RELUCTANCT TO RESCUE

The RCAF and the Search and Rescue Mandate, 1939-1959

RÉTICIENT A SAUVER

L'ARC et le mandat de Recherche et Sauvetage, 1939-1959

A Thesis Submitted to the Division of Graduate Studies
Of the Royal Military College of Canada
By

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Major

In Partial Fulfillment of the Requirements for the
Degree of Master of Arts

March 2016

This study is dedicated to all the SAR professionals who did not make it

home from their mission, and to the families that suffered as a result. This

study hopes to aid in understanding the service in which some choose risk

and danger *that others may live*.

Acknowledgements

Abstract

The Royal Canadian Air Force's (RCAF) involvement with the Search and Rescue (SAR) mandate in Canada dates to 1947 and the Air Sea Rescue (ASR) predecessor capability from the Second World War dates back to 1942. Curiously, ASR is not described in the RCAF official history and the transition to a domestic SAR system is only briefly outlined in other sources. Therefore, it has been unclear how the RCAF established the ASR system, why it retained the SAR mandate after the Second World War, and why the marine rescue requirement was added to the RCAF mandate in 1950.

This study will use previously unexamined RCAF primary source documentation to show that it took the RCAF far longer than other Allies to develop ASR and that the RCAF had no intention of providing that service to civilians after the war. The Royal Canadian Mounted Police (RCMP) had been responsible for SAR prior to the Second World War, and the RCAF was quite happy to shed what it viewed as a non-military role and hand SAR back to the RCMP in 1946. However, the Canadian government found the RCMP plan too expensive and directed the RCAF to retain the SAR mandate for civilian aircraft in 1947, and then expanded the mandate to include marine distress cases in 1950. The RCAF made the best it could of the assigned mandate but tried to minimize resources allocated to the civilian SAR requirement.

Throughout the 1950s, the SAR system struggled as demand expanded throughout the first half of the decade. By 1958, the RCAF was again looking to abandon the role, but with some assistance from the Department of Transport and the planned development of a Canadian Coast Guard, pressures eased and by 1959 plans were in place for the SAR system to expand and develop into the world-class capability it is today. From the beginning of rescue system development in 1942 and through the expansion of the mandate to include maritime rescue in 1950, it was not until 1959 that the RCAF accepted the SAR mandate and modernized the system it created. On the basis of this evidence, this thesis will argue that the RCAF was reluctant to develop air and sea rescue systems until the end of the 1950s.

Resumé

La participation de l'Aviation royale canadienne (ARC) aux activités de recherche et de sauvetage (SAR) au Canada remonte à 1947, et la capacité antérieure de sauvetage air-mer de la Seconde Guerre mondiale remonte à 1942. Étrangement, on ne trouve dans l'histoire de l'ARC aucune description du sauvetage air-mer, et la transition vers un système de SAR national n'est que brièvement mentionnée par d'autres sources. Par conséquent, on ne sait pas trop comment l'ARC a établi le système de sauvetage air-mer, pourquoi elle a conservé le mandat de SAR après la Seconde Guerre mondiale et pourquoi les exigences relatives au sauvetage maritime ont été ajoutées au mandat de l'ARC.

L'étude utilisera des documents de première main de l'ARC, qui n'avaient pas été examinés, afin de montrer qu'il a fallu à l'ARC beaucoup plus de temps que d'autres alliés pour développer le sauvetage air-mer et que l'ARC n'avait aucunement l'intention d'offrir ce service aux civils après la guerre. Comme la Gendarmerie royale du Canada (GRC) avait été responsable de la SAR avant la Seconde Guerre mondiale, l'ARC était enchantée de se départir de ce qu'elle estimait être un rôle non militaire pour rendre la SAR à la GRC en 1946. Or, le gouvernement canadien trouvait que le plan de la GRC était trop coûteux. En 1947, il a exigé que l'ARC conserve le mandat de la SAR pour les aéronefs civils puis, en 1950, il a élargi le mandat pour qu'il comprenne les cas de détresse maritime. L'ARC a fait de son mieux pour s'acquitter du mandat qui lui avait été confié, mais elle a tenté de réduire les ressources consacrées aux besoins de la SAR civile.

Le système de SAR a connu des difficultés tout au long des années 1950, puisque la demande a augmenté durant la première moitié de la décennie. En 1958, l'ARC cherchait de nouveau à se départir de ce rôle, mais grâce à l'aide du ministère des Transports et au développement prévu de la Garde côtière canadienne, la pression s'est allégée. En 1959, on avait mis en place des plans pour élargir le système de SAR et en faire la capacité de classe mondiale qu'il est maintenant. Bien que le développement du système de sauvetage ait commencé en 1942 et que le mandat ait été élargi pour inclure le sauvetage maritime en 1950, ce n'est qu'en 1959 que l'ARC a accepté le mandat de SAR et qu'elle a modernisé le système qu'elle avait créé. La présente thèse soutient que l'ARC était réticente à développer des systèmes de sauvetage aérien et maritime avant 1958.

