespan of not just individual ships, but the entire fleet, one cannot bet on the long-term relevance of a low-end combatant as the only ships Canada can reliably deploy. While Williams asserts the RCN has previously been successful at running a "mixed fleet of destroyers and frigates", that does not mean that it was ever optimal – never mind sufficient for the world of the next fifty years.³ Unlike the Cold War, even smaller coastal submarines now have anti-ship missiles requiring antisubmarine warships to have advanced air defence systems. American naval experts have deemed their relatively low-cost Littoral Combat Ship a failure in the new world of great power competition: even those ships' modular approach with reconfigurable spaces are insufficient to save them from needing integrated sensors, hull silencing, and mechanical-electrical equipment to support high-end combat.

Canada will, by 2030, provide roughly 25% of North America's high-end surface combatant shipbuilding capacity if we maintain our course.

So a high-low mix is out of the question. What about a different high-end ship that promises to be cheaper? One proposal is for Canada to re-run the competition, confident that a much less expensive design is available. The alternative that Williams highlights is the last-minute Franco-Italian offering of the "FREMM" (Frégate européenne multi-mission) in December 2017. The bidders guaranteed a fleet of 15 ships at only \$30 billion, roughly half the CSC's budget. However, the bidders never submitted a formal proposal through the process that all other bidders had to comply with.⁴ In other words, the \$30b figure was submitted without, seemingly, the necessary homework to show how they intended to meet Canada's industry requirements. Such lack of transparency and blind trust in foreign defence companies go

directly against Williams' and Rubin's critique of handing too much decision-making power to the prime contractor. As the saying goes, "if it sounds too good to be true..." This also does not include the amount of time required to reassess all potential bids. While Williams claims this should not cause any delays by citing the relatively rapid American process that led to their selection of the FREMM for their frigate program, this makes the ambitious assumption that Canada has the same procurement expertise and capacity as the superpower United States.

But ships need shipyards to build them. Excluding nuclear-powered vessels, the United States today has only two shipyards that produce major surface combatants.⁵ This will increase to three to build their new frigates, but this means Canada will, by 2030, provide roughly 25% of North America's high-end surface combatant shipbuilding capacity if we maintain our course. North America cannot afford to give up this capability in an age where authoritarian states are outbuilding the liberal democratic allies. Indeed, should the Americans find their strategic need for ships more urgent than avoiding angering domestic industry, Canadian shipyards might find

themselves in a position to help put more hulls into the water. While some commentators have suggested Canada purchase ships from foreign yards,⁶ this would be a strategic folly: billions of dollars would be held up overseas to the goodwill of the contracted country for years, if not decades, while the fleet is being built. This will constrain Canada's foreign policy freedom, where we will not be able to criticize the country in question should it engage in objectionable behaviour resulting from an unfavourable election or another major power's coercion. Some of Europe's most powerful countries have already proven themselves unable to resist the lure of lucrative Chinese investments or have adopted morally questionable practices towards refugees.⁷ There is also the complementary concern that the contracted country may fail to deliver the ships to Canada either due to their own disagreement with Canadian policies or their own immediate military requirements that may see their seizure of the ships for their own use. This has happened in the past: the British decision to confiscate a pair of battleships they were building for the Ottoman Empire is often cited as a contributing factor to the latter joining the Central Powers in the First World War; more recently, France refused to deliver two amphibious assault ships to Russia after the latter's 2014 annexation of Crimea. While Canada is unlikely to ever carry out an action quite as egregious and objectionable to world order, it is uncertain what foreign policies Canada or the contracted country may adopt (or be forced to adopt by third parties) over the next fifteen years while the ships are built. A navy, after all, supports and enables a country's foreign policy, not holds it hostage.

But should one find such operational and strategic arguments unconvincing, one can examine some of the cost assertions more closely. Williams claims that at \$286b in lifecycle costs, the CSCs will consume the entirety of the CAF's capital and maintenance budget. Firstly, it is misleading to compare the lifecycle costs of CSC with just the capital budget of the rest of the CAF: either compare lifecycle costs for both CSC and non-CSC equipment, or compare only their capital costs. Mixing them up only muddies the waters. Secondly, *Strong, Secure, Engaged* already plans for a dramatic increase in not just capital spending, but operational budget as well: combined,

they increase from \$18.7 billion in 2017 to an average of \$30 billion per year in the 2030s. Assuming this figure is sustained, one can multiply it by the planned 30 years of the CSC's lifespan, resulting in a total of \$900 billion - far above the \$286 billion lifecycle cost that Williams is concerned about. For a maritime nation dependent directly and indirectly on seaborne trade and where most military threats will be overseas, spending a third of the defence budget throughout the lifespan of the navy's only major surface warships would seem far from excessive. If anything, Canadian strategic priorities should see the navy occupy a greater proportion of the budget compared to the other branches. But regardless, much, if not all, of the operating costs of the CSC appear to be already incorporated in the existing defence budget framework contingent upon continual support from future governments. Thirdly, the \$286b figure assumes the 1:3 capital-to-operational cost ratio formula employed by DND remains accurate in the case of CSC and its potential alternatives. Recent developments in the United States illustrate that such a formula may no longer apply. The American Littoral Combat Ships, for instance, cost only a quarter to acquire compared to the frontline *Arleigh Burke*-class destroyers but require 62-86% of the latter's operational costs.⁸ Clearly, a low-end capability with its accompanying lower acquisition costs does not guarantee corresponding operational cost savings. Accordingly, springing for a CSC design with lower acquisition costs may not result in as much operational cost savings as the generic cost formula would suggest. Indeed, given the fact that over half of a warship's operational costs comes from the crew, it would seem half the ships' operational costs would be immutable: the FREMM's maximum accommodation of 200 personnel is nearly identical to the CSC's 204.⁹

Williams may well be right on the cost issue: shipbuilding is difficult and will require an increase in Canada's woeful rate of defence spending, which currently sits 25th out of 29 NATO members despite being in the top ten richest countries in the world.¹⁰ However, the difference between continuing on the current CSC course versus the *at best* situation of a half-priced alternative is a mere 1.3% of the Canadian government's annual budget.¹¹ Although an enormous sum in absolute terms, the COVID-19 situation has shown how the ceiling for the federal government's

budget could be dramatically raised so long as core Canadian interests are at stake. Whether warships and their associated role in foreign policy fall under this category is up for debate, but there needs to be a recognition of such non-monetary concerns when alternative procurement approaches are considered.

At the end of the day, it all comes down to Canada's national ambition: Canada is a wealthy G7 nation with one of the world's largest economies in excellent credit standing. Countries with much fewer resources have managed to establish domestic naval shipbuilding industries to help provide for their own and allied defence requirements. There is no insurmountable reason why Canada cannot do the same so long as Canadians deem it to be worth doing. A discussion of that nature must go beyond monetary costs to include military, operational, strategic, and political concerns.

Notes

¹ Alan Williams, "Why is Canada paying so much for 15 CSC combat ships?" *The Hill Times*, April 29, 2021; Ken Rubin, "Secrecy surrounds fees paid to Irving for Canada's 15 multi-billion-dollar warships," *The Hill Times*, April 29, 2021; Scott Gilmore, "It's time to ban the buying of made-in-Canada warships," *Maclean's*, February 25, 2021.

² Andrew S. Erickson, "A Guide to China's Unprecedented Naval Shipbuilding Drive," *The Maritime Executive*, February 11, 2021.

³ Williams, "Why is Canada paying so much."

⁴ Pierre Tran, Tom Kington, and David Pugliese, "Bold move backfires as Canada declines Naval Group-Fincantieri frigate offering," *Defense News*, December 6, 2017.

⁵ Jerry Hendrix, "Why America Must Be A Seapower," *National Review*, May 13, 2021. The only major American surface combatant currently produced is the *Arleigh Burke* class destroyer, which are built at Bath Ironworks in Maine and Huntington Ingalls Shipbuilding in Mississippi.

⁶ Gilmore, "It's time to ban the buying of made-in-Canada warships."

⁷ Hans von der Burchard, "Merkel pushes EU-China investment deal over the finish line despite criticism," *Politico*, December 29, 2021; Megan Williams, "These rescuers want to save refugees fleeing Libya by sea. But they're trapped on shore by red tape," *CBC News*, April 30, 2021; "France: Police Expelling Migrant Children," *Human Rights Watch*, May 5, 2021.

⁸ David Larter, "High operating costs cloud the future of littoral combat ships, budget data reveals," *Defense News*, April 12, 2021.

⁹ Renee Chow, Ramona Burke, and Dennis Witzke, "A Systems Approach to Naval Crewing Analysis: Coping with Complexity," *Canadian Naval Review* 11, no. 3 (2016), 16;

David Larter, "We spent 3 days on a top contender for the Navy's future frigate. Here's what you need to know," *Defense News*, May 30, 2018. While the Italian FREMM has a crew of 167, it has spare accommodations for a total of 200. It is assumed that the CSC's publicized "Accommodations" figure of 204 persons similarly includes spare capacity.

¹⁰ NATO Public Diplomacy Division, "Defence Expenditure of NATO Countries (2014-2021)," *NATO*, June 11, 2021; The World Bank, "GDP (Current US\$)," *The World Bank*, 2021. Canada drops out of the top 10 if one uses GDP per capita since that pushes sundry small states such as Luxembourg and Monaco to the top.

¹¹ Based on the difference between the current DND's estimate of CSC's \$60 billion acquisition cost versus the unsolicited \$30 billion FREMM bid by Naval Group-Fincantieri, multiplied by four according to the existing capital-to-operational costs formula to include lifecycle costs, divided by the ships' 30-year lifecycle, and then compared to the Government of Canada's annual budget of approximately \$300 billion. In reality, the difference would be even less due to the aforementioned constant of crew size plus other externalities such as increased program management costs for rerunning the competition, decreased shipyard learning curve benefits, and doubling supply chain requirements to support a two-class fleet.

Timothy Choi is completing his Ph.D. at the University of Calgary's Centre for Military, Security and Strategic Studies, where his dissertation is entitled, "Maritime Strategies of the North: The Seapower of Smaller Maritime Forces in an Era of Broadened Security." He serves on the editorial board of and is the photo editor at the *Canadian Naval Review*, and is currently a consultant on naval affairs for the British American Security Information Council.



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OPS Update

Every month the RCN produces a handy “Ops Update” to keep the public informed of the Navy’s major deployments and other significant events. This section is a quick summary of the most important ship news. Stay up to date with *Your Navy Today* by subscribing to receive these updates directly. To subscribe email:

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Earlier this summer, HMCS *Halifax* returned to port after serving as flag ship to Standing NATO Maritime Group 1 (SNMG1) – while deployed on Operation *Reassurance*. Over the course of the six-and-a half-month deployment, *Halifax* participated in four joint multinational exercises with NATO partners and Allies. The serials focused on naval task group interoperability, readiness, assurance, and deterrence. The last of these NATO-led exercises was *Dynamic Mongoose 21*, which took place from June 28 to July 9, and focused on anti-submarine warfare.

On July 24, HMCS *Fredericton* set sail from Halifax to begin its own six-month deployment as flag ship for SNMG1. During its deployment, *Fredericton* conducted maritime security awareness patrols in the North Atlantic-Norwegian Sea and visited Glasgow, Scotland, for a short port visit before participating in *Dynamic Mariner 21-2*, which took place from September 18 to 30, testing NATO’s Response Force Maritime Component and interoperability with NATO forces. The exercise brought together 20 surface ships, two submarines, seven maritime patrol aircraft and other air assets, as well as personnel from Belgium, Canada, France,

NTOG aboard HMCS Calgary conduct a boarding exercise in the Indian Ocean (Image: Corporal Lynette Ai Dang, DND)



Germany, Latvia, the Netherlands, Norway, Portugal, Romania, Spain, the United Kingdom, and the United States.

HMCS *Calgary* completed a highly successful rotation on Op *Artemis*, an operation dedicated to interdiction operations in the Arabian Sea, intended to stop the flow of illicit revenue to regional criminal and terrorist organizations. There, *Calgary* set two records, with 17 successful counter-narcotics seizures, the most any single Canadian ship has made – setting the record not only in terms of number of seizures, but also in weight of narcotics seized and wholesale dollar value. The ship also set the record for the largest single heroin seizure.

Following *Artemis*, *Calgary* redeployed on Op *Projection* in the Indo-Pacific region. On July 18, *Calgary* began its participation in Exercise *Talisman Sabre 21*, a joint exercise held every two years in Australia and its territorial waters. During *Talisman Sabre*, *Calgary* worked closely with Australian and American partners to ensure interoperability and improve security and stability in the region. Other participants in the maritime component of the exercise included the Japanese Maritime Self-Defence Force and the Republic of Korea Navy. *Talisman Sabre* concluded on July 31 and *Calgary* returned home to Esquimalt on August 30.

Between July 12 and 21, HMCS *Shawinigan* and the U.S. Coast Guard completed successful interdictions of their own, seizing close to 2,800 kg of cocaine with an approximate street value of \$70 million USD during four interdictions in the Caribbean. Another 675 kg of cocaine was seized on July 18 after crewmembers boarded a small vessel, with an additional 774 kg intercepted in another raid on July 21. On August 9, HMCS *Shawinigan* returned to Halifax

Much farther North, Canada's first Arctic and Offshore Patrol Ship, HMCS *Harry DeWolf* completed its first operational deployment during Operation *Nanook 2021*, and was the first of its class to sail through the northern waters. Alongside HMCS *Goose Bay*, ships from the Canadian Coast Guard and the United States Coast Guard, *Harry DeWolf* participated in exercises that simulated responses to a major maritime incident. Operation *Nanook 2021* ran from August 3 to September 12, 2021 and was the

first leg of the ship's ongoing deployment – the circumnavigation of North America, which will be completed in the coming weeks.

HMCS *Winnipeg* departed Esquimalt on August 17 to begin a four-month deployment to the Asia-Pacific region on Operations *Projection* and *Neon*. In the waters around Japan, *Winnipeg* joined the Royal Navy's Carrier Strike Group (CSG21) for *Pacific Crown 21*. On September 10, the ship arrived in Yokosuka, Japan, for a scheduled port visit before beginning its rotation on Op *Neon*, conducting surveillance operations, identifying ships defying United Nations Security Council resolutions against North Korea.

From September 7 to 17, *Cutlass Fury* took place off Eastern Canada. This is a Canadian-led, multinational exercise that takes place every two years. This year's serials focused on antisubmarine warfare, but included anti-surface gunnery exercises, and incoming missile and aircraft exercises as well. Participating ships included HMCS *Halifax*, *Toronto*, *Montréal*, *Summerside*, *Kingston* and *Moncton*, and *Windsor*, as well as assets from the Royal Canadian Air Force, the United States Navy, and the French Navy.



HMCS *Shawinigan* sails through the Caribbean Sea during Operation CARIBBE on June 22, 2021. (Image: Canadian Armed Forces Imagery Technician, Canadian Armed Forces Photo)



Members of HMCS Calgary conduct a Refueling at Sea with USNS Rappahannock in the Coral Sea during Exercise Talisman Sabre as part of Operation PROJECTION on July 27, 2021 (Photo: Corporal Lynette Ai Dang, combat camera)

Members of HMCS Calgary with contraband seized during Op Artemis, June 4, 2021. (Image: Corporal Lynette Ai Dang, Combt cam)



HMCS Saskatoon sails in a column formation with Mexican Navy offshore patrol vessel, Revolucion, and U.S. Coast Guard Cutter Robert Ward astern in the eastern Pacific during a passing exercise as part of the North American Maritime Security Initiative on May 13, 2021. (Image: HMCS Brandon, Canadian Armed Forces photo)



Progress on national shipbuilding in the Summer and Fall continued at a good clip with several significant milestones.

