



Group Up!

A Case For Accelerated Canadian Submarine Procurement



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To anyone who has been following defence related media of late, it will come as no surprise to hear that Canada has an aging submarine fleet that is rapidly approaching the end of its service life. For those unfamiliar with the situation, the current fleet of four Victoria-class submarines were originally in service with the British Royal Navy, which decided to concentrate on a nuclear-powered submarine fleet in the 1990s, thereby causing their four conventionally powered patrol submarines to be prematurely retired

from service. These submarines were subsequently acquired by Canada in 1998, as a submarine capability life extension project, because the then in-service Canadian Oberon-class patrol submarines were at the end of their service lives. While the 2017 defence policy *Strong, Secure, Engaged*, committed to maintaining a submarine capability by modernizing the Victoria-class, it stopped short of announcing a replacement for these submarines, which are now all over 30 years old.

British name	Laid down	Launched	British service	Canadian name	Commissioned
<i>Upholder</i>	Nov 1983	Dec 1986	Jun 1990 - Apr 1994	<i>Chicoutimi</i>	Sep 2015
<i>Unseen</i>	Aug 1987	Nov 1989	Jul 1991 - Apr 1994	<i>Victoria</i>	Dec 2000
<i>Ursula</i>	Aug 1987	Feb 1991	May 1992 - Jun 1994	<i>Corner Brook</i>	Jun 2003
<i>Unicorn</i>	Mar 1989	Apr 1992	Jun 1993 - Oct 1994	<i>Windsor</i>	Oct 2003

Twenty-six years later, on April 8, 2024, the Government of Canada released its long-anticipated defence policy update entitled “*Our North, Strong and Free: A Renewed Vision for Canada’s Defence.*” The defence policy update states to: “**explore options for renewing and expanding our submarine fleet** to enable the Royal Canadian Navy to project a persistent deterrent on all three coasts, with under-ice capable, conventionally powered submarines.”¹ Notably, in addition to renewal, the policy implies fleet expansion; specifically more than a one for one replacement of the four Victoria-class, of which at least eight submarines are considered to be necessary to maintain simultaneous availability on both coasts.

Where these vessels will come from is an important question, particularly since international submarine building capacity is approaching its limits. This is because a large number of nations are undergoing submarine build programmes, including some that are investing in a submarine capability for the first time. Canada’s situation is further complicated by a lack of a domestic submarine building capability and the fact that it lacks both the time and resources to build the necessary infrastructure, as all four Victoria-class will have to be retired by the end of the next decade. This leads to the inescapable conclusion that a replacement submarine will have to be built offshore.

At the same time, the costs to maintain and upgrade the legacy submarines are continuing to increase exponentially, in direct competition with the necessary resources needed to extend the service lives of the Halifax-class frigates. Simply put, the RCN fleet of the next decade is in a fragile situation and any efforts to reduce fiscal pressures, whilst

maintaining a minimum of operational readiness, must be exploited.

In review of key Allies in similar circumstances, the Dutch have decided to upgrade only two of four Walrus-class submarines and concentrate on a replacement project, which was recently announced to be the French conventional Barracuda design.² Much like the Victoria-class, the Dutch submarines are of a similar size, entered service in the 1990s and are all over 30 years old.

The Dutch decision to cut their losses by minimizing expenditures on legacy submarines, while concentrating on fleet replacement is worthy of further investigation in the Canadian context.³ Specifically, by accelerating the procurement of a class of modern conventional submarines, Canada could:

- Reduce the number of Victoria-class submarines, thereby focusing maintenance on fewer units to maximize availability and alleviate the need for some future extended docking work periods.
- Reassess, and where appropriate de-scope, Victoria-class Modernization (VCM) projects needed in a smaller submarine fleet that will be in the process of transition to a completely different class of submarine.
- Cease the Victoria-In-Service-Support Contract II (VISSC II) negotiations and stay with the legacy arrangement as the fleet transitions to a new build and a future ISS organization. At the same time, engage with industry for a future In Service Support Contractor (ISSC) in coordination with the selected submarine manufacturer.