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List of Abbreviations

AFHQ	Air Force Headquarters
AOC	Air Officer Commanding
ASR	Air Sea Rescue
ASRO	Air Sea Rescue Officer
CAP	Canadian Air Publication
CAS	Chief of the Air Staff
CCG	Canadian Coast Guard
CLSS	Canadian Life Saving Service
CO	Commanding Officer
DND	Department of National Defence
DHH	Directorate of History and Heritage
DoT	Department of Transport
EAC	Eastern Air Command
FCO	Flying Control Organization
HF/DF	High Frequency Direction Finding
ICAO	International Civil Aviation Organization
ICSAR	Inter-departmental Committee on Search and Rescue
IMCO	Inter-Governmental Maritime Consultative Organization
IMO	International Maritime Organization
LAC	Library and Archives Canada
NATO	North Atlantic Treaty Organization
NWAC	North West Air Command
NWSR	North West Staging Route
RAF	Royal Air Force
RCAF	Royal Canadian Air Force
RCC	Rescue Coordination Centre
RCMP	Royal Canadian Mounted Police
RCN	Royal Canadian Navy
SAR	Search and Rescue
USAF	United States Air Force
WAC	Western Air Command

RCAF Officer Ranks in Descending Order

Air Marshal	Leader of the RCAF, also known as Chief of the Air Staff
A/V/M	Air Vice Marshal
A/C	Air Commodore
G/C	Group Captain
W/C	Wing Commander
S/L	Squadron Leader
F/L	Flight Lieutenant

Junior Officer Ranks: Flying Officer, Pilot Officer, and Flight Cadet

Chapter 1: Introduction

       Canadians are generally aware that air force helicopters and aircraft regularly perform dramatic rescues both at sea and in very remote locations on land, saving many lives. These rescues are the visible results of a service that was developed in Canada during and after the Second World War. For reasons that will be explained in detail later, aviation Search and Rescue (SAR) in Canada became the operational responsibility of the Royal Canadian Air Force (RCAF) in June 1947, and three years afterwards, the government added maritime SAR to RCAF responsibilities.[1]   Since that time, RCAF SAR aircraft have responded to emergencies from the Atlantic to the Pacific, and to the North Pole. Today, the RCAF and the Canadian Coast Guard are the public faces of the well-renowned SAR capability that has become an essential service for aviators and mariners operating in Canada.

       This study will focus on the RCAF, and its critical role within Canadian rescue developments, to provide historical insight on a service that is still questioned as a role for the military. A high-level discussion on the provision of SAR by the RCAF took place in 2011, when the Harper government considered the privatization of the SAR system. The discussion ended quietly, as it was suspected that the RCAF would "fight any such move" to take away a non-military mandate, as suggested by a *National Post* article that argued the RCAF would never voluntarily give up the SAR mandate.[2]

       In April 2016, the topic again became current with the revelation that the Liberal government was considering the privatization of SAR in Canada as part of its defence review.[3] Whether or not the RCAF fights the privatization concept again, the issue raises interesting questions on why the RCAF seems to consider domestic SAR as a typical military role. Had the RCAF always viewed the SAR mandate as an important military role? Had the RCAF actively sought the SAR mandate? These fundamental questions cannot be answered with the existing discourse on Canadian rescue history, and answers are relevant to the current debate.

       There will be considerable new evidence offered in due course to answer the above questions, but for now, this section will provide a very broad overview of the argument, literature, and themes beginning in 1939 that will be used to support the rest of the study. Prior to the Second World War, search-and-rescue activities were the mandate of the Royal Canadian Mounted Police (RCMP) and it will be shown that rescue services provided to Canadians were based on the amount of effort put forward by the individuals who responded to the call for assistance.[4] There was no uniformity, no organization, and no guarantees that assistance could or would be provided in pre-war Canada.[5] The Second World War, however, would

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[1] LCol Clinton Mowbray, "Lessons Forgotten? A Historical Examination of the RCAF Search and Rescue Organization," Canadian Forces College, 22 June 2014, p110.

[2] David Pugliese, "Ottawa May Privatize Search-and-Rescue Projects," *Postmedia news*, July 21, 2011 http://news.nationalpost.com/news/canada/ottawa-may-privatize-search-and-rescue-projects (accessed 30 April 2015)

[3] Lee Berthiaume, "Liberals considering privatizing search and rescue operations as part of Canadian Forces review," *National Post*, April 11, 2016 http://news.nationalpost.com/news/canada/liberals-considering-privatizing-search-and-rescue-operations-as-part-of-canadian-forces-review (accessed 12 April 2016)

[4] Library and Archives Canada (LAC), RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Memorandum for Cabinet Defence Committee, from E.W.T. Gill, Secretary, Cabinet Defence Committee, 8 January 1946, "Air, Sea, Land Rescue Services; Special Peacetime Functions of Armed Services."

[5] The Para Rescue Association of Canada, *That Others May Live: 50 Years of Para Rescue in Canada* (Astra: The Para Rescue Association of Canada, 1994), p10.

dramatically change the perception of rescue activity into a post-war understanding that a SAR system in Canada was necessary to the Canadian government and the international community.

The first major step towards the change in perception of rescue requirements took place during the Battle of Britain. Following the battle that lost hundreds of aircrew to the sea, the British Royal Air Force (RAF) developed a military version of rescue called Air Sea Rescue (ASR).[6] Allied air forces depended on the British system for flying operations around the UK, and this created expectations for similar capabilities that the Americans and Canadians needed to consider for their own home war effort. Both Canada and the United States responded with the creation of rescue systems, but primary sources will show that the Canadian development of ASR was slower and much less focused on combat rescue than American and British allies.

It has been difficult to understand why the rescue differences existed between key allies, because published material on SAR in Canada is very limited. The two available sources providing some Canadian rescue history, which will be discussed in detail later, offer a hypothesis of a loyal RCAF, volunteering the most cost-effective solution to a penny-pinching government. However, the sources do not adequately answer the questions of why the RCAF volunteered for the SAR mandate and how the wartime system was transformed into the civilian service still provided by the RCAF today. The aim of this thesis is to identify under what circumstances the RCAF acquired operational responsibility for the aviation and maritime SAR system in Canada and how the RCAF developed the system into the 1959 version, which is a very close approximation of the system today.

