



## CYCLONE HELICOPTER LONG-TERM STRATEGIC INVESTMENT

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### JCSP 50

#### Service Paper

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### PCEMI n° 50

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CANADIAN FORCES COLLEGE - COLLÈGE DES FORCES CANADIENNES

JCSP 50 - PCEMI n° 50  
2023 - 2024

Service Paper – Étude militaire

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## **CYCLONE HELICOPTER LONG-TERM STRATEGIC INVESTMENT**

### **AIM**

1. The aim of this service paper is to reiterate to the Royal Canadian Air Force (RCAF) Commander the importance of unwavering continuation of the Cyclone Maritime Helicopter Project, emphasizing the critical importance of persisting with the initiative regardless of the financial implications. This stance is rooted in the concept of the "sunk cost fallacy," which, in this context, is strategically reevaluated to underscore the substantial investments in terms of time and resources that have already been committed to the platform. The paper will argue that halting or aborting at this juncture would not only result in a significant loss of these investments but also undermine the tremendous amount of effort already put forth by the maritime community in converting platforms from the Sea King to Cyclone. The strategic and operational enhancements the Cyclone helicopters have delivered to maritime operations would also be attenuated. Through a detailed analysis of the project's developmental trajectory, the technological innovations it embodies, and the operational capabilities it promises to enhance, this paper aims to demonstrate that the continuation of the Cyclone Maritime Helicopter Project is not merely a matter of financial obstinacy but a strategic imperative. The argument will be supported by a comprehensive evaluation of the project's procurement to this point, a look at the training and support system already implemented, and the costs and time for alternative options. By advocating for the Cyclone continuation, this paper seeks to convince stakeholders of the necessity to view the investments not as sunk costs but as foundational pillars for a future-proofed, robust maritime defense strategy.

### **INTRODUCTION**

2. In 2004 the Canadian Government awarded two contracts to Sikorsky Corporation for the acquisition of 28 CH-148 Cyclones to replace the aging Sea King fleet and an in-service support contract for the first 10 years of service.<sup>1</sup> This was after an initial agreement to purchase 35 EH 101 aircraft in the early 90's had been canceled by then liberal leader Jean Chretien.<sup>2</sup> At the time of the contract signing the initial helicopters were expected to start to be delivered 4 years later in 2008 with full operational capability to follow in 2010. Due to a number of issues this delayed further into 2013 when a third-party consultant was brought in to determine the viability of the Maritime Helicopter Project (MHP). In 2014 a revised contract was signed, keeping the MHP afloat with a redesigned delivery blocking strategy and an extended in-service support contract out to 2038.<sup>3</sup> In 2015 Canada accepted the initial delivery of 6 Cyclone helicopters and in 2018 opened the new training facility in shearwater. Also, in 2018 the Cyclone had its first operational

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<sup>1</sup> Public Services and Procurement Canada Government of Canada, 'Maritime Helicopter Project – Air – Defence and Marine Procurement – Buying and Selling – PSPC Services – Home', 26 July 2019, <https://www.tpsgc-pwgsc.gc.ca/app-acq/amd-dp/air/snac-nfps/helicoptere-helicopter-eng.html>.

<sup>2</sup> CBC News. "Sea Kings' Possible Replacement Familiar to Canadians," 7 September 2013, <https://www.cbc.ca/news/politics/sea-kings-possible-replacement-familiar-to-canadians-1.1700833>.

<sup>3</sup> 'Maritime Helicopter Project – Air – Defence and Marine Procurement – Buying and Selling – PSPC Services – Home'.

deployment to Op Reassurance onboard HMCS Ville de Quebec.<sup>4</sup> Since that time Canada has received a total of 25 of the 28 promised helicopters with the remainder to be delivered in 2024 and 2025 respectively but has still not achieved FOC.