In July, HMCS *Margaret Brooke* was delivered to the Navy. The second of the *Harry DeWolf* class Arctic and Offshore Patrol Ships to be launched by Irving Shipbuilding, *Margaret Brooke* is the first Canadian combat ship to be named for a woman. Lieutenant Commander Margaret Brooke, MBE, was a Royal Canadian Navy Nursing Sister decorated for gallantry during the Second World War. On her 100th birthday, Mrs. Brooke received a phone call to inform her that Canada's second AOPS would be named in her honour, making her the first living person in Canadian history to have that honour bestowed upon them. Margaret Brooke passed away in Victoria, B.C. on January 9th 2016.

Training in preparation for delivery has involved the ship's company in both computer-based learning and a practical training program at various shore-based facilities, as well as on board HMCS *Harry DeWolf*. The vessel will officially be named this fall.

Progress continues on the remainder of the AOPS, slated to be delivered at roughly one per year. Ship 3 (*Max Bernays*) is under construction at land level in Halifax, Ship 4 is under construction in the Assembly Hall, and first steel for Ship 5 is about to be cut.

On the West Coast, Seaspan Shipyards celebrated its 10th anniversary as part of the NSS. The yard's newest project is the Offshore Oceanographic Science

NSS Update



Kevin Mooney, President of ISI, presents the Builder's Plaque to Commander Nicole Robichaud, CO of HMCS Margaret Brooke

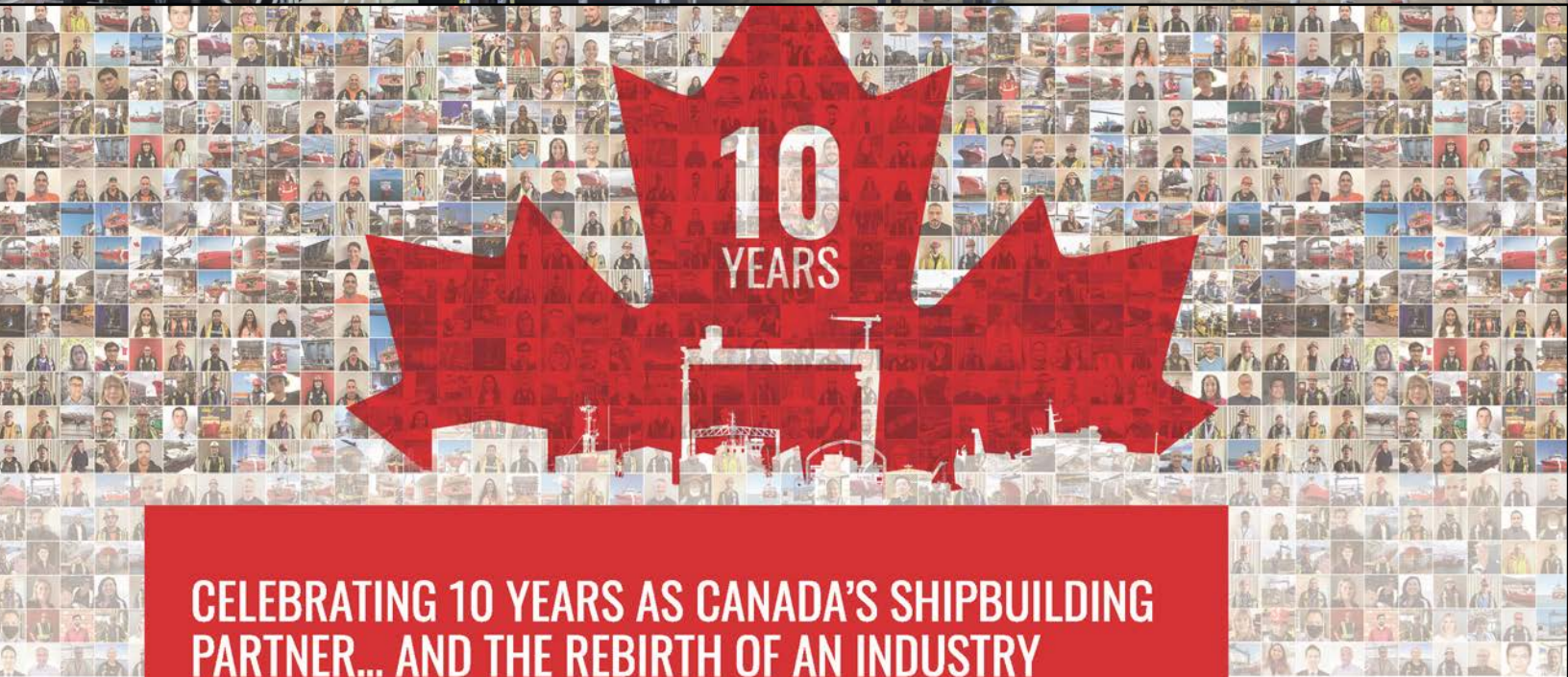
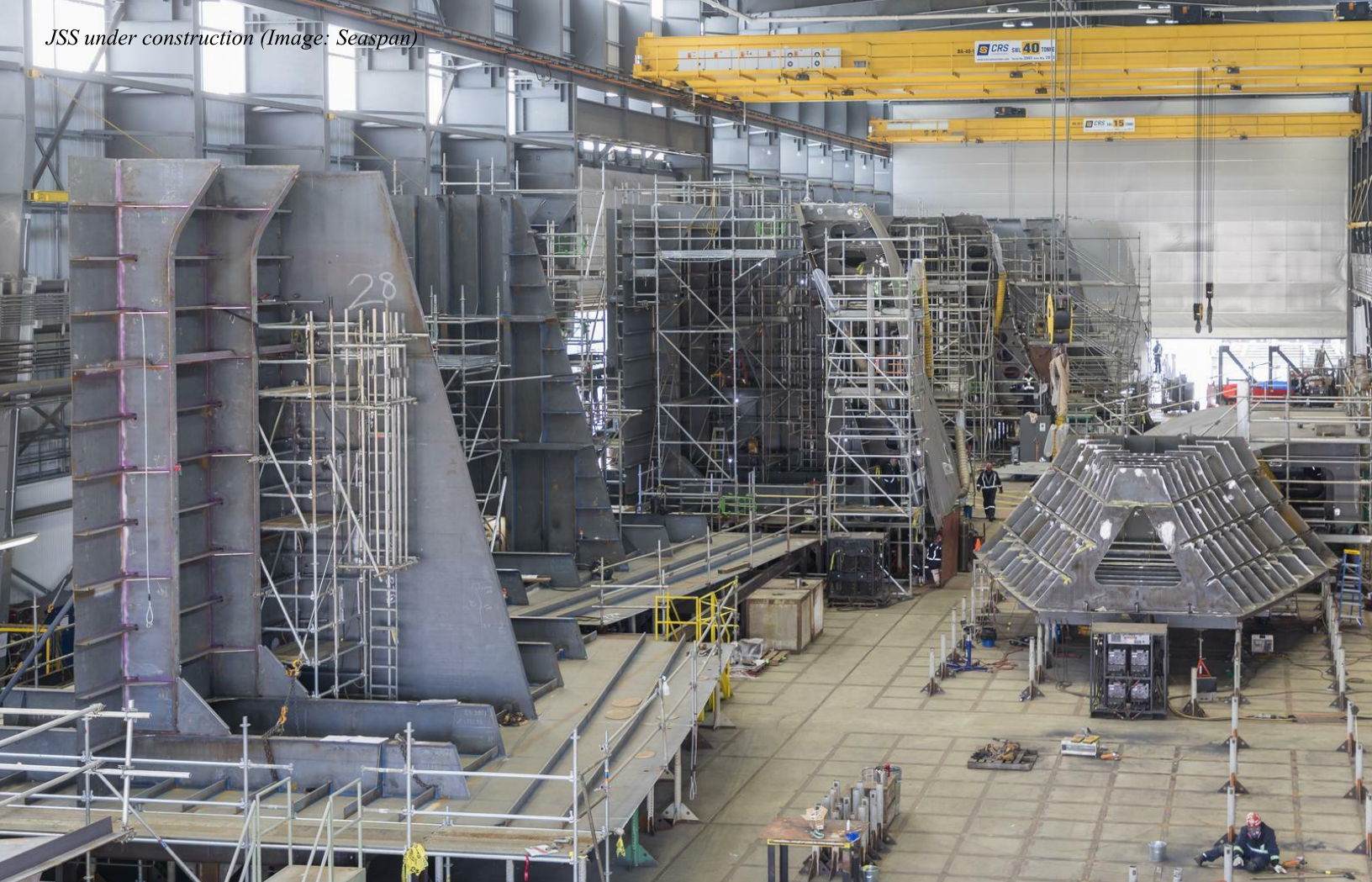
Vessel (OOSV), for which steel was only just cut in late March.

The largest Seaspan project to date, the Joint Support Ship, is well advanced - with 90% of the ship's blocks under construction. The JSS and OOSV are being constructed concurrently at Seaspan's shipyard in North Vancouver.



HMCS Margaret Brooke (foreground) departing the Halifax Shipyard for delivery to the Navy Dockyard. The future HMCS Max Bernays (ship 432) is in the background and will be launched this fall (Image: Irving Shipbuilding)

JSS under construction (Image: Seaspan)



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Canadian Naval Heritage

The serialized naval memoirs of the late RAdm
Robert Philip 'Bob' Welland DSC & Bar, MiD, psc,
Officer of the Legion of Merit (USA), RCN

Visiting the Far East

Where last we left off, Welland had deployed to the Far East as the region was in the midst of both orderly (and disorderly) decolonization.

During our stay in Manila I received encrypted messages from Canada about the affairs in Indonesia. The Dutch were leaving in an orderly manner and ensuring the safety of their own people with a remnant of their armed forces. As the Dutch left it was thought the country would immediately descend into an unruly shambles as factions fought for control. I sailed so as to be off Jakarta the day before the Dutch finally pulled out. En route we made preparations to intervene should Canadians be threatened; armed landing parties were organized, boats were armed, mobile communication equipment tested. I had my nose into every aspect of the preparations. I was the only one on onboard with previous personal experience in a similar scenario, and that was in my midshipman days in Emerald. I remembered how the savage Major Sobey of the Royal Marines checked me and my kit and my squad of sailors before landing in Madras and Haifa and the Andaman Islands. Our role then was 'peacekeeper', but the locals had better not provoke us!

Our going into Jakarta was 'on again-off again' a couple of times, but was finally called off when we were a day short of arriving. The Canadian embassy staff and all other Canadians were

ordered out of the country by Ottawa, and they complied. Some die-hards, like adventurers seeking gold and priests seeking whatever, chose to stay but the government said they were on their own.

I steered for Singapore; we were going to arrive at the time planned months before.

It may interest the reader to know that the predictions of rampant disorder in Indonesia and particularly in the city of Jakarta came to pass. A week after the Dutch left there was no electric power, and none for the next six months; entrepreneurs sold the copper cables for scrap, and stripped the main generators. The waterworks ceased to operate. The once orderly and prosperous city, of 3 million people, didn't recover





Trade Commissioner Mel Carson. We are under the quarterdeck awning in Singapore.



*Mayor Lee Kuan Yew arrives on board for lunch. He became the first president of the Singapore Republic.
The only segments of society missing are vandals.*

for years. If it has ever recovered. So much for freedom from colonial oppression!

At this time, March 1957, Singapore was a British colony, but was in the process of becoming a republic. It was no longer associated with the Malay Federation as it was prior to the Japanese capturing it in 1942. The Malay Federation were not interested in Singapore re-joining as its 90 percent ethnic-Chinese population would have unbalanced the political scene. Singapore had been transformed from a malaria-ridden swamp in 1819 to a vibrant metropolis by British enterprise.

A trader named Raffles started it all. The British were now leaving the country in good shape, and on their own volition.

So our visiting Singapore to 'Show the Flag', was to demonstrate Canada's approval of events. There were many business connections between Singapore and Canada and they were forecast to increase. The Canadian Trade Commissioner was Mr. Mel Carson. We had met before (in Hawaii in 1950, on my way to Korea) now we exchanged messages as Ontario got closer to the island city.

We anchored in choice berths, arranged by Mel, right in front of Raffles Hotel. He was the first onboard; he had arranged that I have a luncheon party in the ship for the mayor who would bring his Council, the Chief of Police, and a few other notables, 14 in all, "Your visit will cause them extra work," he said. I promised to provide a sumptuous lunch. Mel was disturbed that my cabin didn't have air-conditioning, "Because Mr. Lee Kuan Yew is the mayor and will soon be the country's first president and he likes air conditioning." Mel said he'd supply a unit if we could install it; lunch was 24 hours away. It all happened.

Mr. Lee was young and enthusiastic; he spoke English and told me he'd been to Vancouver twice, where he had relations. He was to be rewarded for his sterling qualities a year later by being elected as Singapore's first Prime Minister. A few years after that he became the first President of the Republic, and remained in the job for 45 years. Mr. Lee Kuan Yew managed that feat even though he banned chewing gum in the island city and, routinely had teen-age vandals whipped in public for scratching cars and similar uncivilized conduct. I visited Singapore several times when I was in business in the 80's and 90's; I admired the clean streets, the well-mannered people and the way they enjoyed their unique and prosperous country. Mr. Lee reminded his people from time to time, "I am a family man, lets all be part of a well-behaved family." You better had!

On this visit I particularly enjoyed my leading

role; it was distinct from that of my earlier trip in 1938. That was when Midshipman Welland ran his picket-boat aground; was called a 'Colonial fart' by a Sergeant Major, had his leave stopped, and was unable to go dancing at the Happy World. Things had got a bit better for me over the 19 years; the Mayor was my guest, and I his. I gave a talk to the Chamber of Commerce in the main dining room of Raffles hotel. I was given a good tee time on the Royal Singapore Golf Course with the Pro as partner. I was able to invite the citizenry on board our ships. Did I miss dancing at the Happy World at a shilling a dance?

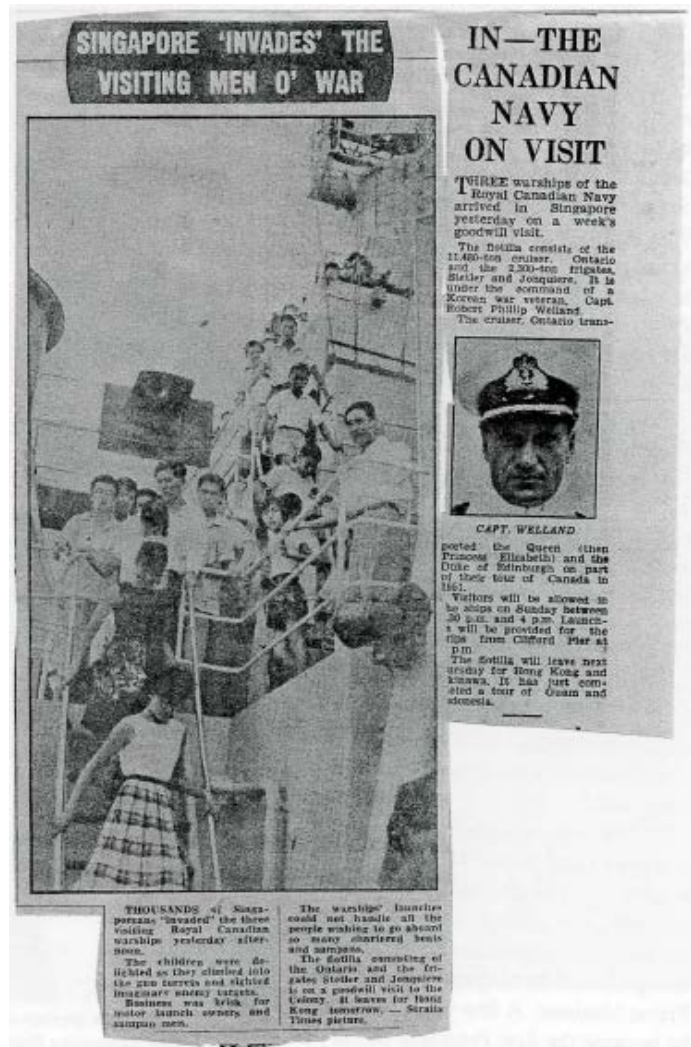
Michael and I made trips into the city. We walked the main streets and bought presents; bikes for Tony and Chris and Jill. Things got more interesting for him when my steward took him into the back streets, the Tiger Balm gardens, and the bars. "They're all Chinese!", he told me.