Contrary to an existing source that is widely considered fact within the RCAF, research for this study reveals that the RCAF did not at all volunteer, but resigned itself to the SAR role after 1958.[7] Only then did the RCAF go on to expand the capability into a system that is well known for excellence amongst SAR practitioners today. This thesis will attempt to correct misunderstandings of the formation of the SAR system in Canada and to close the gap in knowledge that currently exists about the RCAF's development of both ASR and SAR in Canada. It will be argued that the RCAF was reluctant to develop air and sea rescue systems until 1959 because the RCAF did not believe before then that domestic rescue was a military responsibility. It will become clear that the RCAF required assistance in the delivery of domestic SAR, and when that assistance was planned beginning in 1959 with Department of Transportation resources, the RCAF ceased its resistance and settled into its still-existing role as the lead agency of the SAR organization in Canada.

This argument will be supported by research using primary source documents from the Canadian Joint Operations Command, Library and Archives Canada, and the Directorate of History and Heritage. These previously unexamined documents, combined with secondary sources on SAR in general, will provide evidence of the RCAF reluctance, and subsequent acceptance of SAR, from 1939 to 1959. Documents from Cabinet and federal-level decision-making, as well as documentation from all levels within the RCAF, will be used to support the study. The thesis will be presented in five chapters: ASR requirement in the Second World War, the RCAF wartime development of an ASR system, the 1947 retention of the aviation SAR mandate by the RCAF, the expansion of the RCAF SAR mandate to the marine environment in 1950, and the formation of a robust SAR system in Canada after 1958.

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[6] Jon Sutherland and Diane Canwell, *The RAF Air Sea Rescue Service: 1918-1986* (Great Britain: Pen & Sword Books Ltd., 2005), p32. Note that Great Britain had a pre-war rescue system, unlike Canada, provided by the Royal Navy Lifeboat Institution.
[7] The source is the Para Rescue Association's *That Other's May Live*.

Before delving into the history of SAR in Canada, it is necessary to present an overview of Canada's current rescue system. It is also necessary to survey the pertinent literature on this subject area. Additionally, three themes will be suggested that are applicable to all timeframes of this study. These themes will subsequently be used to provide a framework for conclusions. Despite the reluctance of the RCAF to conduct ASR or SAR, and despite the length of time it took to develop, the narrative surrounding the development of the SAR system in Canada is an impressive story of dedicated professionals who built a robust system from the ground up with a minimal amount of personnel, money, equipment, and government support.

Overview of Rescue Systems

The analysis of the growth and development of Canadian rescue systems requires a standard for comparison. At its simplest, the development of rescue systems was based on the requirement to send out a vessel or aircraft to save someone's life. Transforming that capability to a national or internationally coordinated system, however, was very complex. As discussed, there have been two major types of rescue systems: ASR and SAR. The ASR system created in the Second World War was intended as a combat-oriented means of rescuing downed aircrew, and ASR systems grew and matured in response to the expansion of combat operations worldwide. The SAR system created after the war was a necessary response to a new international climate where the safety of passengers was critical to the growth of civil aviation and maritime transportation. These two types of systems need to be analyzed differently because SAR development started where ASR development stopped, at least in Canada.

Before the Second World War, there were no ASR systems among air forces in Canada, Great Britain, and the United States. If an aircraft was in trouble, it was incumbent upon the air station from where it was based to provide assistance.[8] When an aircraft radioed its home station and declared an emergency, station operational personnel would follow a checklist sending any available resources to assist, often without considering the operational repercussions of changing missions for aircraft.[9] This approach was largely effective prior to the war because military aircraft usually flew close to the station where boats or vehicles could reach crashes, and then return aircrew to flying duties. As soon as combat became involved, such as long-range bombing raids or convoy patrols, this procedure-based response to rescues became wholly inadequate.[10]

The RAF recognized the deficiency of rescue procedures during the Battle of Britain and soon after, in February 1941, it created a Directorate of ASR to move beyond a procedural use of station aircraft for the rescue of other station aircraft, to a systemic organization that was to involve the highest command levels. The Directorate of ASR incorporated rescue activities into all aspects of British home defence, while at the same time the RAF allocated specialized aircraft and vessels specifically for ASR missions. After the changes, an aircraft in trouble would notify its nearest control station and its status would then be reported to the responsible Group or Command where rescue resources would be assigned based on proximity, effectiveness, and other operational priorities. This study will refer to such a robust

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[8] George Galdorisi and Tom Phillips, *Leave No Man Behind: The Saga of Combat Search and Rescue* (Minneapolis: Zenith Press, 2008), p30.

[9] LAC, RG24-E-1-b, Vol. 3410, 466-1-3, Air/Sea Rescue Services – Minutes of RAF Monthly Air/Sea Rescue Meeting – Policy, File 464-3-3 Vol. 2, July 1942, "Air Sea Rescue." The Major's signature is illegible and a day of the month was not provided.

[10] Galdorisi and Phillips, *Leave No Man Behind…*, p30.

organization as a "system," and the Canadian current version will be outlined as one method to more fully describe this concept.

