

Perseverance: Some Reflections on 50 Years of the Canadian Sea King

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This summer will mark 50 years since the arrival of the first Canadian Sea Kings at Shearwater. What follows is a sampler of some of the more significant developments in those 50 years. As will be appreciated, it is impossible to cover the whole period in a few pages and therefore, the following four topics are examined: procurement and fleet introduction; the first Gulf War (*Operation Friction*); Somalia (*Operation Deliverance*); and Sea King activities in 2010.

1963-1969 Procurement and Fleet Introduction

With the arrival of the nuclear-powered submarine in the mid- to late 1950s, the Royal Canadian Navy (RCN) faced a profound dilemma as the balance of anti-submarine warfare (ASW) swung dramatically in favour of the submarine – some would say forever. The upshot was that an upgrade of Canada's ASW forces was in order so that Canada could meet its alliance obligations.

On the air side, first the Tracker (1956) and then the Argus (1957) were introduced. On the surface side, the aircraft carrier *Magnificent* was replaced by *Bonaventure* – a far more capable platform with an angled flight deck, steam catapults and a mirror landing system. This left a deci-

sion as to what to do with the *St. Laurent*-class escorts, commissioned in 1955, and the Sikorsky HO4S-3 ASW helicopter which had been introduced in 1955 as well but operated exclusively from the aircraft carrier and only in daylight conditions.

The RCN of this period was a hotbed of revolutionary ideas. This was the era that led to the development of the variable depth sonar and the modern ASW hydrofoil, HMCS *Bras d'Or*. The challenge for destroyer-escorts such as the *St. Laurent* was how to extend the ship's detection and attack range to be able to handle nuclear-powered submarines.

One concept that merited further evaluation was the marriage of an ASW helicopter with an escort-sized vessel – a concept that was later termed the 'DDH concept' – which would vault Canada and the Canadian navy to the forefront of maritime helicopter aviation. To evaluate the concept, a series of trials was carried out onboard two escorts of the day. The first was conducted in 1956 in HMCS *Buckingham* using a temporary flight deck installed over the anti-submarine mortar. These trials illustrated one of the inherent challenges of operating a helicopter at sea. It is relatively easy to land it on deck but the problem is how to secure and handle the helicopter once it is there.

The trials in *Buckingham* were followed by trials in *Ottawa*, one of the new *St. Laurent*-class destroyer-escorts. The same temporary flight deck that had been mounted in *Buckingham* was transferred to *Ottawa* and a Sikorsky S-58 was borrowed from the Royal Canadian Air Force (RCAF) for a trial in the North Atlantic in company with *Bonaventure*. Both sets of trials indicated that it was possible to operate a helicopter from an escort for a significant portion of the year. It also became clear that a hangar was essential. In fact, the RCAF helicopter suffered so much corrosion damage that it required a special inspection at the contractor's upon return.

Additionally, the report of the trials indicated that "the pilot does not require any special skill or knowledge in this particular application of helicopter operations."¹ The report went on to recommend that "in view of the favourable



The first Canadian Sea King was accepted by Lieutenant-Commanders Shel Rowell, CO VX 10, and Ted Fallen, CO HS 50, on 24 May 1963 at the Sikorsky plant in Stratford, Connecticut.



How do you secure a large helicopter on a pitching ship's deck at sea? Very carefully!

results of these trials and the tactical potential that can be afforded by a helicopter operational platform, the *St. Laurent* and *Restigouche*-class escort vessels should be modified without further delay.”² And so the decision was made to modify the *St. Laurent*-class escorts to accommodate an as-yet undetermined ASW helicopter to operate from these ships.

Now all that had to be done was to select a helicopter. The competition eventually ended up between the Kaman Seasprite and the Sikorsky Sea King. Both helicopters were undergoing their USN acceptance at approximately the same time. The Seasprite was a new single-engine utility helicopter and the Sea King was a new, purpose-built, twin-engine anti-submarine helicopter. From the navy's perspective, the Seasprite was the preferred option for the escort-based ASW helicopter, principally because of its size. The RCN persuaded the Treasury Board that this helicopter, suitably modified to carry a tethered sonar, was the answer.