In 1957 knowledge of one another in different countries was quite unlike today. Before the coming of big jet-aircraft few people travelled for pleasure or novelty. Little was known about Canada by the inhabitants of Singapore, and vice versa. I knew from past experience, in Japan and Korea, that the oriental people were quite surprised to find we looked quite unlike them; we were too big and hairy with paws for hands; like having a St Bernard for tea in the living room. And hair and eyes that didn't match. To us, of course, they all looked alike and sounded like a flock of birds in a tree. These differences and the related curiosity is what has made 'world travel' the extraordinary business it is I suppose.

It is 2,400 miles from Singapore to Hong Kong through the tropical China Sea. The weather was calm, the typhoon season was months away; I told the XO to leave the awnings spread and shade us from the overhead sun. The working day was from 06.00 until 13.00 for those who didn't keep watch, of course watch-keeping was a 24 hour duty, usually in 4 hour shifts. Work was done wearing sandals and shorts, and shirts by those who didn't choose to become mahogany colour. Diversion

was supplied by flying-fish that skittered off the bow wave and occasionally landed on deck; there was always an albatross patrolling astern, gliding on eight-foot wings that never flapped.

Inside the ship the temperature was 100



degrees, and in the engine and boiler rooms 120; the watches in those spaces were reduced to two hours. I had done time in the hot spots in Emerald as a midshipman and knew how exhausting it was.

Hong Kong was a British colony in 1957 and a major naval base. Because of this it was possible to arrange extensive social and sporting events well before our arrival. During the period of the Korean war, 1950-53, our warships made many visits. We knew the Royal Navy expected us to engage them in all manner of sports, and it was a

matter of pride and one-upmanship that we responded in all areas. Our 'Ontario' cricket team had been organized and trained well before we left Esquimalt; we knew the British would be disappointed and thwarted at not having a chance to whack us. When I visited in the Athabaskan, in 1951, we fielded a team, which for a bunch of farmers from the Canadian prairies was not that simple. In Ontario it was different, we had buckets of talent; two ex-Englishmen bowled 'leg out'! Our teams had practised when we were in Singapore; we were as ready for the British as we could be.

From my point of view Hong Kong was an easy place to visit; the Royal Navy provided all that we needed, from alongside berths for the ships to advice on money exchange and everything in between; like sports fields, free buses, canteens and bars and shore patrols of naval police. In Halifax and Esquimalt we offered this same treatment for visiting warships; it was the 'Custom of the Service'. Another custom is for the senior officer to 'call' on the correct officials. He must be properly dressed in sword and medals to make the call, and then must receive their 'return call' on board his ship with appropriate blowing of pipes and bugles. We had fired a 17-gun salute to the Governor as we entered the harbour. And we didn't forget merchant ships when they dipped to us. I knew all this stuff. And if I didn't the Chief Yeoman of Signals would refresh my memory in plenty of time.

The reception room in Government House was covered with a single red silk carpet; it was handwoven with fifty-foot fringed sides. It was intricately patterned with Chinese symbols. I had never seen such a carpet; it should never have been walked upon.

Sir Alexander Grantham was the Governor. He had been a professional naval officer, he had commanded a cruiser, of the same class as Ontario, during the war. (All of which I knew from Ottawa's briefing notes). He told me that he had met many Canadian landing craft captains in the Mediterranean fighting, "They were younger

than ours and just splendid."

His aide-de-camp, a young British army captain, spoke fluent mandarin; he made it possible for me to hold lively, toothy, conversations with the be-jewelled sloe-eyed ladies at the dazzling reception standing on the silken rug. The Canadian Trade Commissioner, Charlie Forsythe-Smith, was just as active as his mate, Carson, in Singapore. Our visit provided him an unusual opportunity to host his commercial associates in a Canadian setting. All three ships were open to commercial visitors, not just on 'visitors' day. Charlie arranged that I address the Board of Trade at a luncheon. (He provided the points to be made, and had me rehearse them!). I played golf on the original Hong Kong golf course as a guest of the Governor; I was invited to private parties, the most memorable was that given by the head of the famous company, Jardine-Matheson, who established Hong Kong in 1841. I was offered a job," ... in the event you retire soon." I declined, but it did my ego no harm!



I visited the frigates, Jonquiere and Stettler using the jackstay. My fellow captains and I were plotting on how the Sverdlov was going to be successful at destroying the West Coast cities. We had already discovered that the time in harbour was too distracting to put our minds to it.

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Honouring Lt Robert Hampton Gray, VC, DSC, RCNVR

The day of Sunday August 8, arose bright and perfect for a parade. A flawless unveiling and dedication ceremony of a three panel monument took place at the British Columbia's Aviation museum honouring, Lt. Robert Hampton Gray and his Canadian colleagues who served on loan with the Royal Navy's Fleet Air Arm during the Second World War. It took a team of "Four Old Navy Guys" (ret'd): Capt Terry Milne, Col Stan Brygadyr, LCdr Gerry Pash, & Master Seaman Joe Buczkowski three years of planning, fund raising, and execution to raise the needed \$100,000 and arrive at this momentous occasion. Gerry MCd the ceremony flawlessly which was conducted with much help from CFB (Band, Guard, Bugler, Piper, etc) in the presence of over 100 donor guests, dignitaries, and senior military seated outdoors. The special guests included six descendants of Lt Gray: Dr Anne George, his niece, two great nieces, and three great, great nieces who laid a wreath honouring their uncle, who perished while attacking and sinking a Japanese Escort Vessel in Onagawa Bay on August 9, 1945; and for which he was awarded the Victoria Cross. There were numerous speeches, notably by LGen Meininger, Commander RCAF, RAdm Topshee, Commander MARPAC, and Mr Takashi Hatori, Consul General of Japan. A reception followed with light refreshments, socializing, and visits to the museum for many of the guests. The granite memorial will be a lasting reminder of the sacrifices of so many young Canadians who courageously "served", many of whom perished.



Gerald Pash and Terry Milne flank the central pillar of the monument recognizing Lieut. Robert Hampton Gray now standing outside the North Saanich's BC Aviation Museum following its installation Tuesday. The two men were among those who fundraised \$100,000 for the monument. (Image: Wolf Depner)



Memorial designer Illarion Gallant places roses on Lt. Robert Gray's memorial (Image: Kiernan Green)

Time to Change our Thinking on Ballistic Missile Defence

Adam Lajeunesse & Tim Choi

In February 2005 Prime Minister Paul Martin said no to a US government request for Canadian participation in continental ballistic missile defence (BMD). It was a diplomatic shock, but politics and perception outweighed strategic interest. BMD was generally unpopular in Canada, while Martin – and many Canadians – feared that any effort to undermine Mutually Assured Destruction would destabilize the delicate ‘balance of terror’ that had kept the world safe from nuclear war for so long.

Today, the Canadian Navy is buying SPY-7 radars for its future frigates. In a recent piece for the *Globe and Mail*, UBC Professor Michael Byers warned that these advanced systems would slip BMD in through the back door, giving the Navy a capability that elected leaders never really authorized. This alteration in Canadian policy would, Byers warns, have implications for nuclear non-proliferation and space weaponization, not to mention Canada’s relations with China and Russia.

What many Canadians seem not to have noticed is the radical change since Martin’s time in what a ballistic missile is, and what they’re meant to do. Twenty years ago, BMD was a strategic task; a defence against intercontinental weapons carrying nuclear warheads. Then, Canada was relatively safe – both because of the USSR’s collapse and because any such attack would be met by massive American retaliation. Today, ballistic missiles are everywhere and no longer just weapons of last resort. BMD is no longer a political issue, it’s a tactical necessity for any warship looking to survive hostile environments.

The best illustration of this new environment is the arsenal of ballistic missiles amassed by China. Weapons like the new DF-21D and DF-26 are long-range, manoeuvrable, ship killers – designed to destroy Western vessels and deny them access to the Western Pacific. In August 2020, China’s land-based Rocket Force tested both of these weapons in the South China Sea, practicing their ability to hit moving targets on the open ocean from thousands of kilometres away. Russia has naturally developed its own anti-ship ballistic missiles and it is certain that these capabilities will only improve and continue to spread to more and more authoritarian states. The ability to defend against ballistic missiles is now crucial to the survival of any modern warship.

Not only is a latent BMD capability important, but it is also inevitable. Modern naval radars are fundamentally controlled by software: the types of



DF-21D anti-ship ballistic missile, after the military parade held in Beijing
(Image: Wikimedia)

targets that they can find, track, and guide missiles towards are defined by programs that distribute or concentrate radar emissions towards specific spaces. How capable they are in tracking ballistic weapons is less in the hardware than in the programming.

Despite this, there are also hardware limitations that separate our *maritime* BMD from the kind of *continental* defences being established by the Americans. Specifically, the SPY-7 is a scaled-down version of the newest American homeland radars in Alaska. To confuse the two ignores the fact that the system being acquired by Canada is both dramatically smaller and weaker than the six-storey-tall US radars, sharing only the transmitter subarrays. This is because Canada's future warships will not be doing doughnuts

off the BC coast, waiting to protect Canada from high-flying ICBMs. In other words, the Navy's radars will not be optimized for the continental BMD mission that successive Canadian governments have shied away from.

Ballistic missile defence is a politically charged subject in Canada, but the debate has not kept up with the times. More and more, these weapons are being developed and deployed with conventional warheads for use against conventional targets. As such, our response must keep pace. To begin with, that means equipping ships with modern radars able to protect our sailor. Politically it requires a fresh look and a certain degree of nuance in our thinking.



A medium-range ballistic missile target is launched from the Pacific Missile Range Facility on Kauai, Hawaii, during Flight Test Standard Missile-27. The target was successfully intercepted by SM-6 missiles fired from the guided missile destroyer USS John Paul Jones (DoD photo by Latonja Martin)

NAC Assumes Responsibility for the Admirals' Medal

This article is taken from the October 2021 edition of Soundings, from the Ottawa Branch of the NAC.

Established in 1985, in conjunction with the 75th anniversary of the Naval Service of Canada, the Admirals' Medal is bestowed upon individual Canadians in recognition of their outstanding achievements in the advancement of maritime affairs in Canada. Named for Rear-Admirals George Stephens and Victor Brodeur and Vice-Admiral Rollo Mainguy, the silver medal is awarded annually for outstanding achievement in the areas of maritime related science, technology, and academic studies or for the application of practical maritime skills warranting special recognition.

Responsibility for the Admirals' Medal Foundation was transferred from the RCN to the Naval Association earlier this summer. NAC Naval Affairs is starting to put the structure in place to ensure that the Medal will be awarded on an annual basis through a proper solicitation – nomination – vetting and award process. To that end, a committee of Flag/Senior officers is being stood up to carry out this function. Additionally, transfer of the remaining funds in the Foundation to NAC's accounts has occurred and other administrative actions are being undertaken. Dr. Rich Gimblett has agreed to oversee the management of the foundation's affairs, as he did in his former life as the RCN's Command Historian.

At the Naval Association of Canada's Monthly Speaker's Evening on October 4, 2021 we were very fortunate to have retired naval officer and journalist, Mr Peter Ward as our guest speaker. Peter regaled Naval Association members and other invited guests with his story of how he and four other colleagues developed and executed a cunning plan in 1964 to save Canada's Ceremonial Flagship HMCS *Haida* from the scrapheap. Peter's presentation was both touching and inspirational (and can be [seen here](#)) with the [video here](#). Those in virtual attendance that evening included Commander RCN, Vice Admiral Craig Baines, Senator Dianne Griffin of Prince Edward Island and Mr Ron Hallman, President and

CEO of Parks Canada as well as members of Peter's family and that of WWII naval hero, Vice Admiral Harry DeWolf. There were just shy of 100 on board for a very special evening which culminated with Peter being presented the Admirals' Medal for 2021 for his foresight and heroic efforts.

The citation for Peter's award reads as follows:

2021 – Lieutenant Peter Ward, CD, RCN (ret'd)

Lieutenant Peter Ward is an acclaimed retired journalist, military editor, war correspondent, broadcaster, author and wine columnist who served as a Public Information Officer with the Naval Reserve Division HMCS York (1962-1978). Recipient of the Peacekeeping Medal for deployments to Cyprus and the Vietnam Decoration for seeing action as an embedded journalist and side gunner with a US Army helicopter unit, his poignant photography and objective reporting from the front lines were published in major newspapers worldwide. As one of the original five founding members of *Haida* Inc, he is being recognized inter alia for his critical role in the acquisition and the preservation of HMCS *Haida*, a famous Second World War Tribal-class destroyer, now a National Historical Site and the ceremonial Flagship for the Royal Canadian Navy, berthed in Hamilton, Ontario.

Peter is the first to be recognized since the transfer to NAC. Other recipients for 2018, 2019 and 2020 will be announced in the coming weeks once all arrangements for presentations have been finalized.

If you have thoughts on someone who deserves national recognition through nomination for this prestigious award, please contact me and I will provide details on the nomination criteria and process.

Tim Addison
Director - Naval Affairs
President – Ottawa Branch

HMCS Athabasca in action: Painting commissioned by Peter Ward in 1984



Canada's New Ships Should be Green

Roger Cyr, OMM, CD

The National Shipbuilding Strategy is a long-term project to renew Canada's fleet of combat and non-combat vessels. The project calls for the building of six Arctic Offshore Patrol Ships (AOPS), fifteen Frigates (Canadian Surface Combatants (CSC)), and two heavy icebreakers. It is an ambitious project that should be beneficial to the Canadian shipbuilding industry. The three ship classes are taking existing designs, modified to meet Canadian requirements, with all ships being built in Canadian shipyards. However, it is disappointing that there is no planned innovation regarding fuel use with all the proposed ships.

Building ships in present times has become a challenging task since ships have to be compliant with new global environmental rules and regulations. Technologies are being developed to reach the goal of building a “green ship” which would not only comply with the existing environmental requirements but would also leave least possible carbon footprints, and the least amount of carbon emissions. Green ship technology is to decrease emissions, consume less energy, be more efficient, and most important make use of alternative fuels. Given today's global reality of environmental concerns, the Canadian government should specify that the ships to be built should be green, that is to have these ships not dependent on fossil fuels for propulsion, but rather have them built to use alternative fuels. Canada has a unique opportunity to make Canadian shipyards world leaders in green innovations.

There is a long list of alternative and hybrid fuels that can be used in ships. The ones most considered today in the marine world are Liquefied Natural Gas (LNG), Electricity, Biofuels, Methanol, Hydrogen, and various fuel cell combinations.

Liquefied Natural Gas (LNG) is easier to transport and can be used as a fuel for ships. But it is still a fossil fuel that produces carbon dioxide when burned. LNG is noted to be less harmful to the environment than traditional marine fuels. LNG engine is said to produce up to 30% less carbon dioxide than diesel

equivalents. It is the cleanest burning fossil fuel, it produces relatively low emissions, is odorless, nontoxic, and noncorrosive. When exposed to the environment, if spilled, LNG rapidly evaporates, leaving no residue on water or soil.