It is helpful to understand the highly effective Canadian SAR system of today in order to understand all rescue developments in Canada. A brief overview of the current system will show the organization, the resources assigned to the SAR mandate, and how often those resources are used. The current SAR system overview will put into context the developments described within this study. One could argue that a better comparison for the RCAF's developments would be the UK or US SAR systems, but Canada chose a different path for SAR development after the war that makes comparison with allied countries surprisingly inappropriate. Both the UK and US maintained a combat rescue capability after the Second World War, while Canada did not, and that meant that the rationale for rescue services residing with a military organization in those countries was fairly obvious. By contrast, Canada envisaged a completely domestic civilian-focused SAR capability that could have been provided by a civil organization. Even now, Canadian SAR policy is almost exclusively a civilian oriented domestic responsibility.[11] RCAF doctrine currently includes the potential use of SAR forces in times of war, so military rescue is formalized in policy, but the practical reality is that Canada only uses SAR forces for domestic rescue missions.[12]
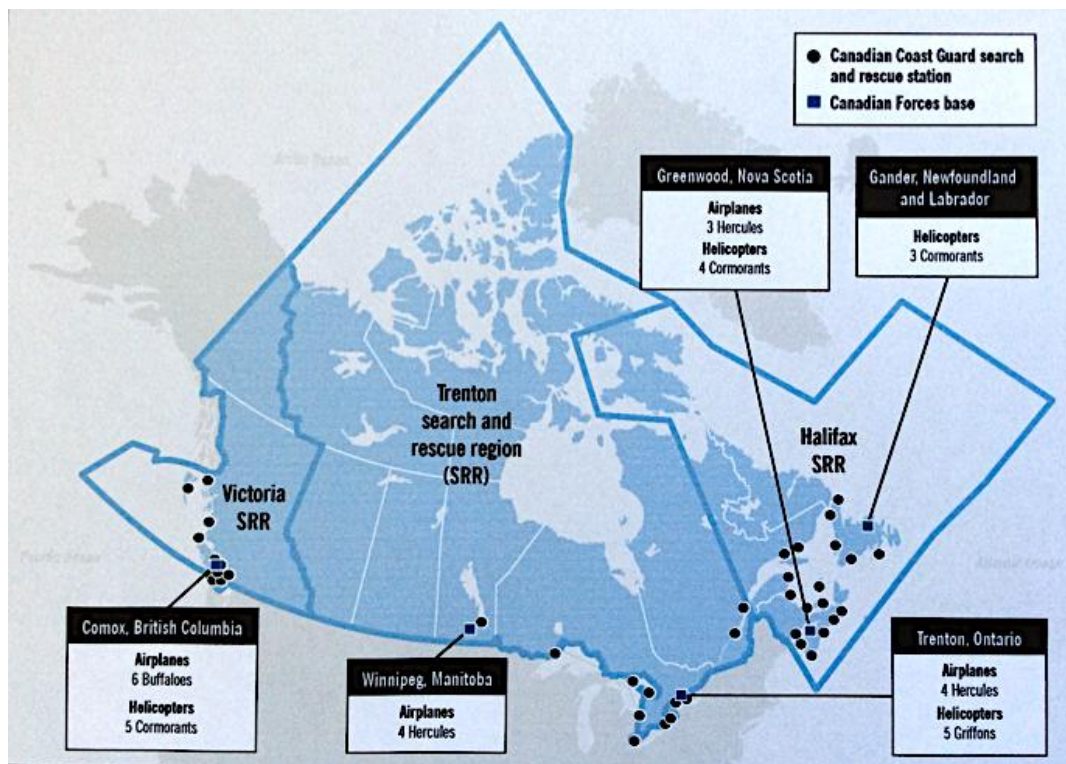
Figure 1. Canadian Search and Rescue Regions 2015[13]

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[11] Royal Canadian Air Force, *Canadian Forces Aerospace Move Doctrine* (Astra: Canadian Forces Aerospace Warfare Centre, 2011), p39.

[12] Royal Canadian Air Force, *... Move Doctrine*, chapter 3. Note that the RCAF deployed SAR forces for Op Hestia to assist Jamaica with its domestic rescue in 2011.

[13] Ferguson, Michael. "Report of the Auditor General of Canada – Spring 2013." *Office of the Auditor General*, 2013 Spring Report of the Auditor General, Exhibit 7.3.

As depicted in Figure 1 above, the current SAR system in Canada is organized into three SAR regions: Halifax, Trenton, and Victoria, and each region has one Rescue Coordination Centre (RCC) named after the region.[14] Together, the RCCs are responsible for aeronautical and maritime SAR in Canada and they provide the SAR command and control by: investigating incidents, assigning appropriate aircraft and vessels to search, and coordinating the rescue of people in distress.

The three RCCs responded to 9,172 cases in 2014 and these cases were initiated based on information suggesting there was a distress with an aircraft anywhere in Canada's area, or a marine vessel in the oceans or Great Lakes of Canada's internationally assigned area of responsibility.[15] Aircraft distress situations accounted for 24.9 percent of RCC activity in 2014 and marine distress situations accounted for 55.7 percent of activity.[16] Military aircraft crashes over Canada, which were prominent in the period of this study, are now non-existent as a regular source of SAR activity. The remaining 19.4 percent of RCC activity was in response to humanitarian missions.[17]

A humanitarian mission is one where the mandate for the response exists with the police of jurisdiction or Provincial authorities, but the lead organization believes its resources are insufficient for the rescue at hand and makes a request to the applicable RCC for federal assistance.[18] Examples of humanitarian missions are: requests to search for missing persons, requests to transport critically ill people when civilian aircraft or vessels cannot conduct the mission quickly enough, or requests to transfer urgently required emergency supplies, like medicine, to remote locations.[19]

Throughout this study, the term "humanitarian" will be used to describe requests for federal SAR assistance from the provinces or police. In the past, the most common term used was "mercy flights," which described missions where RCAF aircraft transported ill persons or critically required food or medicine. Some missions were categorized as "missing persons" missions, or "RCMP assistance," or simply "other."[20] None of these mission descriptions were part of the formal SAR mandate for aeronautical or maritime SAR, so the use of the term humanitarian to describe all such use of SAR resources will simplify the discussion.