3. Over the last number of years 12 Wing Shearwater has had to deal with a plethora of issues with the cyclone which can mostly be related to the fact that Canada has purchased a helicopter not flown by any other country. Some issues stem from the age of the contract and the delivery of aircraft with components that at the time of contract signing in 2004 were state of the art but now twenty years later are nearing their effective end state. Like any aircraft there have been some technical and airframe issues however the single most problem has been the availability of parts and supply chain issues associated with the in-service support contract. Since the initial restructure of the contract in 2014 the costs of keeping the MHP going have risen considerable from 1.9 Billion for the acquisition and 5.8 billion for the in-service support contract to now a reported 14 billion plus.<sup>5</sup> Much like 2013, the government is now seeking the advice of a third-party consultant to assess the current state of the MHP and its long-term sustainability.<sup>6</sup>

## **DISCUSSION**

### **Cyclone training and personnel investment**

4. In Dec of 2018 the RCAF said good bye to the CH-124 Sea King as it took its final flight in Victoria. The Sea King flew in excess of 550 000 hours in its over 55 years of service to Canada.<sup>7</sup> After extending its life to meet the oncoming Cyclone, it was evident that the new platform had big shoes to fill and therefore the work required to accommodate its arrival started years before. To bring on a new or replacement airframe, that has not been flown and tested by a number of other militaries requires years of test and evaluation. As early as 2007 some experienced aircrew at Shearwater's Helicopter Operational Test and Evaluation Facility (HOTEF) were already hard at work preparing for the arrival of new helicopters.<sup>8</sup> Just a few years later in 2014 aircrew were being trained through Initial Cadre Training (ICT) one and two. Throughout these years and during the phase out of the Sea King many instructors from 406

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<sup>4</sup> 'First Cyclone Deployment "Outstanding" - News Article - Royal Canadian Air Force', not available, 24 January 2019, <https://www.canada.ca/en/department-national-defence/maple-leaf/rcaf/2019/04/first-cyclone-deployment-outstanding.html>.

<sup>5</sup> Murray Brewster · CBC News ·, 'Estimated Life-Cycle Cost of Military's Cyclone Choppers Rises to \$15.9B | CBC News', CBC, 26 January 2024, <https://www.cbc.ca/news/politics/cyclone-helicopter-canadian-forces-1.7095075>.

<sup>6</sup> Murray Brewster · CBC News ·, 'Air Force Worried about Keeping New Maritime Helicopters' Weapons Systems Operationa', 10 January 2024, <https://www.cbc.ca/news/politics/cyclone-helicopter-canadian-forces-1.7079088>.

<sup>7</sup> National Defence, 'Canadian Armed Forces Honour the Long-Serving CH-124 Sea King Helicopter', news releases, 1 December 2018, <https://www.canada.ca/en/department-national-defence/news/2018/11/canadian-armed-forces-honour-the-long-serving-ch-124-sea-king-helicopter.html>.

<sup>8</sup> 'First Canadian Forces Cyclone to Arrive "Soon" at Shearwater Says MacKay', Ottawa Citizen, accessed 18 February 2024, <https://ottawacitizen.com/news/national/defence-watch/first-canadian-forces-cyclone-to-arrive-soon-at-shearwater-says-mackay>.

Operational Training Squadron (OTS) were re-tasked with creating syllabi and tactical instruction in order for the new capability to be brought on line.<sup>9</sup>

5. The work done in advance of the aircraft arriving at 12 Wing was not limited to the Air Force however. As part of the original contract and to conform with the size and configuration of the new CH-148, the 12 Halifax class frigates used by the Canadian Navy would all have to undergo modifications to their helicopter decks to accommodate for the increased weight of the new platform. As well all ships would need a new Helicopter Hauldown Rapid Securing Device (HHRSD).<sup>10</sup> Ironically after a number of these retrofits had been completed and with the extension of the MHP, costs were incurred to switch some of these modifications back to accommodate for the extended life of the Sea King due to a delay in the delivery of the Cyclone.

6. What should not be overlooked during the procurement of the Cyclone is the massive training effort that was successfully completed by the men and women of 12 Wing Shearwater. Even with changing procurement dates and delays to the project it was a massive undertaking to requalify the cadre of aircrew and maintenance personnel that were employed on the Sea King, and have them prepared and able to support Cyclone operations. During this time, it was also necessary to maintain a qualified cadre to carry out the end of life on the Sea King and still force generate a younger and newly qualified crews for the Cyclone. This was accomplished by a staged approach starting with ICT, which had a number of experienced maritime helicopter aircrew as well as new aircrew to the environment. Following ICT, regular training commenced for all aircrew and technicians. There was a long list of current CH-124 Sea King qualified personnel that had to be trained as well as number of new aircrew and technicians that awaited training because the training system for the Sea King had come to an end months before. The staged approach allowed for sustainable operations on both airframes but also ensured that future operations on the Cyclone would not be impacted. The training at 406 OTS was an immense task, training personnel for both the east and west coast operations. Even through the COVID-19 pandemic; training did not stop, making sure cyclone operations would not be hindered by a personnel shortage.<sup>11</sup>