Carnival Corporation has signed a multi-billion-dollar contract with Meyer Werft for four LNG-powered cruise ships, which will also have the largest guest capacity in the world. The four new ships will be the first in the cruise industry to use LNG in dual-powered hybrid engines. LNG will be stored onboard and used to generate 100 percent power that will eliminate emissions of soot particles and sulphur oxides. The use of natural gas in ship propulsion plants is becoming an option due to natural gas cleaner burning properties, and to comply with environmental regulations.

Electric-powered ships are now used around the world, powered by lithium-ion batteries. The e5, a 60-meter-long tanker is the first all-electric vessel of its kind and is the latest in a small but growing fleet of vessels that use batteries for propulsion and onboard electricity use.

The e5 vessel, ironically, will transport marine diesel fuels. The 3.5-megawatt-hour (MWh) energy storage system is enough capacity to propel the ship for many hours before needing to plug into a shoreside charging station. Corvus Energy, which has offices in Norway and Canada, has put batteries in nearly 400 ships, roughly a quarter of which are fully electric, he said. Most of these are passenger and car ferries plying the Norwegian fjords, where ship operators face tight restrictions on emissions. The number of battery-powered ships has ballooned from virtually zero a decade ago to hundreds worldwide. As the global shipping industry works to curb carbon dioxide emissions and eliminate air pollution, shipbuilders and cargo owners are increasingly moving to electrify their freighters, tankers.

A fuel cell is an electrochemical cell that converts the chemical energy of a fuel (often hydrogen) and an oxidizing agent (often oxygen) into electricity

through a pair of oxidation-reduction (redox) reactions. Fuel cells can produce electricity continuously for as long as fuel and oxygen are supplied. Fuel cell systems using renewable fuels including hydrogen are the most viable and scalable true zero emission solution for ships. Renewable hydrogen, generated from solar, wind, hydroelectric, and geothermal sources is considered an ideal fuel for decarbonizing transportation fuel. A hydrogen ship is power assisted by an electric motor that gets its electricity from a fuel cell or uses hydrogen fuel in an internal combustion engine.

The car ferry MF Hydra which was recently launched will use liquid hydrogen. The ferry is 82.4 meters long with a capacity of 290 passengers and 80 cars with two fuel cells of 200 kW and two generators of 440 kW. To store the hydrogen, an 80 m³ tank has been provided.

Biofuels used in shipping are types of biodiesels. Diesel produced using this process is often called renewable diesel. Biodiesel is a good candidate as a shipping fuel, being biodegradable, non-toxic, and essentially free of sulphur and aromatics. It can be used in marine applications with little need for engine modification.

There also methanol ships, the Sustainable Marine Methanol (SUMMETH) project has the overall objective of advancing the technological development and providing recommendations for introducing methanol as an alternative fuel for coastal and inland waterway vessels to reduce their emissions and carbon footprint. The project intends to investigate methanol combustion concepts and ship fuel systems that will lead to cost effective alternatives.

Ocean-going ships capable of operating on methanol are operated by Waterfront Shipping Co. The seven 50,000 dwt methanol-propelled tankers have replaced older vessels and expanded Waterfront's fleet of methanol carriers, which can run on methanol, fuel oil, marine diesel oil or gasoil.

The US Navy has been for many years looking at ways to cut its vast energy footprint. In 2016 the US Navy commenced the use of biofuel as part of its regular operations. Called the *Great Green Fleet*, a naval initiative highlighted how the navy was moving toward using alternative energy to increase combat capability and operational flexibility. The guided missile destroyer *USS Stockdale* became the first ship running on an alternative fuel blend as part of its regular operations. The fuel blend contained fuel made from waste beef fat provided by farmers in the



USS Makin Island (Image: Piet Sinke, Flickr)

Midwest.

In 2018, the *USS Makin Island*, became the first amphibious assault ship with hybrid electric drive (HED). It is highlighted that she saved the navy over a million gallons of diesel on her first voyage from Mississippi to San Diego alone. An amphibious assault ship like the *Makin Island*, which uses a dual electric-diesel propulsion system, can stay on station three times longer than a conventionally powered vessel, giving an edge tactically. The project has shown that it enhances the navy's global presence and reduces dependency on foreign oil.

The US Navy is working on developing a liquid hydrocarbon fuel which would significantly shorten the fuel supply chain. It believes it has worked out the solution with the problems of providing fuel for ships, by taking seawater and using it as fuel. The goal is to eventually get away from the dependence on oil altogether. US experts have found out how to extract carbon dioxide and hydrogen gas from seawater. Then, using a catalytic converter, they transformed them into a fuel by a gas-to-liquids process. They hope the fuel will be able to power ships. Now that they have demonstrated it can work, the next step is to produce it in industrial quantities.

It is expected that a hybrid power system architecture consisting of fuel cells and batteries will be widely adopted for commercial vessels in the future. The ratio of fuel cell to battery power will depend on the vessel. Hybrid systems can be designed so the fuel cells operate at steady state and the batteries are dimensioned for transient power requirements.

Most marine fuels in use today are hydrocarbons derived from fossil sources, including petroleum and natural gas products. The use of these fuels results in air pollution and greenhouse gas (GHG) emissions, whereas the use of renewable fuels fully contributes to meeting air pollution reduction goals.

The International Maritime Organization (IMO) has adopted regulations to address the emission of pollutants from ships and has adopted mandatory energy-efficiency measures to reduce GHG emissions from international shipping and finally phase them out as soon as possible in this century. The initial IMO strategy targets a reduction in total GHG

emissions from international shipping by at least 50% by 2050 compared to 2008.

Canadian naval ships are large consumers of fossil fuel. Each of the Halifax-class frigates carry some 665,000 litres of fuel, when sailing on diesel power it will burn 1,000 litres per hour and sailing on turbine power it will then burn 3,000 litres per hour.

The navy is in the process of renewing its fleet and the new ships will be in service for a least 30 years. Building ships using modern technologies which are more energy efficient has the potential to reduce GHG emissions. There is a social need to reduce greenhouse gas emissions from ships.

There is no doubt that the design requirements for the new ships are for vessels that allow the government to meet current Canadian and international environmental regulations and laws. The navy states that the new frigates will have propulsion systems that will more efficiently transfer the power produced in the engines to the ships' propellers, resulting in improved fuel efficiency. But the new ships will still be burning fossil fuels just as the existing fleet. The new builds will certainly meet global GHG requirements today, but what about in the future, given that the ships will be around for at least three decades?

It is interesting to note that BP announced in August 2020 that it expects to cut the amount of oil it produces by 40% by the end of this decade as part of its pledge to emit no net global warming emissions by 2050. In fact, some shipping companies, such as Maersk, have declared goals of a carbon-neutral fleet by 2050.

There should be serious consideration given to switching to alternative fuels or hybrid options as it is being done globally for both commercial and naval ships. The option of alternative fuels would provide the opportunity to improve the environmental footprint of ships and put them in the forefront of environmental stewardship. The use of alternative fuels is regarded today as a relevant area of technological development for ships. The opportunity now exists for Canadian shipbuilding industries to innovate and explore the use of environmentally friendly fuels and perhaps become world leaders in the development of green ship technologies.

A large white icebreaker ship, HMCS Harry DeWolf, is shown transiting the Northwest Passage. The ship is viewed from a distance, sailing on a calm blue sea with scattered white ice floes. The ship's hull number '430' is visible on its bow. The ship's reflection is clearly visible in the still water. The sky is a clear, pale blue with a few wispy clouds.

HMCS Harry DeWolf Transits the Northwest Passage

For the first time since HMCS *Labrador's* 1954 voyage, a Royal Canadian Navy ship has transited the Northwest Passage. This historic event, 67 years in the making, marked the return of the Royal Canadian Navy to the region with a ship purposefully designed to work in the dangerous ice conditions of the Canadian Arctic.

The first of six Arctic and Offshore Patrol Vessels being built for the RCN (with another two planned for the Canadian Coast Guard), *Harry DeWolf* is the largest ship built for the Navy since HMCS *Preserver* in 1970. This 6,615 ton vessel is rated Polar Class 5 and is able to break through 1.5 metres of ice and travel up to 12,600 km (or over 18,000 km at slower speeds). Armed with a 25mm cannon and capable of carrying a cyclone, the ship offers the RCN the ability exercises Canadian sovereignty and control shipping and foreign activity throughout the region.

Not designed as a combatant, *Harry DeWolf* provides armed surveillance and control of Canadian waters, including: search and rescue; support for other government departments (OGD); maritime domain awareness; assistance to law enforcement; aid to civil power; logistical support to the CAF and other government departments; and sovereignty protection.

While the day-to-day taskings of these new Arctic ships will connect to a broad suite of unconventional security requirements, their roots lie in concerns over sovereignty. That term is frequently used in

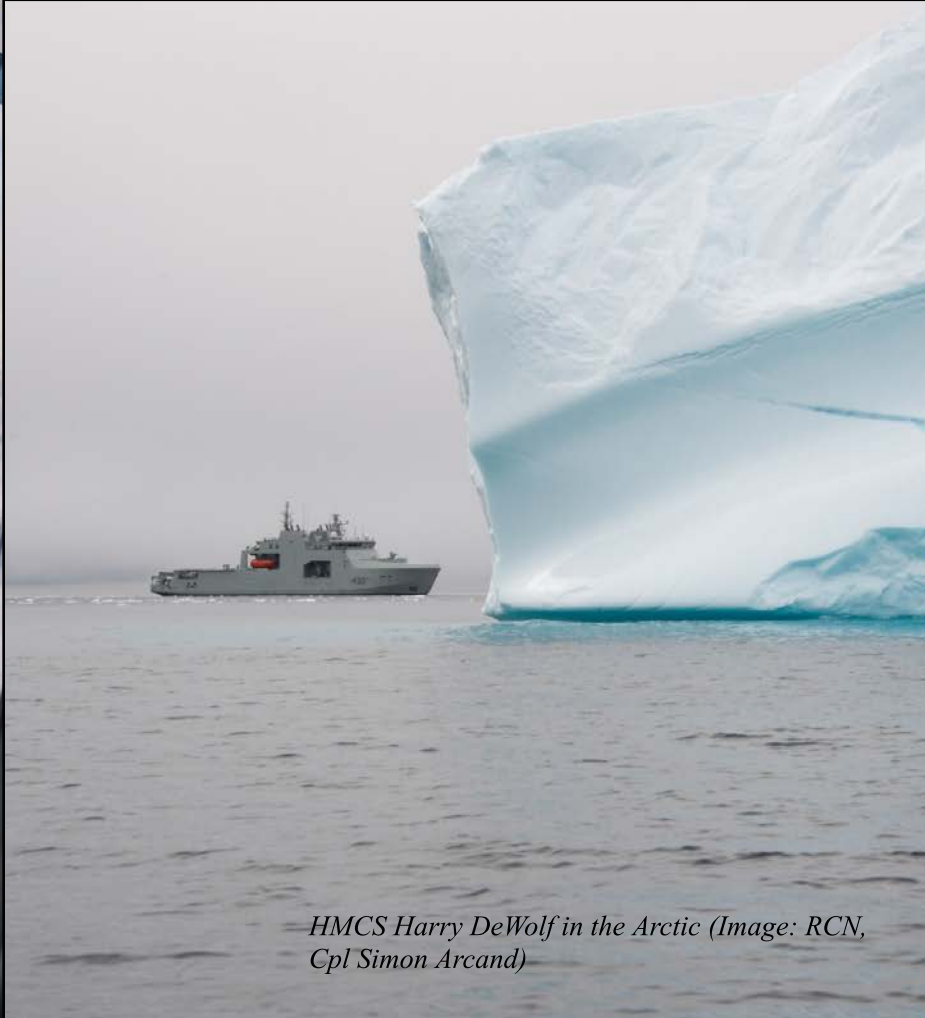
government publications on the subject, and sovereignty protection is listed as a key operational task in the Navy's Concept of Operation for the *DeWolf*-class. While a patrol ship (or several) will not directly affect the legal status of the Northwest Passage, the presence and control that they represent is essential.

The AOPS were designed to provide that measure of control, manifested in the increased awareness and response and support capability which they will provide. It is not the physical act of being there which is so important – they are not intended as floating flagpoles – it is the ability to support and police activity as it increases in the region and to support departments as they invariably see their responsibilities expand. The *Statement on Canada's Arctic Foreign Policy* (2009) explains that “Canada exercises its sovereignty daily through good governance and responsible stewardship. It does so through the broad range of actions it undertakes as a government ... We exercise our sovereignty in the Arctic through our laws and regulations, as we do throughout Canada.” That policy statement, while slightly dated, is not going to change under a Liberal government and the AOPS will be an important tool in enforcing those laws and regulations and enabling that good governance and responsible stewardship.

Congratulations to the RCN on its return to the Arctic!



Cmmdr Cory Gleason (Image: HDW Twitter)



HMCS Harry DeWolf in the Arctic (Image: RCN, Cpl Simon Arcand)



HMCS Harry DeWolf crew in the Arctic (Image: Combat Cam, Flickr)

HMCS Labrador moves through the Northwest Passage. Canada's first transit of the Arctic and the last naval mission to make the trip.





From the Branches

Tribute to Navy Veteran Harry Hurwitz (1921-2020)

The Montreal Branch of NAC

Harry Hurwitz survived the sinking of HMCS *Athabaskan* (G07) in the English Channel off Normandy on April 29, 1944 and was among the 83 crewmen taken prisoner by German forces. He spent a full year to the day after her sinking in a POW camp and, upon his liberation, returned to the home of his birth, Montreal. On October 18, 2020, Harry Hurwitz passed away in Montreal at the age of 99. From all accounts, he was a modest man, who possessed an appreciated sense of humour and always adhered to kind intentions.