The SAR mandate requires aircraft and vessels to respond to distress situations, and the RCAF and Canadian Coast Guard (CCG) provide those resources today. The RCAF has a total of 39 aircraft available to provide primary SAR response from five bases across the country.[21] In 2014, these resources responded to 655 missions and flew 2,420 hours. Put another way, the aircraft flew 3.8 hours per incident requiring RCAF assistance.[22]

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[14] Circa 2002, the name was changed to Joint Rescue Coordination Centre (JRCC) to capture the reality that the Canadian RCCs are responsible for both aeronautical and maritime SAR, which fits into the joint concept of NATO military doctrine. The Centres will be referred to as RCCs in this paper to avoid confusion.

[15] Canadian Armed Forces, Chief of Review Services, *SAR Program Review 2014* (June 2015), piii.

[16] Canadian Armed Forces, *SAR Program Review…*, p21.

[17] Canadian Armed Forces, *SAR Program Review…*, p21.

[18] National Defence and Fisheries and Oceans Canada, *CAMSAR, Canadian Aeronautical and Maritime Search and Rescue Manual, Combined Edition – Volumes I, II, and III, Supplement to the IAMSAR Manual*, B-GA-209-001/FP-01, effective date 30 September 2014, CAMSAR II, Chapter 3.04.

[19] Directorate of History and Heritage (DHH) 79/631, RCAF Search and Rescue Operation 1947-1970, DIS Files 1-14, SAR Ops 1955, File 9, 15 February 1956, "Royal Canadian Air Force Release No. 8634."

[20] DHH, 79/631, ... "Royal Canadian Air Force Release No. 8634."

[21] Canadian Armed Forces, *SAR Program Review…*, p2.

[22] Canadian Armed Forces, *SAR Program Review…*, p21.

Additionally, the RCCs have the ability to coordinate the tasking of other military resources when the primary SAR aircraft are deemed insufficient. Other Canadian Armed Forces resources, such as Royal Canadian Navy (RCN) ships or non-SAR RCAF aircraft, were tasked 356 times in 2014. The total hours flown by non-SAR RCAF aircraft on SAR missions was only 78 hours, while the hours logged by ships were not available.[23] The inclusion of other RCAF aircraft into the conduct of SAR missions is particularly relevant to the story of SAR development in Canada, as RCC tasking of non-SAR military aircraft has historically affected other RCAF missions. The SAR mandate spread into all aspects of RCAF operations in the 1950s, which was a source of frustration for commanders and staff trying to manage other air force missions.

For the maritime component of SAR, the CCG has 66 stations across the country where there are SAR-equipped marine vessels available on 30-minute notice at all times.[24] These vessels form the essential maritime component of the rescue system. In 2014, the CCG provided crews and vessels to 3,881 SAR missions.[25] Compared to the RCAF use of resources for SAR activities, the CCG sends out resources roughly four times more often. Undoubtedly, the CCG is a critical component of the SAR framework in Canada, necessary for the provision of rescue expertise in the maritime domain. This component, however, did not exist during the period examined in this study. As the mandate has changed little since 1950, and there were no immediately available rescue vessels on standby in the 1950s, the current fleet of numerous and effective resources will emphasize the difficulties of that period of time.

In examining the evolution of rescue systems, developments will be assessed using three proposed characteristics of a national rescue system. These characteristics are: a national standard for aviation and maritime emergencies in Canada, formalized policy for investigation and response in both military and civilian rescue missions, and resources available for all rescue mission types. National standards refers to the need to respond with the same level of service to all parts of the country for the particular incident type, aviation or marine, and not just in an area where there happens to be a rescue aircraft or vessel. Formalized policy is used to identify that an organization has been mandated to take information from military or civilians reporting an aviation or maritime incident, and elements of that organization, or another, are mandated to respond. Resources available for all mission types refers to fixed-wing aircraft, helicopters, and a wide variety of maritime vessels all in well-placed locations to meet any emergency over Canadian territory or in Canada's oceanic and Great Lake areas. This range of rescue resources is common to most rescue systems worldwide and they often are used concurrently to complete a successful rescue.

In order to make the system development clear throughout this study, a colour-coded graph will be presented near the beginning of chapter two and then at the end of each chapter to highlight the meaning of major developmental changes. The major changes will be policy changes at the RCAF and Canadian government level, and resource changes across the country, and the graph is intended to summarize the interaction of the various changes throughout the developmental period in discussion. Another tool to assist in understanding these changes will be the occasional addition of maps, with the few that were found, to show the distribution of rescue resources within Canada.

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[23] Ibid, p20. The flight hours were provided by the Senior Staff Officer SAR for 1 Cdn Air Div, LCol Bryn Elliott, on 20 November 2015.

[24] Canadian Armed Forces, *SAR Program Review…*, p4.

[25] Canadian Armed Forces, *SAR Program Review…*, p20.

The current SAR system, as depicted in Figure 2 below, meets all the proposed characteristics of a national aviation and maritime rescue system and is presented as an example of how the system will be explained. Green highlighting identifies that the resources or policies satisfactorily meet the particular factor within; national standards for each component of SAR, available aircraft and vessels on standby for rescue missions, and a formalized policy for military and civilian rescues. Yellow highlighting identifies that there are deficiencies in either the policies or the resources, and these will be briefly outlined. Red highlighting means that resources or specific policies were deficient enough as to have a negligible or negative effect on that particular category of the SAR system.