Submarine name	Laid down	Launched	Commissioned	Status
<i>Walrus</i>	Oct 1979	Sep 1989	Mar 1992	Decommissioned
<i>Zeeleeuw</i>	Sep 1981	Jun 1987	Apr 1990	In service
<i>Dolfijn</i>	Jun 1986	Apr 1990	Jan 1993	In service
<i>Briunvis</i>	Apr 1988	Apr 1992	Jul 1994	In upgrade

HMCS Victoria returns home through the Straits of Juan De Fuca, from operations with the United States Navy (USN) on February 26, 2015 (Photo: Zachariah Stopa)



Whither A Replacement Submarine?

At first blush, going immediately to the procurement of new submarine would be seen by many as an easy solution, however, there are some significant factors that demand consideration before proceeding. Notably, what exactly are Canada's requirements for a submarine, and can they be achieved before the Victoria-class must be retired from service? In *Our North, Strong and Free*, the thrust is clearly on defence of North America, of which the protection of our interests in the Arctic predominate – this means that a future Canadian submarine capability must have the range and endurance to get to, and then operate in, Canada's North, which fortuitously also gives it the ability to operate worldwide.⁴

While a definitive list of High-Level Mandatory Requirements (HLMRs) are not public at this time, the following points have been openly discussed in public fora:

- The first submarine of the class must be delivered by 2035.
- The submarine must be conventionally powered (diesel electric).⁵
- The submarine must be capable of extended unsupported ocean-going transits that demand significant range & endurance.⁶
- The submarine must be capable of operating on the Arctic ice-edge (with short under-ice forays) while meeting environmental regulations, notably the IMO Polar Code.⁷

The Candidates

The following conventional submarine designs are understood to be under consideration (in alphabetical order):

- **French Barracuda-class** – this 3300-ton submarine design has been selected to be built for the Netherlands, it is a conventional (diesel

electric) derivative of the nuclear-powered Suffren-class, as the French navy only operates nuclear-powered submarines. Will the proposed design be able to meet Canadian requirements as it is unproven and a modification of an SSN design – not a conventional submarine design?

- **German Type 216-class** – this 4000-ton design was proposed for the original Australian submarine replacement project (subsequently cancelled) and has never been built. With the exception of the 2400-ton Type 800 Israeli Dolphin-class submarines and the 2200-ton Type 218 Singaporean Invincible-class, all other tkMS submarines have been 2000 tons or less.
- **German Type 212 A CD-class** – tkMS have started building the first of the 3000-ton Type 212A CD-class for the Norwegian & German navies. They are apparently offering an extended version entitled Type 212A CDE for Canada.
- **Japanese Taigei-class** – a 4000-ton submarine which is in service with the Japanese Maritime Self Defence Force.
- **Korean KSS III-class** – a 3700-ton submarine, which is in service in the ROK Navy as part of an eventual nine submarine class.
- **Spanish Isaac Peral-class (S 80 Plus)** – the first of class of this 3400-ton submarine was recently commissioned into service after a lengthy design and build process that encountered significant difficulties.
- **Swedish Blekinge-class** – currently the design is less than 2000 tons – this submarine is the first of its class and is currently in build. However, as part of the competition for the Dutch submarine replacement project, SAAB offered a larger Type C71 design (enlarged expeditionary derivative of the Blekinge-class, displacing over 3000 tons). Of note, the Swedish have designed large displacement submarines in the past, the Västergötland-class submarine was the parent design for the 3400-ton Australian Collins-class submarines.

To follow-on, which builders can reliably build a conventional submarine of this size in time to meet the Canadian time requirement of 2035? The following information is displayed in order of published build times; however, it is noteworthy that the metrics used to define these timings may not be consistent with allied anticipated delivery timelines.

- **Japan: Taigei-class (JS *Jingei*)** - Laid down: April 2020, Delivered: March 2024 – 49 months.
- **Korea: KSS III-class (ROKS *Ahn Mu*)** - Laid down: April 2018, Delivered: April 2023 – 60 months.
- **Sweden: Blekinge-class (HSwMS *Blekinge*)** - Laid down: June 2022, Expected: 2027/28 – 66 months.
- **Germany: Type 212A CD (NN)** - laid down: September 2023, Expected: 2029 – 72 months.⁸
- **France: Barracuda-class SSK (HNLMS *Orka*)** - The first two submarines of the proposed 3300-ton Orka-class for the Royal Netherlands Navy are expected to be delivered 120 months from contract award.⁹
- **Spain: S80-Plus-class (ESPS *Isaac Peral*)** - Laid down: December 2007, Delivered: November 2023 – 188 months.