At this point, one of the key players in the Canadian Sea King saga enters the picture. His name was Joe Sosnkowski and he was an RCN jet fighter pilot. He attended the USN test pilot course in Patuxent River, Maryland, in 1960 and topped his class. The USN knew that Canada was in the market for a new helicopter and offered a position to Sosnkowski to participate in the Seasprite Evaluation Team.

To put it mildly, Sosnkowski was not a fan of the Seasprite. Some of his reluctance may be traced to a horrendous crash that he survived following a gearbox malfunction.

After the crash, Sosnkowski had the following conversation with the occupant of the house in whose backyard they had landed:

Well, he came out, there was a bit of blood around and these two people lying in his bushes and he came out, a shift worker, in his underwear. He asked me, “What are you doing here?” and I said, “Well, what does it look like, we came to mow your lawn!”³

Sosnkowski reported the problems relating to the Seasprite up the line to Ottawa. Coincidentally, the Seasprite was already in trouble as negotiations for a firm, fixed price between Kaman and the Department of Defence Production had revealed that the cost had increased substantially.⁴

The upshot was that the RCN acquired the Sikorsky Sea King to replace the HO4S-3 in both the carrier role and destroyer-escort role. In all, 41 Sea Kings were acquired. The first four were manufactured in the United States and the remaining 37 were assembled in Canada at United Aircraft of Canada Limited, now Pratt & Whitney Canada, in Montreal. The first ‘Canadian’ Sea King, 4005, was accepted on 27 August 1964 and the final aircraft was delivered to Shearwater, Nova Scotia, on 3 May 1969. It was anticipated that the Sea Kings would have to be replaced beginning in 1975!

Much of the success of the Sea King in Canadian service is attributable to the development of the ‘instantaneous securing device’ or more formally the Helicopter Haul-down and Rapid Securing Device – commonly referred to as the Beartrap. Once again, Joe Sosnkowski features prominently in this as he had recently returned to VX 10, the RCN's Air Experimental Squadron, as the Project Pilot for the evaluation of the hauldown system.

In his account of the project, the VX 10 Project Engineer, Peter Charlton, wrote that Commander John Frank, Director of Aircraft Design and Development in Naval



The Sikorsky Sea King was selected to replace the HO4S-3 in the carrier role as well as for the destroyer-escort role.

Headquarters, came up with the idea for the rapid securing device by using his son's Meccano set. The concept that emerged was a set of opposing beams inside an approximately three-foot square frame that would lock around a probe on the aircraft to secure the helicopter to the flight deck. Once the aircraft was shut down, it would be centred inside the frame and then traversed into the hangar without the requirement to manhandle the aircraft on deck. To assist the pilot in landing inside the Beartrap, it was decided to use a constant tension winch on a cable to guide the helicopter to a landing position. Reflecting on the concept several years later, Commander Frank noted that "there were many skeptics, not only within the R.C.N., but in the U.S.N., R.N., the helicopter industry and even in the Treasury Board."⁵ But the system worked, and the skeptics were gradually won over.

Annapolis was the first ship cleared for flight operations with the Beartrap in April 1967, although she was restricted to daytime operations. With the completion of night flying and heavy weather trials, the system was cleared for day and night operations to 30 degrees of roll and 9 degrees of pitch. The final ship, *Margaree*, was eventually declared fully operational in November 1968.

The techniques developed by VX 10 for what has become known as 'ship-helicopter interface testing' are now commonly accepted around the world. Canada literally wrote the book on ship-helicopter operating procedures and provided the expertise that standardized these operations in NATO, inter-American, Middle Eastern and Pacific navies and coast guards.

The First Gulf War 1990

It is now time to fast forward through the Cold War until we arrive at August 1990. On 1 August, the Sea Kings at Shearwater were busy preparing for the fall NATO exercise. On 2 August, when Iraq invaded Kuwait, the Sea King saga took a dramatic turn. In fact, the preparation of the Sea Kings for *Operation Friction* and their subsequent deployment and operations in the Persian Gulf were, without question, the Sea King community's finest hour. This also set in train a series of events that would dramatically change the role of the Sea King from an anti-submarine helicopter to a surface surveillance platform.