National Standards	**Aviation**. Required by ICAO and ordered by the government	**Maritime**. Required by IMO and ordered by the government
Available Resources	**Aircraft** (and Helicopters). Provided by the RCAF at five locations	**Vessels**. Provided by the CCG at 66 locations and supplemented by any available government ship
Formalized Policy (aviation and maritime only)	**Military rescues**. Required by NATO, and provided by all branches of the military	**Civilian rescues**. Required by ICAO/IMO, and provided by the RCAF and CCG

Figure 2. Current System Overview

The three characteristics evolved unevenly over time, as will be demonstrated, and they will be used to highlight specific factors in each chapter of this study where the RCAF demonstrated reluctance. The specific factors of; one, national standards for maritime emergencies, two, available vessels for emergencies in ocean areas, and three, a formalized policy for civilian rescues, will be shown to be clear problem areas as we progress through SAR history. However, the importance of the timeframe covered in this study is that these major characteristics were all ordered resolved by 1959, and were in practical and effective use by 1962. All changes since then have simply refined the system that was created by 1959.

Literature Review

The origins and development of the Canadian SAR system have received little attention from scholars. This is in stark contrast to rescue system histories of Great Britain and the United States, where there is an abundance of material. This material and the literature on domestic development of western air forces after the war provide the necessary context with which to develop an understanding of SAR in Canada. The literature on the SAR system in Canada, although limited, does provide an overview of key events that will be further explored in this study. Combined with abundant primary source material from the Directorate of History and Heritage (DHH) and Library and Archives Canada (LAC), there is sufficient material available to develop a reasonably complete understanding of the evolution of the Canadian rescue system. There are three broad categories of literature that are relevant to this study: Canadian SAR history, military aviation and rescue history of the Second World War, and post-war aerospace development.

Two works examine what little is currently known about Canadian SAR history; the Para-Rescue Association's *That Others May Live* (1994) and Lieutenant Colonel Clinton Mowbray's 2014 *Lessons Forgotten: A Historical Examination of the RCAF Search and Rescue Organization*, a Master of Defence Studies directed research project. Brief summaries below

will show that these sources provide insufficient details of overall rescue development, and in fact, *That Others May Live* has at least two incorrect assumptions. Both of these works, however, offer significant value.

     That Others May Live contains considerable detail about the wartime development of the rescue capability, but details are provided strictly from a parachute rescue specialist's perspective, as the book aims to deliver a history of this particular personnel trade within the RCAF. While it is an excellent resource, there are two arguments made in the wartime chapter that are not supported by primary sources. These two arguments are; the RCAF volunteering for the SAR mandate, and the timeline of the initial training development of parachute rescue personnel.[26] *That Others May Live* does not include a bibliography, but the errors discovered suggest it is likely that this book used a very limited amount of primary research for the short section on the formation of the SAR system. The history it tells of the rescue system in Canada is a by-product of the parachute rescue specialist story, but it is a worthwhile starting point for an understanding of rescue development in Canada.

     Mowbray's work outlines all of Canadian SAR history, covering 100 years in 116 pages, and aims to review five lessons learned, but perhaps forgotten, during that period. The first four lessons are: purchasing effective aircraft for SAR, maximizing search procedures, the use of emergency beacons to find those in distress, and the response posture for RCAF aircraft launching on SAR missions. The final lesson asks if it is still appropriate for the RCAF to be responsible for SAR, and concludes that the original reasons for assigning SAR to the RCAF are no longer valid.[27]

     The paper is a concise overview of the complete history and provides a worthwhile starting point for a more in-depth discussion of SAR development in Canada. In many ways, this thesis is complementary to Mowbray's effort as this work fills in some of the gaps on response posture and adds additional insight to the original reasons the RCAF was assigned domestic rescue. Mowbray's study uses mostly secondary sources, but some primary sources are interspersed to provide a more accurate depiction of SAR origins than the book discussed above. Another important feature of this paper is that it uses and quotes a great deal of the available periodical literature on the RCAF.

     Another valuable source is Lieutenant Colonel (retired) G.Y. Smith's *Seek and Save* (1990), which tells the story of 103 Rescue Unit, the only original rescue squadron still in service today and which Smith commanded in the late 1980s.[28] This book is one of many SAR squadron histories, but all the other histories examined have chronological gaps making them relatively unnecessary for this study. *Seek and Save*, however, does an admirable job of outlining the history of 103 Rescue Unit from its inception in 1947 through the timeframe of consideration here, and provides valuable contextual information of an RCAF unit operating on the East Coast. While it is clear that this book was written from primary sources, there is no bibliography, which reduces the authority it would otherwise enjoy.

     Although the focus of this thesis is the RCAF, there is considerable maritime SAR history in Canada that is essential to understanding the expansion of the RCAF mandate to include maritime rescue. Clayton Evans' *Rescue at Sea* (2003) provides a history and overview of maritime rescue all over the world and includes a short section on each country.[29] As Evans

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[26] The Para Rescue Association of Canada, *That Others May Live*..., p31 and 13.

[27] Mowbray, "Lessons Forgotten? ...," p109.

[28] G.Y. Smith, *Seek and Save: The History of 103 Rescue Unit* (Erin, Ontario: The Boston Mills Press, 1990).

[29] Clayton Evans, *Rescue at Sea: An International History of Lifesaving, Coastal Rescue Craft and Organisations* (London: Conway Maritime Press, 2003).

is a CCG Officer and an academic, he has a deep understanding of maritime SAR in Canada and his book offers contextual insight into important maritime SAR developments in Canada before and after the Second World War. Evans underlines the decline of the Canadian coastal lifesaving service at the beginning of the Second World War and explains that maritime rescue did not recover until after the CCG was formed in 1962.[30] He informs the reader that as part of the war effort, the RCMP and the lifesaving service provided vessels to the military for their needs, and that this drastically reduced police rescue efforts at sea during the war.