Procurement

The procurement method, to be determined by Public Services & Procurement Canada (PSPC), in conjunction with Innovation, Science and Economic Development Canada (ISED), will set the framework for how the procurement is to be achieved. Historically, Canada has usually demanded a competition for both build and long-term support (separate contracts), using an Invitation to Qualify (ITQ) process to reduce the number of authorized bidders. With this, a procurement timeline (in years)¹⁰ would normally be:

- D - delivery of first submarine into service
- D - 1 year – post build trials and acceptance
- D - 8 years – commence construction
- D - 10 years – Contract Award and design

review

- D - 12 years – Request for Proposal issued
- D - 14 years – Invitation to Qualify issued
- D - 16 years – Requests for Information/Industry Engagement
- D - 18 years – Memoranda to Cabinet and Project approval

Based on the above timeline, it is clear the decision to replace these submarines is considerably overdue. Moreover, if one were to optimistically assume that the 18-year procurement clock could start in 2024, it would see the first submarine delivered, at the earliest, to Canada in 2042, with the subsequent loss of a national submarine capability, as all four Victoria-class must be retired by the end of the 2030s. In short, the historical procurement process will simply not work in this case and Canada will have to consider other procurement avenues, such as:

- Sole source using an Advanced Contract Award Notice (ACAN), a process similar to the CC-117 Globemaster Procurement Project in 2006.¹¹
- An ITQ process where only one qualified supplier was identified, a process similar to the Strategic Tanker Capability Project in 2021.¹²

In summary, as Canada's current submarine fleet will retire from service by the end of the next decade, there is limited time left to build and deliver a replacement, that is on average about eight years. To maintain a submarine capability, the first new vessel must be delivered by 2035, which means that Canada must be in contract with a proven builder by 2027 at the latest – less than three years from now. Furthermore, as Canada has always procured submarines from an off-shore builder, the reality of the situation precludes any suggestion that Canada could put in place the necessary specialized infrastructure and expertise to build submarines in Canada – there is simply not enough time.

Now is the time to accelerate the process by selecting an in-service submarine design that can meet Canadian requirements, without significant modifications, and be delivered by a proven 'on time'



HMCS Victoria (Photo:LS Zachariah Stopa)

submarine builder. As can be seen, there are not a lot of options available to Canada - in both design and delivery time. The use of a rapid ITQ process to determine the best option for Canada should then be followed by immediate procurement action. These actions would not only expedite the replacement of an ageing capability with a submarine designed to meet national requirements, as articulated in *Our North, Strong and Free*, but also free up precious fiscal resources dedicated to maintaining an ever increasingly expensive legacy fleet.

Notes

¹ Canada, *Our North, Strong and Free* (April 2024).

² “Netherlands Picks France’s Naval Group over Saab for Submarine Deal,” *The Defence Post* (April 2024)

³ Rudy Ruitenber, “Dutch navy starts retiring submarines, but successor still unknown,” *Defence News* (October 2023)

⁴ CDA Institute, “Statement on the Defence Policy Update” (April 12, 2024).

⁵ One option that will be examined is AIP technology for extending range. Wikipedia, “Air-independent propulsion.”

⁶ 2023 briefing by the RCN Director Naval

Requirements on the Canadian Patrol Submarine project indicated the requirement for the submarine to operate in an ocean-going environment and be able to transit 3500 nautical miles (nm) to a patrol area, patrol for three weeks and return without refuelling or resupply

⁷ IMO, Polar Code Infographic.

⁸ The only previous submarines built by Germany of over 2000 tons submerged displacement are the Israeli Dolphin class. The latest (INS *Rahav*) was laid down in 2008 and delivered in Jan 2016 – 96 months.

⁹ This is a nuclear-powered submarine. Naval Group has indicated that delivery for first conventionally-powered version of the Barracuda-class submarine for the Dutch navy will be 10 years (120 months) from contact award.

¹⁰ Assumed an arbitrary 8-year (96 month) build to deliver timeframe

¹¹ Government of Canada, “CC-177 Globemaster procurement project.”

¹² Government of Canada, “Strategic Tanker Transport Capability project.”

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