The time-line for *Operation Friction* was very compressed. The Warning Order was received at Shearwater on 10 August and over the weekend of 10-12 August, the opera-



This photo illustrates early tests of the Helicopter Hauldown and Rapid Securing Device – the innovative Beartrap system.

Credit: <http://www.seaking50.ca>

tional and maintenance staff at Shearwater and Maritime Air Group Headquarters determined the roles, missions and aircraft configuration for the deployment. Then the staff had to explore price and availability, procure, ship, design, manufacture, build prototypes, install, test, evaluate and deploy some seven major and a number of minor modifications on the Sea King.

The key to getting the Sea Kings ready for the deployment was the establishment of an Installation Control Team at Shearwater that placed all the relevant engineering and operational staff in one place. The major items installed for *Operation Friction* were the following:

- forward-looking infra-red (FLIR) camera system;
- infra-red guided-missile countermeasure system;
- radar warning receiver;
- Global Positioning System (GPS); and
- C-9 light machine gun with a 5.56 round.

All of this equipment was installed in two weeks, and on 24 August, five modified Sea Kings were embarked on *Athabaskan* and *Protecteur*. During *Operation Friction*, the deployed Sea Kings flew a total of 2,500 hours and achieved an aircraft availability and mission completion rate of 98% – no mean feat!⁶

Somalia 1992-1993

The next major event during the early 1990s involved the deployment to Somalia (*Operation Deliverance*). During this operation, the Sea Kings spent more time in operations over land than over the sea. In fact, it was suggested that the aircraft's name should be changed to *Sand Kings* from *Sea Kings*.⁷



This shows the first flight of Sea King 440. HMCS Athabaskan's replacement Sea King was delivered to Malaga, Spain, 8 March 2006.

On 4 September 1992, HMCS *Preserver* and her assigned helicopter detachment were initially issued a Warning Order for *Operation Cordon* in which it was intended that *Preserver* support the Canadian Airborne Regiment ashore in northern Somalia. *Preserver* left Halifax on 16 November with three Sea Kings and on 5 December, as she was nearing her destination, the ship was informed that the operation was cancelled due to the rapidly changing situation in Somalia. Eventually, *Preserver* was tasked to be part of the US-led coalition forces in Somalia and would support a Canadian Joint Force Headquarters Staff as well as a Canadian battle group ashore as part of *Operation Deliverance*. After provisioning, the ship finally arrived off Mogadishu, Somalia, on 13 December 1992. The helicopters were pressed into service immediately with their primary task to sling supplies to the Canadian battle group deployment area, an airfield near the town of Baledogle, about 55 km to the northwest of Mogadishu.

When the battle group was later relocated to Belet Uen nearly 400 km inland, it became obvious that slinging stores by helicopter was no longer an option and it was decided instead to sling stores ashore to the Mogadishu airport from where a Canadian C-130 Hercules would fly them on to Belet Uen. The helicopters would ultimately transport nearly 300 tons of army stores during this phase of the operation.

When the battle group carried out its road move from Baledogle to Belet Uen, the Sea Kings provided route reconnaissance. Illustrating their flexibility, the Sea Kings were then switched to providing overland reconnaissance for the Canadian battle group in its area of operations. These flights were of long duration and refueling in Belet Uen was necessary on both the outbound and return legs. The forward-looking infra-red (FLIR) camera, with its video replay capability, was key to this task.

When it was discovered that the Sea Kings were the only aircraft with this equipment in theatre, they were in high demand to conduct nightly reconnaissance sorties for the coalition forces and were airborne nearly every night during the month of February 1993. One of these flights was of particular interest. On the night of 21 February, a FLIR search was conducted northeast of Kismayu, a coastal city south of Mogadishu. A review of FLIR tapes from an earlier mission had revealed what appeared to be 300 troops on a

road approximately 14 miles from the city. After carrying out an initial pass over Kismayu at 300-400 feet, the crew commander related:

We proceeded out over the harbour to discuss the situation and what to report. To get an accurate picture of the battle, we decided on one more pass in the opposite direction. Unfortunately, the harbour was well-lit and the moon was to our backs, so the troops, alerted to our presence after the first pass, were ready and had a better target.... [While evading the small arms fire] the TACCO stuck his head up front in time to see .50 calibre tracer cross 100 yards ahead of the nose. He decided not to look out again.⁸

All in all, this deployment was successful for both *Preserver* and her helicopter detachment – the Sea Kings, the maintainers and the aircrew had demonstrated, yet again, their inherent flexibility.