The RCAF entered the war with a rudimentary sea rescue capability, and it was provided by marine craft located at those air stations operating seaplanes. These craft were formed into two marine squadrons during the war, and Hugh Halliday provides an overview of their roles and capability in *The Role of the Boats* (2011).[31] He outlines how and when the boats were acquired, and explains that they were often used during the war for patrols along aircraft flight routes to provide rescues when needed. Two other sources covering the same topic, but with differing foci, are J.E. Vernon's article "RCAF Marine Craft" (1998) and Geoff Pilborough's *The Royal Canadian Air Force Marine Squadrons* (1996).[32] All three of these sources describe a little-known rescue capability that proved to be a critical factor in the 1950 decision-making that led to the RCAF becoming responsible for maritime SAR.

The RCN has been largely left out of all of the sources described above, but it was very involved in all aspects of ASR and SAR development. The RCN was particularly important for its role in developing communications systems after that war that were essential to meet 1947 international standards for SAR. The LAC has considerable primary source documentation kept by the RCN that informs this study as to the rationale behind the 1950 decision to add maritime SAR to the RCAF aviation SAR mandate. Additionally, documents exist to explain how the RCN convinced the RCAF to reinsert rescue back into wartime planning during 1960.

On the matter of the post-war maritime rescue situation in Canada, Thomas Appleton's *Usque Ad Mare* (1968) outlines the official history of the Canadian Coast Guard, thus providing a detailed supplement to *Rescue at Sea*.[33] This book offers an overview of the maritime circumstances that led to the formation of the CCG and the pressures that required a consolidation of maritime rescue resources. There was a large expansion of maritime rescue capability in the early 1960s and this author gives a valuable perspective on the problems this expansion resolved.

Another source on the CCG is Charles Maginley's *The Canadian Coast Guard* (2003). The author used extensive primary sources on 1950s SAR, but not from the RCAF, so some of the information provided is incorrect.[34] Therefore, other sources were used instead to discuss the important addition of maritime rescue resources into the RCAF's SAR organization. The formation of the CCG provided relief to the RCAF from the maritime portion of the SAR mandate and essentially ended RCAF reluctance to remain in the rescue role.

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[30] Evans, *Rescue at Sea…*, p209.

[31] Hugh A. Halliday, "The Role of the Boats: Air Force Part 46." *Legion Magazine*, 30 Aug 2011.

[32] Geoff D. Pilborough, *The Royal Canadian Air Force marine Squadrons, Volume 1, 1935-1945* (Edmonton: Canimpex, 1996); and J.E. Vernon, "RCAF Marine Craft," *4th Annual Air Force Historical Conference: 80 Years of Maritime Aviation in Canada*, 12 Wing Shearwater, Nova Scotia, August 24th – 25th 1998, p103 and 106.

[33] Thomas Appleton, *Usque Ad Mare: A History of the Canadian Coast Guard and Marine Services* (Ottawa: Department of Transport, 1968).

[34] Charles D. Maginley, *The Canadian Coast Guard, 1962-2002* (St. Catherines: Vanwell Publishing, 2003). The author missed some of the discussions on the creation of a Canadian Coast Guard and incorrectly identified one specific case as the reason the RCAF was assigned the maritime mandate.

All of the sources described above give a general sense of the SAR history of Canada. The second category of literature relevant to this study is the histories of the air forces of the Second World War, specifically those that created large and distinct rescue organizations. These rescue systems stemmed from the Battle of Britain, both the original German comprehensive system in place at the beginning of the campaign, and the large and effective British system developed in 1941 after painful lessons were learned. In the early days of the Battle of Britain, the British rescue procedures changed rapidly based on the need to provide the same level of service seen on the other side of the Channel, because "British pilots knew that they had more chance of being picked up safely on the French side of the Channel than they had on the English side."[35] Books and articles of aircrew rescues in the Second World War describe the systems developed to preserve difficult-to-replace aircrew.

The most comprehensive source on the development of rescue systems in the Second World War is George Galdorisi and Tom Phillips' *Leave No Man Behind* (2008).[36] This book is focused on combat SAR development starting with the birth of combat aircraft in 1915 and concludes with a detailed examination of contemporary American combat SAR equipment, capabilities, and the future of combat SAR. Despite the massive scope, the information it provides on ASR development in the Second World War is unparalleled when compared to all other sources. Information on the German Luftwaffe's *Seenotdienst* (air sea rescue service) is far more thorough than any other English language source and is based on an unpublished manuscript from a USAF-commissioned German manuscript series from 1955. The chapter on the *Seenotdienst* provides evidence of flaws in what has typically been described as the gold standard of combat rescue of that time.[37] This work offers detailed wartime contextual background against which the Canadian ASR development can be put into perspective.

Although the focus of *Leave No Man Behind* is largely on the American system that was developed after the Second World War, another source outlining both British and German combat rescue systems is L.B. Taylor's *That Others May Live* published in 1967.[38] The topic of this book is the history of the USAF's Aerospace Rescue and Recovery Service, with the unfortunate abbreviation ARRS. This work, which is frequently cited in other rescue literature, describes the beginnings of the American experience of combat rescues from the air. The author was a Public Information Officer for ARRS, and thus is assumed to have had access to primary source information internal to the organization, and the preface indicates that the ARRS approved the contents before release. The lack of bibliographic material, however, reduces the authority of an otherwise insightful study. The content describes known aerial rescues from 1870 through to the Korean War and provides valuable insight into the post-war development of the American system that provided rescue services to both military forces and civilians.