To pay tribute to this marvellous man, The Montreal Branch of the Naval Association of Canada commissioned its own Artist in Residence, Glen Luckock, to paint a portrait of Harry with a depiction of HMCS *Athabaskan* and her final battle. The 30" by 40" portrait displays young Harry circa 1942 and elderly Harry sitting at the lakeside family cottage,

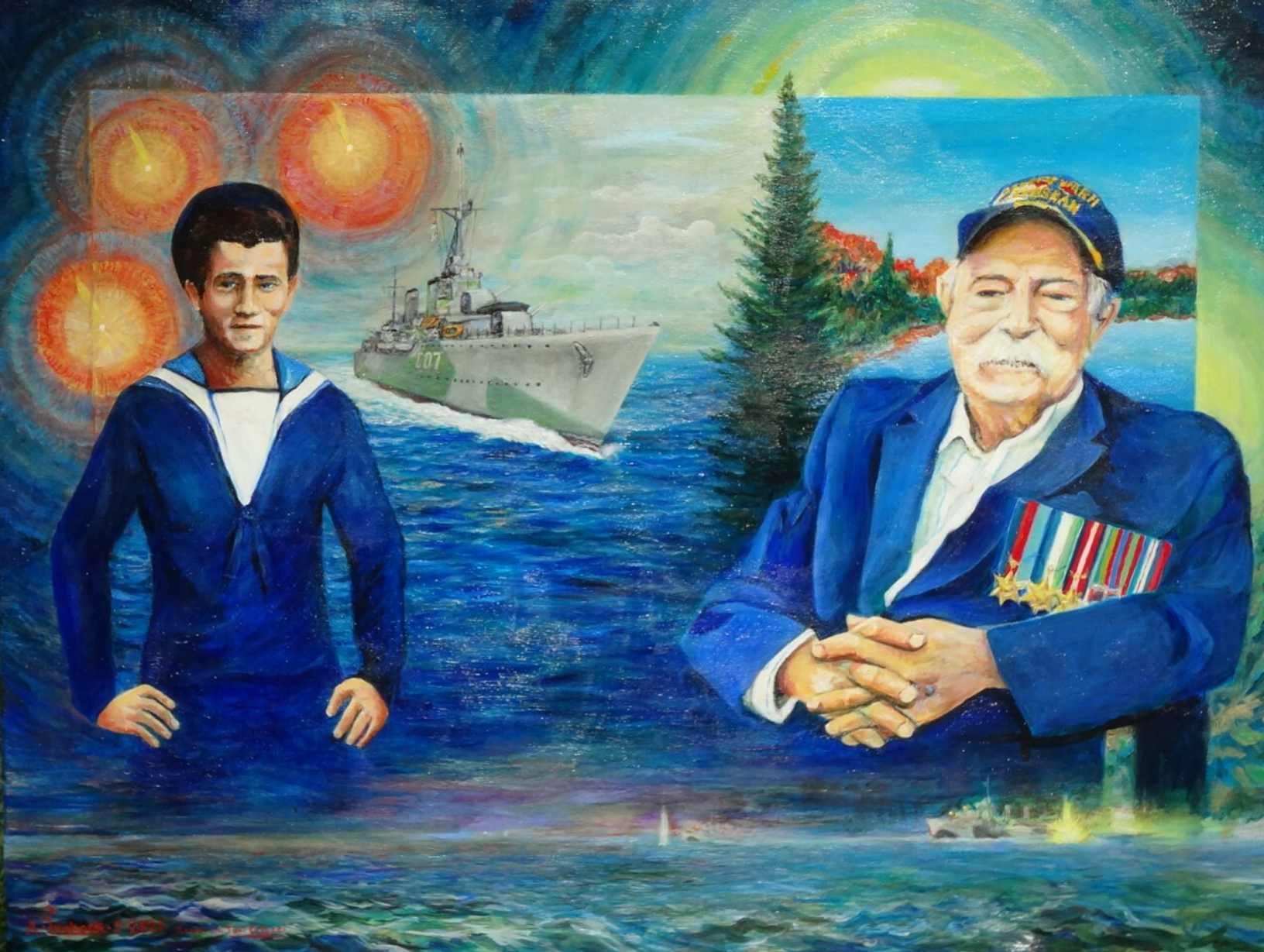
finding peace and tranquility in the company of his favourite tree.

The Montreal Branch will present this portrait [following page] as a solemn, memorial gift to the RCN Reserve Unit HMCS *Donnacona*. The presentation will also be attended by members of the Harry Hurwitz family.

We thank artist Glen Luckock for his admirable talent and creativity. We also wish to express a special note of appreciation to Harry's daughter, Debbie Hurwitz, for her advice, support and contributions to this memorial project.



Harry in white shirt with his fellow POWs



Tribute to Harry Hurwitz by Glen Luckock, 2021

Support for Veterans' House

Ottawa Branch of NAC, from Howie Smith

On June 21 2021, the President of the Ottawa Branch of the Naval Association of Canada was pleased to present to Veterans' House a NAC Endowment Fund cheque in the amount of \$8,000.

Veterans' House was commissioned earlier this year and is located on the site of the former Canadian Forces Base Rockcliffe. It has been established to provide safe, secure, and accessible housing for an initial cadre of 40 and welcomed its first residents in February. It is currently housing 50% of capacity with final construction and landscaping underway. The NAC Endowment Fund grant is helping to support the development of the outdoor communal area. This

space will provide amenities in a mediative garden setting and support a range of care programs.

Shown in the two photos [following page] are the mediative garden setting with final landscaping to follow, and a photo of the adjacent outdoor BBQ and seating area. In the photo showing the cheque presentation are (from the left): Howie Smith, the NAC Project Officer, Tim Addison, the Ottawa Branch President, David Soule, the National Executive Director, and Sheldon Leong, the Fund Development Manager receiving the cheque on behalf of Veterans' House.



NAC Support for the Royal Canadian Sea Cadet Education Fund

Ottawa Branch of NAC, from Howie Smith

On August 25, 2021 the Past-President of the Ottawa Branch of the Naval Association of Canada was pleased to present a cheque in the amount of \$5,000 from the NAC Endowment Fund to the Royal Canadian Sea Cadet Education Fund (RCSCEF). These funds will help support the RCSCEF in their mission of providing scholarships to sea cadets seeking post-secondary education and training. In the past year, the RCSCEF has provided over \$100,000 to 79 young men and women from across Canada, many of whom would not otherwise have the means to pursue post-secondary education. The need for such support has grown through the period of the COVID-19 pandemic, as many youths face increased financial pressures resulting from reduced part-time and summer employment opportunities. Appreciation is extended to all NAC members who generously support the NAC Endowment Fund.



Shown in the photo (from the left), the Past-President, Howie Smith, presents a cheque to Commander (ret'd) John Bell, Vice-President of the RCSCEF.

NAC Support for RCSCC 06 Victory

Montreal Branch of NAC, from Bob Boutilier and Anthony Colucci

This year, the Montreal Branch of the NAC is pleased to have provided \$2,000 in support to Commander of RCSCC 06 Victory (Montreal), Manuel Pelletier. The cheque was presented on October 13, 2021 at “Le Sentier-The Trail”, the new Veterans’ drop-in-centre on Monkland Avenue in Montreal. The funds originated from the NAC Endowment Fund and made it possible for Montreal Branch to enhance its role in support of the Cadets during the pandemic. The funds will support training and - at last count, three of the top four naval officers are former cadets.



Presentation of a cheque in the amount of \$2000 to Manuel Pelletier (centre), the Commander of RCSCC 06 Victory in Montreal by Robert Boutilier (right), President of NAC Montreal Branch, accompanied by Charles O'Leary (left), Past President of the Branch.

Support for the Canadian War Museum

Ottawa Branch (NAC), from Howie Smith

On August 20 2021, the President of the Ottawa Branch of the Naval Association of Canada (NAC) was pleased to present to the Canadian War Museum (CWM) a NAC Endowment Fund cheque in the amount of \$2,500 in support of the Supply Line educational program.

Supply Line is an ongoing, national, outreach program that provides hands-on, curriculum-linked Discovery Boxes for in-class exploration of Canada’s military history. Available for classrooms across the country to borrow, free of charge, the First and Second World War-themed Discovery Boxes come complete with authentic and replica artifacts, lesson plans and supporting materials. Supply Line was developed to meet a call from teachers for curriculum-based teaching materials to enrich classroom learning. The program connects students from across the country – particularly those who would not otherwise be able to visit a museum – with Canada’s military history



Cheque presentation taken outside the main entrance of the CWM (from the left): Howie Smith, the NAC Project Officer, Megan Ollivier the Senior Fundraising Officer at the CWM, and Tim Addison, the Ottawa Branch President



Halifax Memorial Remembrance Service

Commander Rowland Marshall (ret'd), 94, a veteran of the Second World War and Life Trustee of the Canadian Naval Memorial Trust / HMCS *Sackville*, accompanied by Commodore Bruce Belliveau (ret'd), right, Chair of the Nova Scotia Branch of the Naval Association of Canada lays a wreath at Remembrance Day service at the Halifax (Sailors) Memorial in Point Pleasant Park. Rowland joined the RCNVR as a 'young 17' year old in 1944 and served in the frigate HMCS *St Pierre*. Following the war he served in a number of ships and in 1962 transferred to the Naval Reserve where he served as commanding officer of HMCS *Scotian* in the 1970s. In civilian life he was as an associate professor of philosophy at Saint Mary's University, Halifax.



Letters to the Editor

Stephen Porrior

The year 2023 will mark the 100th Anniversary of the creation of the Royal Canadian Naval Volunteer Reserve as it was created in 1923. To mark this historic event, I am nominating a proposed stamp to recognize Lieutenant Robert Hampton Gray VC, DSC, RCNVR with the artwork of Pat McNorgan, who is a local Manitoba artist from Winnipeg.

Lieutenant Robert Hampton Gray was awarded a posthumous Victoria Cross for his Ramrod action on August 9th, 1945 in the sinking of a Japanese destroyer in Ongawa Bay. This was the last time a Canadian received this decoration.

Veteran Affairs Canada is committed to preserving the Actions of Canadian servicemen and servicewomen in a Canadian Virtual War Memorial (www.virtualmemorial.gc.ca), which has a page dedicated to Lieutenant Robert Hampton Gray that displays his military honors, awards, as well as several images and a Victoria Cross citation that appeared in the London Gazette on November 13th, 1945.



This letter is a request for public support in the nomination of a commemorative stamp, to be issued by Canada Post and released in 2023. Canada Post accepts public requests and anyone can visit [this link](#) to nominate Lieutenant Grey.

A Salty Dip

Steve Foldesi

If you read ‘Papillon’, you will remember reference to the ‘Plan’. It was a hollow metal tube in which prisoners kept their money hidden up their annus.

In 1971/72 we adopted the STARR (Systematic Threat Analysis and Rapid Response) concept as a means of quick reaction via pre-planned actions to an imminent threat. The key to making this work was the ability for all warfare officers to talk to each other via intercom and also communicate with all other ships in the Task Group via a split headset system linked to UHF circuits on the left ear and intercom on the right ear.

Needless to say the old steamers weren’t built for this and the bean counters would not provide the money to effect the necessary modifications.

In steps Cdr Dave Avery, CO Nipigon, with a blue print plan to make this possible on the cheap. He sent it to then Captain Bill Hughes, D1 who tasked Margaree to try it out. It didn’t work.

As a result D1 sent Nipigon the following message: “Ref your proposal, Papillon had a place for such a plan”.

Achieving an Optimal Canadian Naval Fleet Mix

Roger Cyr, OMM, CD

The Navy must be ready and able to deliver across a spectrum of operations, from disaster response to counter-terrorism and peace support operations, to limited combat operations. To achieve this, it requires targeted and strategic investment in capabilities and equipment that can be used in domestic and international operations, in differing scenarios. The fleet composition should be tailored to the country's capability, and truly project the government's foreign policies and make a noteworthy contribution to world stability.

Since Canada is a maritime nation, fronting on three oceans, it must have a navy that is well equipped for a range of missions. The opening of the Arctic ocean's sea routes also requires that there be ice capable capital ships as part of any fleet composition. Given the changing domestic and world situations, there should be planning and discussion on what the Navy's roles should be, and decisions made on which assets would be best suited for this defined purpose.

Since the 1950s, every government has adopted a standard defence policy, being home defence, continental defence in cooperation with the United States, and military engagement beyond the North American continent in support of alliances. Today, the naval requirements detail that there should be fifteen surface combatants, two joint support ships, and six Arctic patrol ships. However, is this the optimal fleet mix given the economic reality in Canada?

Canada is not a major military power and cannot aspire to be one, given its limited financial resources. Hence Canada's naval forces should be comparable to those of similar member nations of NATO.

Canada can be compared to six other NATO nations that have a GDP per capita that is at or about \$30,000, ranging from Greece at \$31,000 to Norway at \$53,000, with Canada at \$38,000. Their population ranges from 6 million for Denmark to 47 million for

Spain. All these nations are maritime nations, and all need substantial naval forces.

COUNTRY	GDP	POPULATION	GDP PER CAPITA
Norway	\$499.67 billion	5 million	\$53,000
Netherlands	\$772.23 billion	17 million	\$39,000
Canada	\$1.82 trillion	35 million	\$38,000
Denmark	\$314.24 billion	6 million	\$37,000
Belgium	\$483.71 billion	10 million	\$36,000
Spain	\$1.35 trillion	47 million	\$34,000
Greece	\$249.10 billion	11 million	\$31,000

What fleet composition can Canada afford to buy and to maintain for the next thirty years? What are the operational maritime military needs of Canada? Given today's reality, navies need to be equipped for varying purposes, and not just for a major combat role. The affordability should also be considered. It should be kept in mind that the *Halifax class* frigates have never been involved in combat missions since they were built. The new fleet should reflect the limited combat roles that will likely face the Navy for the next thirty years.

The twelve current *Halifax class* frigates have served the navy since 1992. The frigates are to some extent multi-role, but with emphasis on anti-submarine warfare since this was the primary mission of the Navy at the time the ships were designed. The Canadian Surface Combatant (CSC) program was launched to replace the *Halifax class* frigates. The British Type 26 frigate was selected as the replacement vessels. It will be somewhat larger than the existing *Halifax class*, and presumably provide an enhanced capability. But why the arbitrary number: 15 new frigates? Is it because the Navy has 12 frigates now, and had three destroyers that were decommissioned in 2015-17? What is the optimal and realistic number of frigates that should be procured, is it 15 or a lesser number? Were there studies carried out to determine how many frigates are needed to carry out the assigned tasks? What are the needed resources associated with the 15 frigates?



HMCS TORONTO working with the US Navy Guided Missile Destroyer USS Bulkeley on maneuvers at sea (Image: Scene Camera Operator: PHAN Robert Brooks, USN)

a smaller ship, such as the Arctic Offshore Patrol ships (AOPS), or a smaller combatant such as a corvette. The AOPS is partly suited for some of these roles, but it is a non-combatant, it is more line with coastal surveillance given its slow speed and lack of combat systems.

The two new heavy icebreakers, the *Diefenbaker Class* ships that are to be built for the Canadian Coast Guard should instead become naval assets since most world construction of heavy icebreakers is assigned to countries' navies.

It should be noted that the British Navy planned to buy 32 Type 26 frigates but found it too expensive and lowered that number to eight. They will instead buy the cheaper Type 31 frigate to fill the gap. The Australian navy plans to buy nine Type 26 frigates. With 15 ships, Canada would have the world's largest fleet of Type 26 frigates at an estimated cost of some \$78 billion. The US Navy has chosen the FREMM, which it renamed the *Constellation class* frigate. It awarded a contract to Fincantieri Marinette Marine in Wisconsin to build 10 of these for \$16 billion.

The fleet composition should be ready to serve Canada in all scenarios that today's world requires. The two Joint Support Ships (JSS) to be built would be the backbone of the fleet, providing command platforms along with the necessary logistic services and sealift capabilities. The JSS are a critical component for meeting requirements in both international and domestic military missions.

The warfighter ships would be the CSC Type 26 frigates in a reduced number, whose role would be to engage a major threat. Beyond these major combatants there should be multi-purpose, more flexible ships. First, there is the requirements for ships that would be to be involved in coastal defence and disaster relief operations. There are also international roles such as the counter narcotics and sea blockades and surveillance, which would require

The twelve Maritime Coastal Defence Vessels (MCDV) are multi-role vessels that were built from the mid-1990s. Their main missions are counter narcotics, coastal surveillance, sovereignty patrol, route survey, and training. However, they are 25 years old and nearing their end of life. At any rate, they are unarmed so they are non-combatants. They should be replaced with an affordable, reliable, capable, small surface combatant such as new corvettes. There are many corvettes in the world market today that would be ideally suited to meet Canada's requirements for a small combatant, one that would be more in step with Canada's resource availability and would complement the major combatants, the Type 26 frigates.