2010: A Year in the Life

It is now time to fast forward again, this time to 2010. Regrettably, this means skipping over the Canadian at-sea response to the 9/11 attacks as the Sea Kings, along with the navy, supported a demanding and prolonged series of deployments to the Arabian Sea in *Operation Apollo*.

The year 2010 was an exceptional year – even by Sea King standards. The year began with *Fredericton* conducting operations in the Internationally Recognized Transit Corridor for counter-piracy operations in the Horn of Africa. In this capacity, the helicopter conducted routine surface surveillance patrols to build a recognized maritime picture. Following this, *Fredericton* carried out a port visit to Dubai in mid-February and while there, an aircraft exchange was carried out by an RCAF C-17. Both *Fredericton* and her new Sea King performed well



Members of the community of Tiburon in Haiti watch the landing of Sea King transporting bags of rice in September 2008.

and after conducting operations in the Gulf and Strait of Hormuz, the ship headed home on 8 April to arrive in Halifax on 4 May.

Back in the Western Hemisphere, on 12 January 2010 a devastating earthquake struck Haiti. *Athabaskan* and her helicopter deployed from Halifax 36 hours later on 14 January in order to provide disaster relief as part of *Operation Hestia*. In this operation, the Sea King once again demonstrated its inherent flexibility. Initial flights were spent in conducting reconnaissance and then the heavy lifting began. The Disaster Assistance Response Team (DART) and its equipment were airlifted from Port-au-Prince airport to Jacmel and the Royal 22nd Regiment was moved from Jacmel to Leogane. Next, the Sea King was slinging fresh water in 750 litre containers called Rhinos from *Athabaskan* and *Halifax* to depots ashore. In all, *Athabaskan's* Sea King moved 597 personnel and nearly 10 tons of equipment and supplies to assist the people of Haiti. Included in that weight total are 63 Rhinos, equivalent to nearly 50,000 litres of water delivered ashore.⁹ *Athabaskan* returned to Halifax on 17 March having completed a successful and rewarding deployment.

At the same time the Sea Kings were involved in operations in the Arabian Gulf and Caribbean, they were also involved in *Operation Podium* in support of the RCMP-led Integrated Security Unit during the 2010 Vancouver Olympic Games (12-28 February) and the Paralympic Games (12-21 March). Three helicopters and

the accompanying personnel were transported from Shearwater via C-17 to augment the helicopters, maintenance crews and aircrews of 443 Squadron in Patricia Bay.

During *Operation Podium*, the Sea Kings proved to be the most versatile of the assigned aircraft and carried out the widest variety of tasks. Missions were divided between the Maritime Component Commander who required daily surveillance of the approaches to Vancouver through dawn and dusk patrols, and the Air Component Commander who would task the Sea Kings for personnel transfers, logistics runs and RCMP support. Happily, everything went smoothly and the Sea Kings returned home without incident.

Back on the East Coast, HMCS *Montreal* carried out ship-helicopter operating limits trials for the Cyclone helicopter – using the same techniques and procedures developed by VX 10 nearly 50 years before.

The next major activity took place in Ontario where from 16-30 June, the Sea Kings participated in *Operation Cadence*, which was Canadian Forces support to the RCMP-led Integrated Security Unit for the G8 (Huntsville, ON) and G20 (Toronto, ON) Summit meetings. For this operation the Sea Kings were formed as a Rotary Wing Air Intercept Detachment to respond to low/slow aircraft operating in the restricted zones surrounding the summit sites.

While the Sea Kings were standing guard over the summits, *Calgary* and *Algonquin* departed Esquimalt on 14 June for the Rim of the Pacific Exercise (RIMPAC) 2010. *Calgary* returned home on 30 July while *Algonquin* continued on a SOUTHPLY to South America in which she was joined by *Vancouver*. Both ships returned home on 18 October.