### **CH-148 A One-Off Military Aircraft**

7. With the procurement of the CH-148 Cyclone contract in 2004 it was also believed that Sikorsky would have luck selling the fleet to other countries however to this point Canada is the lone military flying the modified S-92 military equivalent.<sup>12</sup> That being said, a variant of the S-92 is now being used for presidential movement in the Marine One program in the United States. The problem being, the only country to use a military aircraft means a lack of inter-operability with allies but more importantly leads to only one source for replacement parts and sustainability. With the recent pandemic and an overall increase in pricing and inflation affecting

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<sup>9</sup> Based on being the Pilot Training Section Commander at 406(OTS) at that time and being retasked to CH148 Cyclone syllabus and tactics development.

<sup>10</sup> Kenneth I Swartz, 'The CH-148 Cyclone Heads Out To Sea', 2016. 21

<sup>11</sup> Personal accounts from time as 12 Wing Standards OC

<sup>12</sup> 'Sikorsky S-92', in *Wikipedia*, 16 December 2023, [https://en.wikipedia.org/w/index.php?title=Sikorsky\\_S-92&oldid=1190210375](https://en.wikipedia.org/w/index.php?title=Sikorsky_S-92&oldid=1190210375).

most if not all Canadian markets, it goes without saying that the MHP would also be affected to some extent.<sup>13 14</sup> The argument here would be that cost increases and availability, could have been foreseen during the initial contract in 2004 and even more so when the MHP contract was renegotiated in 2014, when the expense of the in-service support had taken a dramatic increase. The Canadian government needs to uphold the contract and force Sikorsky and partners to come to fruition on the in-service support contract and the parts required to sustain the fleet well into the future.

## **What Are the Options**

8. Recently the Canadian government and the defense department admitted it is seeking outside help to "define potential options" for the problematic cyclone, but it would be important to note some of the other incurred expense that would come from a sudden or gradual parting with the MHP.<sup>15</sup> Since 2018 the Cyclone has been operational on numerous HMCS Frigates around the planet and has brought enormous capability to the fleet whether through counter piracy, anti-narcotics, and underwater warfare.<sup>16</sup> Not only have the current ships in the Royal Canadian Navy (RCN) integrated with the CH-148, but their replacements, the Canadian Surface Combatants (CSC) are also contracted and specified to house the Cyclone helicopter.<sup>17</sup> A change in direction at this point would not only incur astronomical costs for the MHP program but also for the new CSC contract.

9. On top of training lengths, training implementation, and inflationary costs, the Canadian government would have to consider the aspect of time if it were to decide to abandon the MHP for a different airframe at this point. We would have to look no further than our allies in Australia who recently decided to abort a troublesome platform and move to a more alliance friendly MH-60R. The Australian Navy decided to move away from their Taipan helicopter fleet after more than nine incidences which all led to the aircraft being grounded.<sup>18</sup> Although this replacement (MH-60R) is flown by many countries around the world and the Australians are buying an "off the shelf" helicopter, they are still left with a large capability gap. The government made the decision to stop flying the Taipan helicopter, but are now left with a

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<sup>13</sup> Statistics Canada Government of Canada, 'Analysis on Supply Chain Challenges and Conditions in Canada, First Quarter of 2023', 9 March 2023, <https://www150.statcan.gc.ca/n1/pub/11-621-m/11-621-m2023004-eng.htm>.

<sup>14</sup> Murray Brewster · CBC News · 'Lifetime Cost of Military's Cyclone Choppers Set to Soar Past \$14B, Government Document Reveals | CBC News', CBC, 19 January 2024, <https://www.cbc.ca/news/politics/cyclone-helicopters-defence-air-force-1.7088390>.

<sup>15</sup> News · 'Air Force Worried about Keeping New Maritime Helicopters' Weapons Systems Operational | CBC News'.

<sup>16</sup> National Defence, 'CH-148 Cyclone Fact Sheet - Royal Canadian Air Force', not available, 15 June 2020, <https://www.canada.ca/en/air-force/corporate/reports-publications/aircraft/ch-148-fact-sheet.html>.

