

NEWS

(WINTER 2024-2025)

Canadian Naval Technical History Association



CNTHA News
Est. 1997

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CNTHA News is the unofficial newsletter of the Canadian Naval Technical History Association. Please address all correspondence to the publisher, attention Lt(N) Jason Delaney, Directorate of History and Heritage, NDHQ 101 Colonel By Dr Ottawa, ON K1A 0K2 Tel. (613) 998-7045 Fax (613) 990-8579

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DELEX – The Destroyer Life Extension Program

By Ken Bowering

The Destroyer Life Extension (DELEX) program of the 1980s was the first of the RCN's true post-war ship life-extensions programs. Similar to what today's Navy is dealing with to maintain the current fleet of *Halifax*-class frigates until the new River-class destroyers come on line, DELEX was necessary to keep the RCN's post-war steam destroyer fleet operational until the new frigates could be brought into service.

In the 1970s, Phase One of the Navy's Ship Replacement Project (SRP 1), later to become known as the Canadian Patrol Frigate (CPF) Project, was originally envisioned as a build program for a batch of six ships to replace the aging *St. Laurent*-class DDHs, and was to be followed by SRP 2 (CPF batch two of six hulls), and SRP 3 (six surface ships or submarines). At the time, the only certain aspect of SRP 1 was that it would be for six DDH helicopter-carrying surface warships, but getting several federal departments on board, getting past various review boards within DND and Treasury Board, and then finally getting Cabinet approval turned out to be an extremely slow and arduous process.

In the meantime, the Navy continued to operate its 20 Canadian designed and built "steamers" that were commissioned into service between 1950 and 1964, along with four gas-turbine Tribal-class DDH-280 destroyers that were constructed in the early 1970s. The new Tribals were obviously still fully supportable at that time, but the *St. Laurent*, *Restigouche*, *Mackenzie*, and *Annapolis* classes comprising nine DDH and 11 DDE destroyer escorts, would reach the end of their expected service lives before any new ships would be delivered. This included even those ships that had already been converted and modernized as DDHs or Improved *Restigouche*-class IREs.

To see what might be required to bridge the gap to the next generation of surface warships, the Navy undertook to identify the incremental Operations and Maintenance (O&M) costs of



RCN photo

HMCS *Assiniboine*: With DELEX, the RCN aimed to maintain its current capability for an additional 15 years.

operating and maintaining the steamers beyond their design lifetime. The idea was to use this information to convince government to minimize overall expenditure by approving SRP 1 and getting on with ship construction. This was done under a project called Destroyer Life-Cycle Cost Analysis (DELCA). The systems/equipment directorates within Director General Maritime Engineering and Maintenance (DGMEM) division at National Defence Headquarters in Ottawa duly assigned focal points to coordinate gathering information related to extending the capability of their respective systems/equipment.

Staffed as a cost analysis study only, DELCA asked the various design and maintenance authorities in DGMEM to come up with cost and timeline estimates of what would be required to maintain the capability of the steamer fleet for an extended period of about 15 years. Despite the basic rule that estimates were to reflect maintaining current capability only, without upgrades, certain same technologies were simply no longer available. The Gunar/Mk-69 surface and air gun fire-control system, for example, could only be replaced with the new (and more capable) solid-state design from the manufacturer Dynel, and vacuum tubes required for the electronic warfare (EW) equipment could now only be procured from within the USSR, obviously an undesirable situation. The situation with the EW gear led to the Canadian Navy developing its own new capability with the successful Canadian Naval Electronic Warfare System (CANEWS).

In the end, the design and maintenance authorities were able to produce costs and timelines to extend

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the service lives of the steamers. The information was going to be used for its intended purpose of trying to expedite approval for SRP 1, but before that could happen, DGMEM staff sought *and received* approval to allocate the funds identified by the DELCA study toward life-extension refits for the Navy's venerable steam-driven DDEs and DDHs. With that, the Destroyer Life Extension Project — DELEX — was born.

Under DELEX, the ships received new electronics, along with machinery and weapon upgrades, and hull repairs. Equipment and system modernization went from procuring a lifetime supply of spare parts, to replacing entire systems. CANEWS was one example of this that resulted in significantly greater operational capability not just for the steamers, but as a “fleet fit,” with various configurations eventually being installed in all of the Navy's combatants, including the DDH-280s and, later, the CPFs. I believe this made it one of few “fighting systems” to be fitted so broadly.

When the DELEX refits were taking place, the Navy was also ready to install the new Automatic Data Link Plotting System (ADLIPS) in most of the DDE/DDH steam fleet, so some ships received this new naval tactical data system as part of their refit. The Navy was also developing its “SHIN” series of systems for the CPF Project, one of which was SHINCOM, the Shipboard Integrated Interior Communication System. Since some of the older communications systems in the steam destroyers were in need of replacement under DELEX, the Navy came up with REMSEVS, a by-product of SHINCOM that was brought about by DELEX. The newest ships, *Annapolis* and *Nipigon*, were also fitted with the Canadian Towed Array System (CANTASS) for improved anti-submarine sonar operations.

The last of the DELEX refits was completed in 1986. When coalition forces began preparing for deployment to the Persian Gulf in 1990, HMCS *Terra Nova* (IRE-259) was deemed the most capable of Canada's steam-powered destroyers for deployment to an active war zone, but the ship still required better sensors and weapons for self-defence and offensive operations. Fortunately, with the CPF Project well in progress, the Navy had already procured a number of additional combat systems, such as Phalanx close-in weapon systems (CIWS) and Harpoon surface-to-surface missile systems. To the credit of the entire naval support community, and the work of the Halifax Naval Dockyard, these and other systems were able to be quickly “strap-installed” aboard *Terra Nova* in a matter of weeks.

Thanks to DELEX, HMC ships *Terra Nova* and *Restigouche* (seen here) were in good shape for quick weapon upgrades before deployment to the Persian Gulf in the early 1990s.

CAF photo

WANTED: New Members for CNTHA

Do you have a passion for naval history, and a yearning to preserve the legacy of the RCN technical community's great innovations? The Canadian Naval Technical History Association has a place for you!

Since 1996, a small group of CNTHA volunteers has been gathering information on a wide range of naval technical subjects, both in support of DND's Directorate of History and Heritage, and in support of our own web-based archive at www.cntha.ca. Oral histories, online group discussions, independent research — we do it all to ensure that the Navy's technical challenges and accomplishments of the past are not forgotten.

Most of our members are RCN retirees, and if this grand project is to remain a vital activity for years to come, it will take new generations of like-minded enthusiasts to step forward as “knowledge keepers” of Canada's naval technical history. Whether your experience is based in marine or combat systems, naval architecture, technical project management, or the infrastructure that supports naval platforms and equipment, your input would be most welcome. We look forward to hearing from you.

Tony Thatcher
CNTHA Executive Director
jathat@rogers.com

In some ways DELEX can be viewed as the project that was never supposed to actually happen, but without it the Canadian Navy would likely not have been able to contribute as well to the operations in the Persian Gulf. The most important impact of DELEX, of course, was that it enabled the steam-driven DDEs and DDHs to remain operationally useful until the 12 patrol frigates began to be commissioned into service in 1992. It also sent a strong message to the design and maintenance authorities that planning for life-extension projects is an integral part of a ship's life-cycle materiel management. Finally, DELEX laid the path for future fleet modernization and life-extension projects that have ensured our fleet's capabilities are maintained until the next generations of ships and submarines can be procured.