Next, *Toronto* sailed from Halifax for *Operation Caribbe* from 7 September to 20 October. Two patrols were conducted in the Caribbean Basin and during the latter part of the second patrol, a US Coast Guard Law Enforcement Detachment was embarked in *Toronto* under the terms of a newly approved Memorandum of Understanding.

On 21 September, Hurricane Igor struck Newfoundland and three Sea Kings were promptly deployed to Gander to provide humanitarian assistance to outlying communities cut off by the hurricane and to carry out damage assessment.

And if these missions were not enough, throughout the year, Sea Kings held the Primary Search and Rescue (SAR) Standby Role for their respective SAR regions on both coasts as the Cormorant SAR helicopter experienced



Credit: Corporal Roderick Hopp, CFB Esquimalt a Services

A Sea King from 443 Squadron in Victoria, BC, takes off from HMCS *Discovery* in Vancouver, BC, during Exercises Pegasus Guardian 3 and Spartan Rings, 19 October 2009, in preparation for the Vancouver Winter Olympics.

ongoing serviceability problems. As well, *Operation Sabot* (counter-drug) operations were conducted in support of the RCMP, and coastal patrols were carried out on both coasts as tasked by the respective coastal commanders.

Looking back on 2010, it is hard not to think that it was perhaps an atypical year. However, reflecting on the 50 years of Canadian Sea King operations, it can safely be claimed that no year was ever typical. Each challenge was surmounted in one way or another by dedicated personnel who have left a legacy that is hard to imagine will ever be duplicated.

Conclusion

There are plenty of lessons to be learned from the Canadian Sea King experience. First and foremost, the aircraft, despite its age, continues to make a positive contribution to supporting the interests of Canada and Canadians both domestically and abroad. That the Cyclone helicopter could deliver so much more underlines the necessity for its prompt introduction.

Secondly, the aircrews have consistently demonstrated a high degree of innovation, flying skill and dedication. And they do this despite the fact that they are often thrust into last-minute deployments to foreign environments and missions for which they have had little formal training.

Likewise, the maintenance personnel, upon whose shoulders the principal effort for the continued operation of the

Sea King falls, have time and again demonstrated competence, ingenuity and stamina in keeping a sometimes recalcitrant aircraft flying safely. As well, staff at all levels, complemented by supply and civilian maintenance organizations, have contributed immensely to the success achieved by those on the flight deck and the flight line.

And finally, despite the carping of all the naysayers, the soundness of the DDH concept has been fully vindicated. Bravo Zulu Sea Kings! 🍷

Notes

1. See Michael Shawn Cafferky, *Uncharted Waters: A History of the Canadian Helicopter-Carrying Destroyer* (1st ed.; Halifax, NS: Centre for Foreign Policy Studies, 2005).
2. See *ibid.*, p. 260.
3. Oral history interview of Joe Sosnkowski for the *Sea King History Project* conducted by John Orr, 18 May 2011.
4. DHH, NSC 7801-102 (Staff) 8 December 1961. "The Suitability of the HSS-2 as an Alternate Choice for ASW Operations from Destroyer Escorts."
5. Letter, Commander John Frank RCN (Ret'd) to Captain D.N. MacGillivray, 26 February 1985, Cafferky Collection SAM.
6. Peter Charlton and Michael Whitby, "Certified Serviceable": *Swordfish to Sea King - The Technical History of Canadian Naval Aviation by those Who Made It So* (Ottawa, ON: CNATH, 1995), p. 428.
7. Ernest Cable, "Sand Kings Over Somalia," *Warrier*, Spring 2006, pp. 7-11.
8. John L. Orr (ed.), "With Eagle Wings" 423: *A Canadian Squadron in Peace and War* (Shearwater, NS: 423 Squadron 60th Anniversary History Project, 2002), p. 91 and Appendix E "Sea Kings Soar Over Somalia."
9. Annex D 1325-1 (CO) 31 March 2011, 423 Unit Annual Historical Report 2010 SAM.

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