There is the *Badr-class* corvettes built in the USA for Saudi Arabia. These corvettes, at just over 1,000 tons displacement, and armed with eight Harpoon missiles, six torpedoes, and a 76-mm gun and Phalanx close-in system. They are well-armed, fast, and capable. The ships can enforce blockades, conduct counter-illicit trafficking missions, and provide a forceful presence. Even with its limited sonar suite and torpedo tubes, it is a formidable asset against shallow-water submarine threats. The cost per ship is estimated at \$500 million. These corvettes would be ideally suited to carry out the missions now being performed by the MCDVs, such as enforcing

blockades, conducting counter-illicit trafficking missions, and imposing a naval presence

The fleet composition should be the best that meets domestic requirements and international obligations, commensurate with available financial resources. What is needed is a fleet that should be composed of a mix of warfighters such as the new Type 26 frigates in a reduced number to six, along with other combatants and non-combatants. With only six frigates, the gap that is left should be filled with ten smaller and less expensive corvettes as replacements for the unarmed MCDVs. The two new JSS would be the command and logistic ships. The AOPS would also be a part of this mix as offshore patrol ships. There should be four new submarines to replace the existing *Victoria-class* sub fleet that is reaching its end of life. The new submarines should be Air-Independent Propulsion (AIP) subs that allow a non-nuclear submarine to operate without access to atmospheric oxygen.

NAVAL ASSETS OF COMPARABLE NATIONS (Showing the proposed fleet for Canada)					
COUNTRY	FRIGATES	CORVETTES	SUBS	PATROL VESSELS	TOTAL ASSETS
Greece	13		11	38	62
Spain	11		2	29	42
Norway	4	6	6	22	38
Canada	6	10	4	6	26
Denmark	9			12	21
Netherlands	6		4	10	20
Belgium	2			7	9

Modern, non-nuclear, AIP submarines are potentially stealthier than nuclear submarines and are virtually silent. Small, high-tech non-nuclear attack submarines are highly effective in coastal operations and pose a significant threat to less-stealthy and less-maneuverable nuclear submarines.

With the Arctic Patrol Ships, new Type 26 frigates, new corvettes, coupled with new Joint Support Ships and possibly the two heavy *Diefenbaker-class* heavy icebreakers, and four new AIP submarines, these elements would provide Canada with the fleet it requires to conduct viable and effective maritime operations. The new fleet should be composed of:

- Two Joint Support Ships, (JSS),
- Six CSC Type 26 frigates,
- Six AOPS patrol ships,
- Ten new corvettes,

- Four new AIP submarines,
- Two heavy *Diefenbaker-class* icebreakers fitted with defensive weapons.

This would produce a modern and balanced naval force composed of surface and subsurface combatants that will be capable of meeting Canada's naval operational obligation, one that would be in line with comparable NATO nations.

Notes:

1. Canada's AOPS are shown under Patrol Vessels.
2. Spanish Navy includes an aircraft carrier which is not shown in the table.
3. Total assets is for surface and subsurface combatants and does not include support ships.

The likelihood of a symmetrical war between developed sovereign states, especially a traditional sea battle should no longer be the raison d'être of a navy. Nonetheless, the fleet should serve as an effective diplomatic lever and act as a potential deterrent. Actions could include securing sea lanes of communication, non-combatant evacuation operations, and peacekeeping in support of diplomatic situations. Canada's defence policy advocates the need for flexibility to respond to a changing world, to have agile forces, capable of making tangible contributions at home and around the world. There is also the issue of affordability, to procure the ships, and to ensure they can be adequately crewed and maintained for three decades.

Ultimately, the mix of ships needs to be established through trade-off between the types and numbers of ships that best provide the required operational capabilities and the total investment that a country is willing to make in its navy. Canada's naval fleet must be reoriented with the long-term objective of providing a more versatile general-purpose capability. Versatility is required since it is not possible ascertain precisely which naval activities will be required and which will not in the decades ahead.



Book Reviews

Ordeal By Exocet – HMS Glamorgan and The Falklands War 1982.

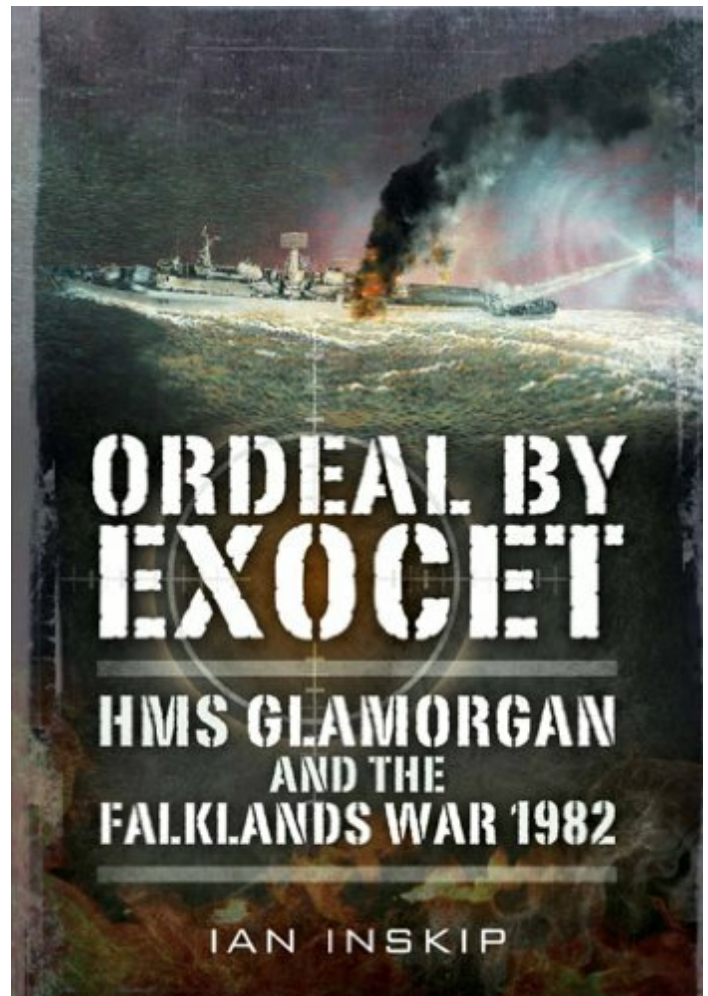
By: Ian Inskip
(Frontline Books, London/Pen & Sword Books, Barnsley, 2016)

Reviewed by Fraser McKee

The Falklands War was 49 years ago and there have been a multitude of books about it, even by actual participants. Old history. However, with that war's introduction of new technology (Exocet, Sea Slug anti-aircraft missiles and diesel electric power), it introduced both service personnel and readers to a new concept of naval warfare. This excellent reprint (2016 from 2002) is well worth a review. Careful reading by any watch-keepers of today, or any who has kept a watch at sea even in the North Atlantic, is important. We too often forget that that brief war was fought, almost continuously, in the depth of winter in July, 1982 in the South Atlantic, with its all too typical violent winter snow storms, freezing temperatures, rough seas and no friendly ports within many day's reach. Just like, as the plimsol mark notes, 'WNA' – Winter North Atlantic conditions. There were really almost no 'days off' periods for 3½ months.

LCdr Ian Inskip, the author, was *Glamorgan's* navigator, bridge record-keeper and a very competent narrator. These pages, for the most part, are his edited day by day actual log of his ship's

trials as senior escort ship for RADML Sandy Woodward's H.Q. carriers HMS *Invincible* & *Hermes*. *Glamorgan*, at 6,200 tons full load, 520' and a total compliment of around 470, was essentially of a wartime cruiser size, was their primary bombardment ship with her two 4.5" guns, Exocets, and Sea Slug missiles, and major protector of good many other destroyers and the fleet supply train group as well. One of the



surprises for this reviewer, with Gallipoli and Normandy as examples of previous little use bombardments, was the great efficiency of *Glamorgan's* on-demand shore bombardment, where they were able to destroy Argentinian gun positions within 100 yards of advancing Welsh Guards or 3 Para on many occasions. Time and again those Army troops were able to call for a specific and utterly reliable gunfire of very specific targets within that distance. Or the destruction of Argy Pucara aircraft parked on Pebble Island, with Commands nearby. This repeatedly called on the navigator's highly accurate position fixes of their 'gun line,' while very much bearing in mind a nearby known minefield.

The value of Inskip's and others' skills and judgement were called on repeatedly in the old seaman-ship skills during their frequent RAS refuelling from continuously accompanying RFA tankers – in black nights in a gale, in 0° and rain or snow. Fuel was rarely allowed to drop below 50% if possible – who knows when the next opportunity would allow. Followed by several 'vertreps' – helicopter replenishment of armament stores, food, or repair parts for guns or multiple continuously used radars and sonars from those RFA's or the 'carriers. A new supply and even repair expert transfer concept necessitated was by Herculese transport a/c. They were flown directly from the only large supply base 3,750 miles away, Ascension Island; her rear ramp opened and the parachute supported boxes simply kicked out into the rolling winter sea, to be recovered by *Glamorgan's* motor boats – if it didn't become entangled in the parachute lines. And even to rescue vial repair personnel also parachuted down, before they died of hypothermia despite immersion suits! Talk about dedication, and skilled navigation, on both sides. A lot of 30 hour or more watches, occasional errors in identification or RAS equipment handling, and only the odd calm sunny but cold day. It was exhausting.

Despite preparedness for Argy reaction, after a

continuous 45 days on station, either protecting the H.Q. or RFA ships from expected enemy submarines and almost continually attacking Argy aircraft missiles, which indeed did sink several other closer in vessels, or close-in bombarding various targets, the ship was hit by an unexpected Exocet missile. It was fired at relatively close range from a make-shift undetected truck mounting near Stanley. It hit the rim of her upper deck then the hanger for her Wessex helicopter, fully fuelled and armed with missiles. The resultant explosion, fire, then flooding by damage control hoses nearly sank the ship as she limped seaward, around a known minefield, toward potential safety, although never out of missile range, listing up to 15° or more. It killed 13 men, 1 officer, many from the naval air detachment. It took the whole crew two days to put out the upper deck fire, repair various holes and pump out surplus water sloshing about relatively high up in the ship. *Glamorgan* was then released and headed home.

Inskip sets the book up on a daily basis, from breaking away from a NATO exercise off Gibraltar on 30 March. With a couple of pages of scene-setting for the development of the 'Falkland Crisis,' Margaret Thatcher's decision to retake it and South Georgia, the quick war storage required, to their return for major repair on July 11th. During the battles, he provides enough brief political and strategic detail to ensure their actions at sea and close inshore make sense. At least for naval readers the frequent use of Service abbreviations (AOA to 'yellow high') is supplemented by a four page glossary but adds a sense of realism. There are a couple of maps of the areas, although the type size requires a magnifying glass, six pages of photo-graphs, a list of their casualties, a full crew list, a three page 'Aftermath,' and a useful index.

It makes for not only fascinating reading for any ex-watchkeeper, but provides an education of what the new missile type warfare will actually be like. Much recommended, officer and Sailor alike.

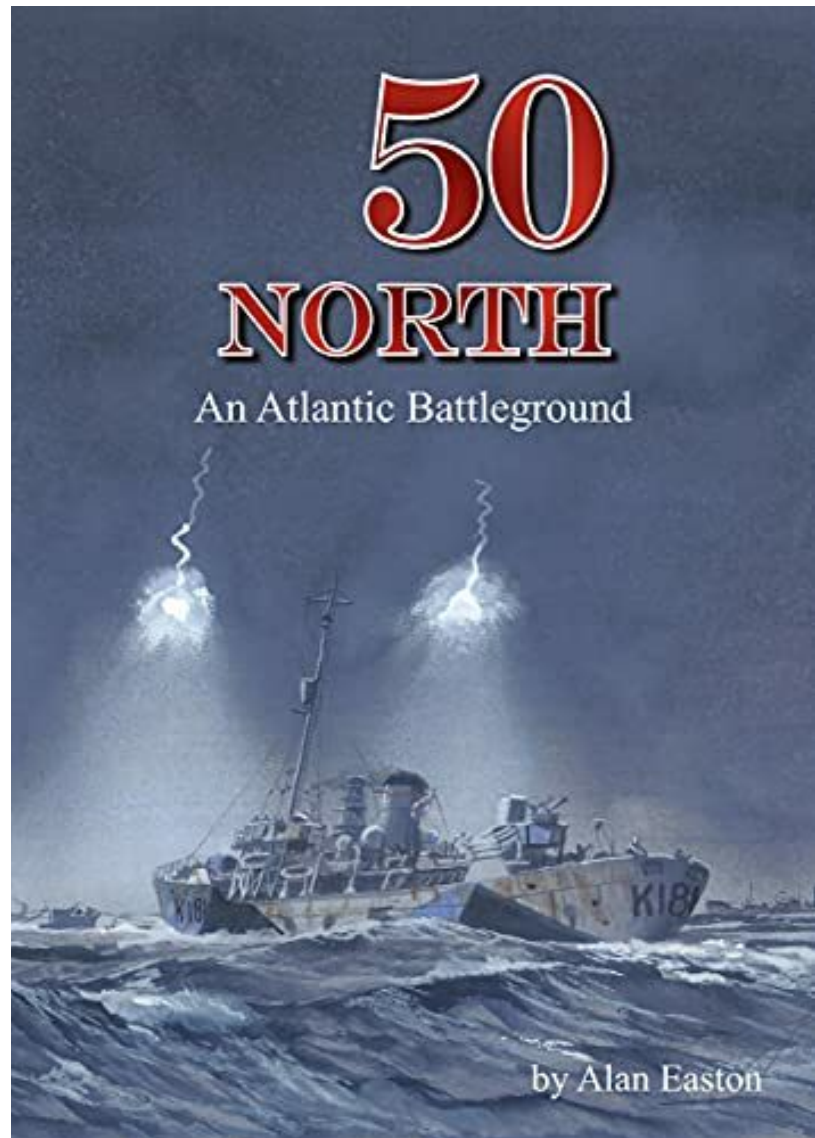
50 North: An Atlantic Battleground

By: Alan Easton, edited by Michael Whitby
(eBook: Lewin of Greenwich, 2021)

Reviewed by Richard Gimblett

When in 1963 Alan Easton published his memoir of service in the Royal Canadian Navy in the Second World War, *50 North* was immediately appreciated as an important firsthand account of Canada's experience in the Battle of the Atlantic. Although already some two decades after the events he recounted, it was among the first in the genre, and provided an engrossing narrative of the fighting along the cold and empty ocean spaces of the 50th parallel of north latitude for which the book is titled. Easton literally had a front row seat to the action: as a qualified Master Mariner in the interwar merchant navy, he was called up for service in the RCNR early in 1940, and subsequently spent much of the next five years continuously at sea, uniquely almost all of those in command.

The book is structured around the tale of his successive commands, which he nicknamed for the court family of a deck of playing cards, the increasing order reflecting the growing pains and ultimate success of the RCN's war at sea: beginning in May 1941 with his commissioning one of the first Canadian-built corvettes, HMCS *Baddeck* (the Knave), troubled by machinery defects and inexperienced crew issues; then moving a year later in April 1942 to the much more reliable *Sackville* (the Queen); shifting in October 1943 to commission the frigate *Matane* (the King); and rounding out with the River-class destroyer *Saskatchewan* (the Ace) in April 1944. In parallel, Easton's narrative is a vivid account of the range of actions undertaken by the RCN during that period, from relentless convoy escorts against U-boats, through Channel actions in support of the Normandy invasion in the summer of 1944, not to mention the ever-present perils of the sea. It is also a very human tale, ending in the late summer of 1944 with an exhausted Easton committing himself to hospital with a nervous breakdown and resigning his commission. As a



primer on the challenges of wartime command it is ageless and has few equals.

The book went through a number of paper editions in various formats, but has been out of print for some decades. A quick search of various used book websites reveals not many copies being available, and those in good condition demanding a price typically “north of \$50”. So on that basis alone, this new edition is very welcome news. The decision to produce it as an eBook hopefully will prove additionally beneficial, as clearly intended, in making it accessible to a whole new generation of readers, and at a cost (\$9.99 on Kindle) that no one can afford to let slip by.