<sup>17</sup> National Defence, 'Future Canadian Surface Combatants', education and awareness, 19 April 2013, <https://www.canada.ca/en/navy/corporate/fleet-units/surface/canadian-surface-combatants.html>.

<sup>18</sup> 'Australia Dumps Troubled European-Designed Taipan Helicopters for US Black Hawks and Seahawks', *ABC News*, 9 December 2021, <https://www.abc.net.au/news/2021-12-10/australia-dumps-troubled-mrh-90-taipan-helicopters/100688550>.

capability gap while waiting to receive their new fleet of MH-60's from the United States.<sup>19</sup> The major difference with the Australian Navy purchase and Canada is that the former already flies a fleet of MH-60's and this would simply remove the platform that was causing troubles and replace them with updated models of their current MH-60's. This means that the Australian Navy already has the capacity to train and execute day to day missions on the MH-60 and may not be required to develop and launch a whole new infrastructure. Although the upfront cost's may be significant in replacing the Australian Taipan there is little secondary effects of moving on to the replacement platform they chose.

10. Lastly, the capability that the CH-148 Cyclone brings to both the RCAF and the RCN should be reiterated. Compared to its predecessor and many of the comparative platforms out there, the Cyclone has extraordinary capability. Equipped with a superior high frequency sonar and advanced mission suite, the Cyclone is well equipped for both above and underwater warfare. It has advanced intelligence, surveillance, and reconnaissance (ISR) capability for a helicopter and is on par with that of the maritime patrol aircraft it often operates with.<sup>20</sup> In a joint environment the cyclone is the best eyes and ears available for the navy, expanding their operational awareness in both open waters and littorals. It has taken years to contractually secure the Cyclone and also years to bring the fighting capability of its aircrews to a level equivalent to the platform it operates. A move away from the Cyclone would not only hinder the current operational capability of the RCN and RCAF but also prevent them from mastering their craft and mentoring the aircrew and technicians that follow in their footsteps.

## CONCLUSION

11. The Maritime Helicopter Project represents a pivotal juncture in Canada's maritime defense capabilities, embodying a significant evolution from the venerable Sea King to the technologically advanced CH-148 Cyclone. Despite the financial, operational, and logistical challenges encountered throughout its development and deployment phases, the strategic imperatives for continuing this project far outweigh the considerations of cost alone. The investments made in the Cyclone project are not merely financial figures but are foundational to ensuring Canada's maritime defense remains robust, versatile, and capable of addressing contemporary and future threats in an increasingly complex global security environment.

12. The transition to the Cyclone has necessitated substantial investments in training, infrastructure, and operational adaptation, reflecting a commitment to enhancing Canada's maritime operational capabilities. The challenges of being the sole operator of this military variant have indeed introduced unique complexities, particularly in terms of logistics and parts availability. However, these challenges also underscore Canada's role in leading with a state-of-

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<sup>19</sup> Greg Waldron 20 September 2022, 'Australian Navy to Receive New MH-60Rs from Mid-2025', Flight Global, accessed 19 February 2024, <https://www.flightglobal.com/helicopters/australian-navy-to-receive-new-mh-60rs-from-mid-2025/150251.article>.

<sup>20</sup> 'Sikorsky CH-148 Cyclone', in *Wikipedia*, 13 February 2024, [https://en.wikipedia.org/w/index.php?title=Sikorsky\\_CH-148\\_Cyclone&oldid=1206995761](https://en.wikipedia.org/w/index.php?title=Sikorsky_CH-148_Cyclone&oldid=1206995761).

the-art maritime helicopter that enhances interoperability with allies, despite the absence of shared platforms.

### **Recommendation**

13. Looking forward, the continuation of the Cyclone Maritime Helicopter Project is more than a fiscal decision; it is a strategic commitment to maintaining a cutting-edge maritime force. The sunk costs associated with the project's delays and challenges should be viewed through the lens of long-term strategic investment, recognizing that the capabilities and operational advantages provided by the Cyclone fleet are indispensable to Canada's maritime defense strategy.

14. As the project moves towards full operational capability, the focus should remain on leveraging the Cyclone's advanced capabilities to enhance the development of maritime helicopter aircrew, Canada's maritime security, and domestic and international military efforts. The CH-148 Maritime Helicopter Project, therefore, stands not only as a testament to Canada's commitment to its maritime defense but also as a beacon of innovation and excellence in military aviation. The path forward must be characterized by steadfast support, continuous improvement, and a clear vision for the role of the Cyclone fleet in securing Canada's maritime interests now and into the future.