Indeed, proud owners of an original paper copy will want to add this new edition to their holdings as

well. One of the attractions of Easton's narrative was that he told it in the first person, peppered with admittedly fictionalized dialogue between him and the various other characters, to move the story along yet retaining that flavour of personal authenticity. A problem arises, however, in that he does not refer to many of these others by their real names, but rather an invented one; at the same time, he rarely provides dates for the various actions, nor does he always name other ships in company or even the convoy number – the overall effect, even as the reader accepts the general truth of the account, is to make one question how accurate it might be in the detail, and therefore its reliability as a “source”.

The real value of this new edition is to put those questions to rest. The editor is Michael Whitby, the official naval historian at the Directorate of History & Heritage for the Department of National Defence, a lead author of the multi-volume operational history of the RCN in the war, and therefore as knowledgeable as anyone on the sweep and details of the conflict and its many actors. He has meticulously cross-referenced the above issues (and many others) to annotate the narrative with footnotes providing the names, dates, locations, and sundry context to

confirm that Easton was a faithful recorder. Whitby also has incorporated a wealth of contemporary photographs absent from the original, and much new information, comprising an introduction describing his personal relationship with Easton and the process leading to the production of this new edition, a new foreword by that other noted Canadian naval historian Marc Milner, and six appendices of supporting documents. These include several of Easton's wartime reports retrieved from the archives, and the eulogy delivered at his funeral in September 2001 by Vice-Admiral Hugh MacNeil (then Chair of the Canadian Naval Memorial Trust, HMCS *Sackville*).

The electronic format of this new edition may frighten those of us “of a certain age”, but as one of that number, I found the Kindle download really quite easy to navigate on my iPad and urge others to take the plunge on the platform of your choice – as noted above, the price makes the cost of the experiment easy to rationalize, and the surplus of new material will more than prove its worth. And for the new generation of naval history enthusiasts not previously acquainted with Alan Easton but comfortable with this format, welcome to a truly rewarding entrée to the field – you won't go wrong with this classic naval



HMCS Sackville, the living memory of Canada's Battle of the Atlantic (Image: Dennis Jarvis, Flickr)



Last Post

Compiled by Pat D.C. Barnhouse | Starshell Obituaries Editor

Kindly forward all obituaries to Pat at:
535 Kenwood Avenue, Ottawa, ON K2A 0L7
or by email: pat.barnhouse@sympatico.ca

NAC MEMBERS

LCdr(E) James Graham Clinton ATWOOD, OMM, CD*, RCN(Ret'd)

NACVI, 93 in Victoria 02/10/21. Jn'd RCN as Cdt 09/45 at *Royal Roads*. Prom Mid(E) 15/07/48 thence RNEC Manadon for A/E training. Prom S/Lt(E) 15/11/49 and continued training in *HMS Triumph* and ashore. Qual "A/E". Prom Lt(E) 01/10/51 fl'd by *Shearwater* (VT-40) in '53, *Niobe* (RAF Cranfield College of Aeronautics) in '54, *Shearwater* (VT-40) in '56 and *Bytown* (Naval Aviation Section) in '57. Prom LCdr(E) 01/10/59 thence *Bonaventure* in '60, *Bytown* (PO Beartrap Project) in '62, CFSC (Course 3) in '68, *Shearwater* (VX-10) in '69, AETE in '70 and *Naden* (Dkyd Esq) in '71. Ret'd in '74. Civ career as a project engineer in Esquimalt Dockyard. (RNDM)

Lt(NR)(Ret'd) Peter A. CHIPMAN

NABC, 76 in Vancouver 26/09/21. Jn'd *Brunswicker* as UNTD Cdt in '63. Later prom Lt. (WC, *Vancouver Province*)

Capt Robert Arthur DARLINGTON, CD, RCN(Ret'd)**

NAC-VI, 94 in Victoria 06/09/21. Jn'd *Chippawa* as UNTD Ordinary Seaman (Officer Candidate) in '45, thence tsf'd to RCN as A/S/Lt(S) 06/02/48, prom S/Lt(S) same date and Lt(S) 01/12/48. Srv'd NSHQ (USN Supply Cse.) 07/49, *Beacon Hill* 04/50, *Niagara* (USN Aviation Supply Office) 05/52, NSD Montreal 05/54 and ASD Montreal 09/55. Prom

LCdr(S) 01/12/58 thence *Stadacona* (standby *Gatineau*) 06/58, *Gatineau* 02/59, *Shearwater* 09/60 and *Bytown* 07/62. Prom Cdr 01/10/65 fl'd by Training Command HQ 10/65, CFB Borden 04/68, NATO Defense College 09/71 and NDHQ 03/72. Prom Capt 01/07/73 thence NATO Defense College Faculty 08/75 and MARCOM HQ (D/COS Log) 09/78. Ret'd in '82. Bronze '87 and Silver '89 Medallions. (FMcK, WC, CD).

A/Ord S/Lt John Douglas CARNAHAN, RCN(R)(Ret'd)

NABC, 91 in Vancouver 03/08/21. Jn'd as UNTD Cdt at *York* 19/05/51. Tsf'd to Cdt(E) in '52 and Ord Cdt in '53. Prom A/Ord S/Lt 01/05/54 and to Ret'd List in '54. Career in mining development. Bronze Medallion in 2001. (WC)

Lt Guy Henri CHAUVIN, RCN

NSNAC, 84 in Halifax 08/09/21. Jn'd RCN in '52 as OS in Sup Rad Branch. Srv'd, inter alia, *Micmac*. Rls'd for chronic seasickness. Jn'd *Donnacona* as UNTD Inst Cdt 02/01/55. Tsf'd to RCN as A/S/Lt(S) 08/05/59 thence *Shearwater* 05/49. Prom S/Lt(S) 08/05/59 fl'd by *Hochelaga* 10/59 and *Cape Scott* 03/60. Prom Lt 08/06/61 thence NSD Hfx 08/62 and *Chaudiere* (Supply Officer) 09/64. Rls'd early 1965. Civ career as University Professor. Bronze Medallion 2011. (DS, WC, SR, *Chronicle Herald*)

Cmdre James Malcolm CUMMING, CD, RCN(Ret'd)**

NAC-VI, 91 in Victoria 10/07/21. Jn'd *Royal Roads* 09/48 and desig RCN(R) Cdt 30/04/49. Prom RCN Mid 11/09/50 thence *Ontario* and *Beacon Hill* in '50 and *Magnificent* in '51. Prom A/S/Lt 11/01/52 fl'd by *La Hullose*, *Swansea* and *Niobe* (RN for Trg.) in '52. Prom S/Lt in '53 (sen. 11/01/52) thence *Sioux* in '53. Prom Lt 11/11/53 and qual "N", fl'd by *Algonquin* in '55, FOAC Staff in '58 and *Fort Erie* in '60. Prom LCdr 11/11/61 thence *Niobe* (RN Exchange *HMS Dryad*) in '62 and *Annapolis* (XO) in '64. Prom Cdr 01/01/66 fl'd by CFHQ in '66, *St Croix* (i/c) in '68, TRAINCOM HQ in '71, NDC (Course 26) in '72 and NDHQ in '73. Prom Capt 01/01/76 thence SACLANT in '76, *Preserver* (i/c) in '78 and MARCOM in '80. Prom Cmdre 07/01/82 fl'd by Naval Attache CDLS(W) in '82 and NDHQ in '84. Ret'd 05/85. (RNDM)

LCdr Geoffrey Phipps JOHNSON, CD, RCN(Ret'd)

NAC-O, 95 in Hazelmere, Bucks, UK 29/06/21. Srv'd in RNR, prom Prob S/Lt(S) 01/01/51. Jn'd RCN 30/11/51 as SSA S/Lt(S) (sen. 01/01/51), thence *Naden* 31/12/51 and *Shearwater* 15/05/52. Prom SSA Lt(S) 01/01/53 fl'd by *Tecumseh* 01/02/53. Selected for permanent commission as Lt(S) (sen. 30/06/51) thence *Wallaceburg* 21/11/55, *Shearwater* 10/12/56 and *Stadacona* (Wardroom Mess Mgr.) 19/05/59. Prom LCdr(S) 30/06/59 fl'd by *Terra Nova* 29/06/60 and *Bytown* 15/03/62. Ret'd in '70. (TA)

Cdr Ralph Louis (Mick) McCLEAN, CD, RCN(Ret'd)**

NAC-O, 93 in Ottawa 04/05/21. Jn'd RCN as Cdt at *Royal Roads* in '45. Prom Mid 05/07/47 fl'd by *Niobe* (RN for Trg.) in '47. Prom A/S/Lt 08/10/48 (and later S/Lt same date) thence *Ontario* 12/50. Prom Lt 03/05/51 fl'd by *Athabaskan* (Korea) 09/52, *Niobe* (Long TAS Cse.) 12/53, *Stadacona* (TAS School) 04/55, *Gaspe* (XO and Sqn TAS) 09/56, *Resolute* (XO and Sqn TAS) 08/57 and *Niobe* (RN Exchange) 09/58. Prom LCdr 03/05/59 thence *Inch Arran* (XO) 09/62 and *Stadacona* (Weapons Div.)

04/64. Prom Cdr 01/07/69 fl'd by *Mackenzie* (i/c) 05/69, *Algonquin* (i/c on commissioning) 05/73 and NDHQ in '76. Ret'd 09/80. Civ career in naval shipbuilding industry. (*Citizen*)

Cmdre Richard Dezso OKROS, OMM, CD, RCN(Ret'd)**

NAC-VI, 94 in Victoria 01/07/21. Jn'd RCN in '47 thence as CTP Cdt at *Royal Roads* 15/09/58. Prom Mid 11/09/50 fl'd by *Beacon Hill*, *Ontario* and *Magnificent*. Prom A/S/Lt 11/02/52 thence *Wallaceburg* and *Niobe* (RN for Trg.). Prom S/Lt in '53 fl'd by *Micmac*. Prom Lt 11/03/54 thence *Assiniboine* in '55, *Niobe* (*HMS Excellent* for Long "G" Cse.) in '56, *Stadacona* in '57 and *Cowichan* (i/c) in '61. Prom LCdr 11/03/62 fl'd by FOPC 04/63. Prom Cdr in '66 thence *Mackenzie* (i/c) in '66, *Columbia* (i/c) in '67 and Senior Staff Officer Maritime Training in '68. Prom Capt 01/07/69 thence TRAINCOM HQ in '69, Commandant CFFS(H) in '71, Commander Training Group Pacific in '73 and MARPAC (COS Readiness) in '76. Prom Cmdre 01/07/79 fl'd by CDLS(W) (CF Naval Attache) in '79. Ret'd in '81. Post retirement, advisor to BC Education Minister and President Vancouver Island Navy League Branch in '83. (RNDM, Canada's Admirals and Commodores)

LCdr Gilles Viateur PATENAUDE, CD, RCN(Ret'd)

NACVI, 84 in Victoria 18/09/21. Jn'd RCN as Cdt 01/09/57 at *Carleton*. Prom S/Lt 01/09/61 thence *Gatineau* 09/61, *Stadacona* 05/62 and *Mackenzie* 10/62. Prom Lt 14/07/65 and LCdr 01/01/72. Ret'd in '75. (RNDM)

LCdr Keith J. RUDDY, CD, RCN(Ret'd)**

NAC-O, 82 in Ottawa 09/09/21. Jn'd RCN as OS in '59. CFR'd as S/Lt 18/12/70, prom Lt 18/12/73 and LCdr 01/01/80. Srv'd 18 ships including *Micmac* and *Bras D'Or* and in CDLS(L). Ret'd about 1984. (*Citizen*, *SR Chronicle Herald*)

LCdr Frank STAFFORD, CD*, RCN(Ret'd)

NAC-O, 97 in Ottawa 28/09/21. Jn'd RN in 1940 as a Boy Seaman (age 15½). During WWII srv'd *HM Ships Barham* and *Sheffield*; srv'd post-WWII in Mediterranean and Royal Fleet Reserve. Jn'd RCN in '54, CFR'd as CMD O 27/05/61, thence *Stadacona* 08/61 and *Outremont* 01/62. Prom Lt 01/01/64 fl'd by *Bytown* 11/64. Prom LCdr 01/01/69 whilst at CFHQ. Ret'd in '74. (Citizen)

LCdr Donald John WAND, CD, RCN(Ret'd)

NAC-VI, 95 in Victoria 24/06/21. Srv'd RN WWII and Korean War timeframe. Jn'd RCN as Lt(SSA) (sen.14/08/52) at *Niobe* 08/09/53, thence *Stadacona* (JOLTC) 02/54. Confirmed RCN Lt fl'd by *New Glasgow* 02/55, *Stadacona* 06/56, *Niobe* (*HMS Excellent* Long "G" Cse.) 08/56, FOAC (Flag Lt) 05/58 and *Bonaventure* 12/59. Prom LCdr 14/08/60 thence *Athabaskan* 06/61, FOAC 02/62, *Niobe* (RN Staff College) 01/64, *Chaudiere* (XO) 01/65 and *Naden* in '69. Ret'd in '71. (RNDM)

Others

Cdr Ian Ronald ANDERSON, CD*, RCN(Ret'd)

54 in Ottawa 14/02/21. Jn'd as ROTP Cdt (Carleton U.) in '85, prom Lt 01/01/91 and later LCdr and Cdr. Srv'd, inter alia, *Fredericton* (XO), Maritime Forces Atlantic, Australian Defence College and NDHQ. Ret'd in '14. (Citizen, WC)

LCdr Norman George Alexander ANDERSON, CD, RCN(Ret'd)**

98 in Victoria 26/02/21. Jn'd RCN as Boy Seaman 01/40 and srv'd WWII and Korea. CFR'd as Act Cmd Gnr 23/02/56, prom LT* 01/04/59, Lt (sen. 12/09/57) and LCdr 01/01/65. Srv'd *Prince Henry*, *Swift Current*, *Iroquois*, *Crusader*, *Ontario*, *Athabaskan*, *Haida*, *Ste. Therese*, *Venture*, *Naden*, *Cornwallis*, *Stadacona* and *Niobe* (HMShips *Reward*, *Excellent* and *Fledgling*). Ret'd in '77. (RNDM).

Lt Douglas George ANGLIN, RCNVR(Ret'd)

97 in Toronto 19/06/21. Jn'd RCNVR at *York* as Prob Mid in '42, prom S/Lt 15/03/43 and Lt 15/03/44. Srv'd *Avalon*, *Vegreville* and *St. Hyacinthe*. To Ret'd List in '45. (Citizen)

CPO1 Ambrose Augustine ATKINS, MMM, CD*, RCN(Ret'd)

87 in Ottawa 06/06/21. Jn'd in '52 and srv'd with Supplementary Radio/ Communications Research. Ret'd in '76. (Citizen)

Capt Neil Archibald BARRETT, CD*, RCN(Ret'd)

Former Member, 85 in Ottawa 12/06/21. Jn'd UNTD as Cdt(L) at *Scotian* 02/01/54. Under ROTP tsf'd to RCN as Cdt(L) 01/09/54. Prom A/S/Lt(L) 01/05/58, S/Lt(L) 09/01/59, Lt(L) 11/09/59, LCdr 01/07/66, Cdr 01/07/72 and Capt 01/01/81. Srv'd *Stadacona*, *Algonquin*, *Niagara* (USNPGS, Monterey), NDHQ, CFSC (Course 6), CDLS(W) and NEU(P)(i/c). Ret'd in '83. (Citizen)

S/Lt(E) Verner Malcolm BOOTH, RCNVR.