## BIBLIOGRAPHY

- ABC News*. 'Australia Dumps Troubled European-Designed Taipan Helicopters for US Black Hawks and Seahawks'. 9 December 2021. <https://www.abc.net.au/news/2021-12-10/australia-dumps-troubled-mrh-90-taipan-helicopters/100688550>.
- Defence, National. 'Canadian Armed Forces Honour the Long-Serving CH-124 Sea King Helicopter'. News releases, 1 December 2018. <https://www.canada.ca/en/department-national-defence/news/2018/11/canadian-armed-forces-honour-the-long-serving-ch-124-sea-king-helicopter.html>.
- 'CH-148 Cyclone Fact Sheet - Royal Canadian Air Force', 15 June 2020. <https://www.canada.ca/en/air-force/corporate/reports-publications/aircraft/ch-148-fact-sheet.html>.
- 'Future Canadian Surface Combatants'. Education and awareness, 19 April 2013. <https://www.canada.ca/en/navy/corporate/fleet-units/surface/canadian-surface-combatants.html>.
- 'First Cyclone Deployment "Outstanding" - News Article - Royal Canadian Air Force'. Not available, 24 January 2019. <https://www.canada.ca/en/department-national-defence/maple-leaf/rcaf/2019/04/first-cyclone-deployment-outstanding.html>.
- Government of Canada, Public Services and Procurement Canada. 'Maritime Helicopter Project – Air – Defence and Marine Procurement – Buying and Selling – PSPC Services – Home', 26 July 2019. <https://www.tpsgc-pwgsc.gc.ca/app-acq/amd-dp/air/snac-nfps/helicoptere-helicopter-eng.html>.
- Government of Canada, Statistics Canada. 'Analysis on Supply Chain Challenges and Conditions in Canada, First Quarter of 2023', 9 March 2023. <https://www150.statcan.gc.ca/n1/pub/11-621-m/11-621-m2023004-eng.htm>.
- CBC News. 'Sea Kings' Possible Replacement Familiar to Canadians, 7 September 2013. <https://www.cbc.ca/news/politics/sea-kings-possible-replacement-familiar-to-canadians-1.1700833>.
- Murray Brewster. 'Air Force Worried about Keeping New Maritime Helicopters' Weapons Systems Operational' CBC News, 10 January 2024. <https://www.cbc.ca/news/politics/cyclone-helicopter-canadian-forces-1.7079088>.
- 'Estimated Life-Cycle Cost of Military's Cyclone Choppers Rises to \$15.9B | CBC News'. CBC, 26 January 2024. <https://www.cbc.ca/news/politics/cyclone-helicopter-canadian-forces-1.7095075>.
- 'Lifetime Cost of Military's Cyclone Choppers Set to Soar Past \$14B, Government Document Reveals | CBC News'. CBC, 19 January 2024. <https://www.cbc.ca/news/politics/cyclone-helicopters-defence-air-force-1.7088390>.

ottawacitizen. 'First Canadian Forces Cyclone to Arrive "Soon" at Shearwater Says MacKay'. Accessed 18 February 2024. <https://ottawacitizen.com/news/national/defence-watch/first-canadian-forces-cyclone-to-arrive-soon-at-shearwater-says-mackay>.

September 2022, Greg Waldron<sup>20</sup>. 'Australian Navy to Receive New MH-60Rs from Mid-2025'. Flight Global. Accessed 19 February 2024. <https://www.flightglobal.com/helicopters/australian-navy-to-receive-new-mh-60rs-from-mid-2025/150251.article>.

'Sikorsky CH-148 Cyclone'. In *Wikipedia*, 13 February 2024. [https://en.wikipedia.org/w/index.php?title=Sikorsky\\_CH-148\\_Cyclone&oldid=1206995761](https://en.wikipedia.org/w/index.php?title=Sikorsky_CH-148_Cyclone&oldid=1206995761).

'Sikorsky S-92'. In *Wikipedia*, 16 December 2023. [https://en.wikipedia.org/w/index.php?title=Sikorsky\\_S-92&oldid=1190210375](https://en.wikipedia.org/w/index.php?title=Sikorsky_S-92&oldid=1190210375).

Swartz, Kenneth I. 'The CH-148 Cyclone Heads Out To Sea', 2016.