99 IN Toronto 21/02/21. Jn'd *York* under UNTD as Ordinary Seaman (Officer Candidate) in '43. Prom S/Lt(E) 04/06/45 thence *Stadacona* (MTE) for training. Rls'd in '45. (WC)

Lt(P) William John CODY, RCN(SSA)

96 in Ottawa 11/09/21. Jn'd RNVR in '43 and qual pilot. Rls'd in '45 as S/Lt(A). Jn'd RCN on SSA as Lt(P) 13/07/49. Srv'd RCAF Trenton (refresher course), *Shearwater*, *Magnificent*, *Bytown* (RCAF Centralia course), 886, 881 and 743 Sqns., VU-32 and HU-21. Rls'd 12/07/57. (PB)

LCdr John Richard COLEMAN, CD, RCN(Ret'd)**

83 in Duncan, BC 11/01/21. Jn'd as an OS in early 1950's. As CPO1 (ERA), CFR'd as a Lt 11/04/88 and later prom LCdr. Ret'd early 1990's. (RNDM)

Lt Richard G. CORDICK, CD*, RCN(Ret'd)

81 in Ottawa 18/01/21. Jn'd RCN as OS in mid-fifties and CFR'd as Lt 01/12/74. Ret'd in '83

A/S/Lt(S) Ronald Graham DALGLEISH, RCN(R)(Ret'd)

85 in Orangeville, ON 29/07/21. Jn'd *Donnacona* as UNTD Cdt 02/01/54 and later tsf'd to Cdt(S). Prom RCN(R) A/S/Lt(S) 01/07/56. To Ret'd List in '58. (WC)

Surg Lt John Drummond DONALDSON, RCN

77 In Fort Myers, FL 19/09/21. Jn'd *Unicorn* as UNTD Cdt in '62 and prom RCN(R) A/S/Lt 15/09/64. Selected for MOTP, prom A/Surg S/Lt 15/09/67, Surg S/Lt 30/06/70 and Surg Lt 01/05/71. Srv'd *Shearwater* and *Protecteur*. Rls'd in '74. (WC)

Cdr(Ret'd) Michael W. DUNCAN, CD**

71v in Ottawa 12/20. Jn'd as Cdt at RMC 09/68, prom S/Lt 01/05/72, Lt 01/05/75, LCdr 01/01/80 and Cdr 01/01/84. Srv'd *Kootenay*, CDLS(L) (RNEC Manadon), NOTC, Training Group Pacific, SRU(P) and NDHQ. Ret'd in 2004. (*Citizen*).

S/Lt William John MacEwan EGNER, RCN(R)(Ret'd)

81 in Goderich, ON 23/08/21. Jn'd *Prevost* as UNTD Cdt in '59 and prom S/Lt 01/09/62. To Ret'd List in '65 with closure of *Prevost*. (WC)

VAdm James Andrew FULTON, CMM, OSTJ, CD, RCN(Ret'd)**

Former Member, 94 in Halifax 07/08/21. Jn'd RCN as Cdt at *Royal Roads* in '44, prom Mid 03/07/46, A/S/Lt 03/11/47, S/Lt same date, Lt 18/02/50, LCdr 18/02/58, Cdr 01/01/63, Capt 1966, Cmdre 1973, RAdm 15/07/76 and VAdm 15/07/78. Srv'd *Haida*, *Huron* (Korea), FOAC (Flag Lt), *Niobe* (Long "G" Cse *HMS Excellent*), *Athabaskan*, *Crescent*, *Niobe* (RMC of Science – Guided Missile Cse.),

Bytown, *Outremont* (t/c), *Gatineau* (i/c), SACLANT, *Provider* (i/c), NDC (Course 26), Commander Northern Region, CANMILREP NATO and Commander Maritime Command. Ret'd 01/07/87. Bronze Medallion 1990. Chair CNMT '85 to '90. (HS, SR, *Chronicle Herald*, Canada's Admirals and Commodores)

Lt Howard Roy GARRETT, CD, RCN(Ret'd)**

85 in Ottawa 07/02/21. Jn'd in '52 as Radioman Special and CFR'd as Lt 29/06/81. Srv'd in Supplementary Radio Stations, lastly at CFS Leitrim. Ret'd in '91. (*Citizen*)

PO1 Rendell Heber GUINCHARD, CD*, RCN(Ret'd)

90 in Halifax 17/05/21. Jn'd RCN as OS in 1950 and srv'd, inter alia, *Sioux* (Korea) and *Huron* (Korea). Ret'd in '77. (SR, *Chronicle Herald*)

LCdr Alma Lorraine (nee Doupe) JENSON, CD, RCN(Ret'd)

95 in Halifax 2021. Srv'd WRCNS in WWII. Jn'd RCN as S/Lt(W) 22/10/53, prom Lt(W) 01/01/59 and LCdr 07/07/66. Srv'd *Shearwater*, *Stadacona* (FOAC staff), *Bytown* and *Niobe* (WRNS exchange). Ret'd in '68. (SR, *Chronicle Herald*)

Cdt(S) Gordon Lawrence JONES, RCN(R)

86 in Niagara Falls, ON 10/07/21. Jn'd *Star* as UNTD Cdt(S) 02/01/56. Honourably released 09/58. (WC)

S/Lt Walter Waldemar KOSLOWSKI, RCN(R)

82 in Milton, ON 12/07/21. Jn'd *Prevost* in '60 as UNTD Cdt and prom RCN(R) S/Lt 01/07/62. Also srv'd *Star*. Rls'd in '65. (WC)

CPO2 David Samuel LOCKE, CD*, RCN(Ret'd)

52 in Upper Tantallon, NS 05/06/21. Jn'd in '88 and

ret'd in '17. Late civilian electrical technologist with Cape Scott. (SR, *Chronicle Herald*)

CPO2 Neil J, MacCASKILL, CD*, RCN(RET'D)

89 in Dartmouth, NS 06/06/21. Jn'd RCN in 1950 in SupRad Branch. Srv'd, inter alia, NRS Masset and Labrador. Ret'd in '75. (SR, *Chronicle Herald*)

S/Lt(L) Merrill Raymond McKAY, RCN(R)(Ret'd)

90 in Moncton, NB 25/05/21. Jn'd *Scotian* as UNTD Cdt 02/01/52; later tsf'd to Cdt(L). Prom A/S/Lt(L) 01/09/54. To Ret'd List as S/Lt(L) in '57. (WC)

Lt Kenneth Bruce MILLAR, RCN(Ret'd)

81 in Halifax 20/09/21. Jn'd RCN as Cdt at *Venture* 01/09/63, prom A/S/Lt 09/64, S/Lt 07/65 and Lt in '67. Qual "P". Srv'd RCAF Rivers and RCAF Portage La Prairie (Pilot Trg.), *Shearwater*, *Bonaventure*, *Margaree*, *Assiniboine* VU-32, VS-880, HU-21 and HS-50. Rls'd 06/75. Later Maj(PLT) in AF Reserve (420 AR Sqn.). (PB)

Cdt James Randolph MULLINS, RCN R)

91 in Burlington, ON 15/07/21. Jn'd as UNTD Cdt at *Star* 30/01/50. Rls'd in '52. (WC)

Lt Ronald Pierre O'DONOUGHUE, RCN

79 in Owen Sound, ON 23/06/21. Jn'd as Cdt at RMC 01/09/60, prom S/Lt 01/05/64 and Lt in '66. Srv'd *Chippawa* (Flt Trg.) and *Shearwater*. Rls'd in '66. (BW)

A/S/Lt(S) Douglas George PITTET, RCN(R)(Ret'd)

89 in Collingwood, ON 09/07/21. Jn'd as UNTD Cdt(S) at *Scotian* 21/01/52 and prom A/S/Lt(S) 01/09/54. To Ret'd List in '56. (WC)

Capt David Edward POLLARD, CD, RCN(Ret'd)**

82 in Hantsport, NS 14/04/21. Jn'd as Cdt at CMR 01/09/57, thence RMC. Prom S/Lt 01/05/62, Lt 24/12/64, LCdr 01/01/71, Cdr 01/01/75 and Capt 01/01/82. Srv'd *Hochelaga*, *Mackenzie*, *Qu'Appelle*, *Skeena* (i/c). *Algonquin* (t/c), CFCSC, CO NAV RES Quebec, MARCOM (D COS SEA), Ghana AF College Staff and Defence Attache Scandinavia. Ret'd in '95. (HW, SR, *Chronicle Herald*)

S/Lt John Frank RICKETTS, RCN(R)(Ret'd)

Former Member, 83 in Toronto 23/08/21. Jn'd *Prevost* as UNTD Cdt 08/01/58, prom S/Lt in '60, thence Ret'd List. (WC)

Lt Murray John ROBERTS, RCN(Ret'd)

In Surrey, BC 07/21. Jn'd as Cdt at *Venture* 11/09/55, prom Mid 01/09/57, A/S/Lt 01/05/58, S/Lt(P) 01/09/59 and Lt 01/08/61. Srv'd *Niagara* (Flt Trg.), *Shearwater*, *Buckingham* and VU-32. Rls'd in '66. (PB)

Lt Donald P. ROCHFORD, MMM, CD, RCN(Ret'd)**

78 in Perth, ON 15/01/21. Jn'd RCN 12/59. As a CPO1 CFR'd as Lt 11/04/90. Srv'd, inter alia, *Cornwallis*, *Sstadacona*, *Bonaventure*, CFB Halifax and NDHQ (Diefenbunker and CPF PMO). Ret'd in '95. (SR, *Chronicle Herald*)

LCdr Stewart Willis SHACKELL, CD*, RCN(Ret'd)

Former Member, 91 in Ottawa 09/08/21. Jn'd *Donnacona* as UNTD Cdt 28/01/51 and prom RCN(R) A/S/Lt 01/09/52. Tsf'd to RCN as SSA S/Lt (sen. 01/09/52) 24/05/55 and later prom A/Lt same date. Selected for permanent commission as Lt (sen. 10/04/57), qual "P&RT" and prom LCdr 01/01/65. Srv'd *Stadacona*, *Bonaventure*, *Bytown*, RMC staff, *Margaree* and *Venture*. Ret'd in '75. (*Citizen*)

**Cdr Albert Damien TANGUAY, CD*,
RCN(Ret'd)**

78 in Halifax 29/09/21. Jn'd RCN around 1960, CFR'd as MARE S/Lt 09/05/71, prom MARS Lt 09/05/74, LCdr 01/01/78 and Cdr 01/01/86. Srv'd eight ships including *Gatineau* (i/c), CFCSC and CFB Halifax. Ret'd in '95. (HS)

**S/Lt James Gordon THOMPSON,
RCN(R)(Ret'd)**

Former Member, 94 in London. ON 13/05/21. Jn'd RCN at *Royal Roads* as Cdt 30/08/44, tsf'd to RCN R) as Mid 03/07/46, prom A/S/Lt 03/05/47 and S/Lt 04/05/48. Srv'd *Prevost* and *York*. To Ret'd List in '50. (e-Veritas)

Cdt William Peter Main TRUEMAN, RCN(R)

86 in Toronto 23/07/21. Jn'd *Brunswick* as UNTD Cdt 02/01/52 and rls'd in '53. Noted TV news broadcaster. (WC)

**LCdr Robert Andrew WHELAN, CD,
RCN(Ret'd)**

92 in Halifax 29/07/21. Jn'd RCN 01/03/54 as SSA Lt (sen. 05/09/52). Selected for RCN with seniority 10/01/54, qual "S" and prom LCdr 01/07/66. Srv'd *Fort Erie*, *Lauzon*, *Bytown*, *Athabaskan*, *Stadacona*, *Columbia* and CFRC Atlantic. Ret'd in '70. (SR, *Chronicle Herald*)

Capt(N) James “Jim” Franklin Carruthers RCN(Ret’d)

He has come to the end of his journey. Jim passed away on November 1, 2021 surrounded by his family. Jim has bravely managed his journey with cancer and is now at peace.

He was predeceased by his mother Lena, sister Anabelle, first wife Brenda, son in law Alan (Kerry), and his youngest daughter Kimberley. Remembering him are his loving wife Gail, sister Evelyn, daughters Sharon (David) and Kerry, step children Graham (Brandi), Ben and Lorie, and his grandchildren Emma, AJ, and Liam, who all miss him dearly.

Jim left his home in Drumheller, Alberta at an early age to attend two years at Royal Roads Military College, in Victoria, followed by another two years at Royal Military College, Kingston. Somewhere along the way he acquired the nickname "Fats" and it stuck with him. While in Kingston, he met the mother of his three children and, upon graduation, became a Naval Officer. Many of his early years in the Navy were spent at sea but he managed to get his PhD in engineering between deployments. He notably led the creation of SHINPADS an integrated command and control system that the Canadian Navy still uses today, and which has been adopted or copied by other navies around the world.

After many years in the Navy and several moves from Dartmouth to Ottawa and Toronto, Jim left the Navy in the rank of Captain (N) to work in the private sector. He started working with Norpak Corporation and eventually became CEO and President. During his time at Norpak many new technological advances related to closed captioning and VCR+ were developed.

Jim retired from Norpak in the early 2000s but that did not stop his work. He worked with the RMC Foundation and eventually became its president. He was an active alumnus and was instrumental in the class of '65 becoming, as he would say, "the best class at RMC." He has sponsored several students at RMC and has been a strong supporter of the rowing club. He always had the Navy in his heart and became the president of the Naval Association of Canada so he could continue his work in advancing the Canadian Navy.

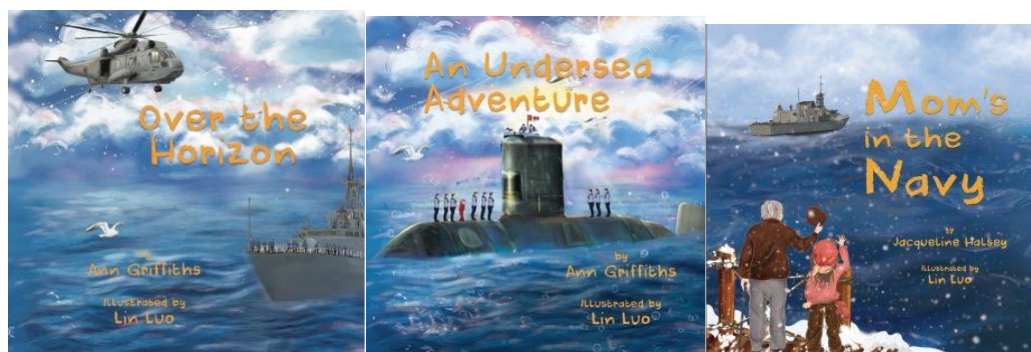
One of his proudest achievements was the annual Battle of the Atlantic Gala, which commemorated the important role the Canadian Navy played in WWII.

Summers were Jim's favorite time. This was the time for parties at the beach and having friends over to enjoy the weather. There was always boating and tubing. These summer events included friends from Norpak, the Naval Association of Canada, RMC Foundation, Class of '65 from RMC, and CMR, his great neighbours, and with extended family and friends. The summer highlights were the annual July 1st parties at the Carruthers Recreation Complex, Christmas in July with the Wilsons, countless birthday and holiday celebrations with sleepovers, waffles, and Euchre games. Fishing was always a big part of Jim's life and he loved hanging out with the guys, either in BC or Quebec, when the fish were biting, or with his family on Fishing Fridays. He really enjoyed teaching kids of all ages life lessons, like how to fix things, how to sit and eat properly at the dining room table, and how to be a good, responsible person.

Jim's wish was to have a party to celebrate his life, so we will honour that wish with a function in the summer and everyone is "instructed to have a good time". In lieu of flowers, please consider making a donation to the Salvation Army, Canadian Cancer Society or to the Ottawa Hospital Foundation.



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*HMCS Calgary conducts an exercise with Kapal Diraja Brunei (Royal Bruneian Navy Ship)
Darussalim, off the coast of Brunei (Image: Jeffery Klassen, RCN)*