Both American and Canadian SAR systems owe a great deal to the development of the British ASR system during and after the Battle of Britain. This system is described in Denis Richard's official history, *Royal Air Force 1939-45, Volume 1, The Fight at Odds* (1974).[39] The book leaves out details, but it does have statistics of specific units assigned to the ASR role throughout the war. Covering the same ground, but in far greater detail, is Jon Sutherland and

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[35] Peter Whittle and Michael Borissow, *Angels Without Wings: The Dramatic Inside Stories of the RAF's Search and Rescue Squadrons* (Great Britain: The Angley Book Company Ltd., 1966).

[36] Galdorisi and Phillips, *Leave No Man Behind...*

[37] Galdorisi and Phillips, *Leave No Man Behind...*, p30.

[38] L.B. Taylor, *That Others May Live: The Aerospace Rescue and Recovery Service* (New York: E.P. Dutton & Co. Inc., 1967).

[39] Denis Richards, *Royal Air Force 1939-45, Volume 1, The Fight at Odds* (London: Her Majesty's Stationery Office, 1974).

Dianne Canwell's *The RAF Air Sea Rescue Service: 1918-1986* (2005).[40] As it aims to be a complete history of the rescue service provided in the United Kingdom (UK), the latter book is relevant in its detailed description of the wartime development of ASR, but also for its outline of SAR in Great Britain in the period after the war. Therefore, this is useful contextual information that helps the reader understand differences that developed in ASR between Canada and the UK.

A book that examines a related topic, aircraft transatlantic procedures development in the UK and Canada during the war years, is Carl Christie's *Ocean Bridge: The History of RAF Ferry Command* (1995).[41] Ferry Command was an RAF organization, operating from Dorval airport in Montreal, and it had to coordinate with RAF, RCAF and US authorities as it developed procedures and safety systems to fly new aircraft across the North Atlantic.[42] Christie's book is particularly important for its very detailed bibliography and notes, which provided Canadian archive locations for specific rescue incidents during the Second World War. Christie discusses the serious deficiencies of the North Atlantic ASR system and provides a list of all of the aircraft lost over the five years of the Ferry Command effort.[43] The state of ASR over the North Atlantic provided an interesting counterpoint to the well-developed ASR systems set up over the Channel and allowed for a better understanding of the slow Canadian ASR development. This book is essential to any understanding of the civil aviation and allied linkages that became the cornerstone to SAR development immediately following Canada's participation in the war.

One would think that the development of the ASR capability in the RCAF during the Second World War would be covered in the official history of the RCAF, but it is not. Volume II of the official RCAF History is W.A.B. Douglas' *The Creation of a National Air Force* (1980) which covers the inter-war era as well as the Home War Establishment in Canada during the Second World War, and Volume III is Brereton Greenhous et al's *The Crucible of War* (1994), which covers the RCAF's Second World War involvement overseas.[44] There is no mention at all of ASR in Volume II and most of the discussion on ASR in Volume III centers on the RCAF planning for operations against Japan in 1945, when the RCAF considered reconfiguring 404 Squadron, a coastal patrol and attack squadron stationed in England, as a dedicated ASR squadron.[45] Both of these books remain useful to this study due to the depth of information on RCAF organization and development before and during the war.

The likely reason that ASR is not covered in the official history is because the RCAF never reconfigured a squadron to conduct just the ASR mission. ASR was a secondary assignment at stations even though it became increasingly important during the course of the war. As most of the Canadian-based ASR capability used existing resources to conduct a task that was not used very often, in contrast to ASR operations in Europe or the Pacific, it was a capability easy to overlook when one is trying to tell the much larger story of the RCAF at war. Work has begun on a fourth volume of the RCAF history, and it is hoped that this thesis will

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[40] Sutherland and Canwell, *The RAF Air Sea...*

[41] Carl A. Christie, *Ocean Bridge: The History of RAF Ferry Command* (Toronto: University of Toronto Press, 1995).

[42] Christie, *Ocean Bridge...*, p261.

[43] Christie, *Ocean Bridge...*, p261 and 309-330.

[44] W.A.B. Douglas, *The Creation of a National Air Force: The Official History of the Royal Canadian Air Force Volume II* (Canada: University of Toronto Press, 1980)*;* and Brereton Greenhous, Stephen J. Harris, William C. Johnston, and William G.P. Rawling, *The Crucible of War, 1939-1945: The Official History of the Royal Canadian Air Force Volume III* (Toronto: University of Toronto Press, 1994).

[45] Greenhous et al, *...Air Force Volume III*, p116.

help inform the authors of the new volume about a rescue capability that became an important national mandate assigned to the air force in Canada after the war.[46]

The final category of literature relevant to this study is that analyzing the post-war environment in Canada, specifically as it relates to air force funding and government involvement in aviation matters. There is a large and diverse body of literature on this topic, but very little of it is relevant to the decision-making on SAR system development. The most useful source is David MacKenzie's *Canada and International Civil Aviation* 1932-1948 (1989), which provides a Canadian perspective on civil aviation. In particular, he examines Canada's role in the formation of the International Civil Aviation Organization (ICAO), a group of national representatives with executive authority over the international civil aviation system that includes the provision of SAR services.[47]

Much of Mackenzie's book covers some of the events described in Christie's *Ocean Bridge*, but from Canadian civilian and political perspectives. The Canadian government's decisions concerning aviation and the understated transition from the British military orbit to an American orbit combine to provide essential context in post-war civil aviation development. MacKenzie shows that ICAO, and its focus on a safe growth of transatlantic air travel, would drive most of the initial requirement for the eventual international aeronautical and maritime SAR system. Mackenzie's evidence is key to appreciating the Canadian political climate of that time and for this subject.

After the war, Canada and the RCAF were forced into a period of transition. Cost and finances were major factors in post-war decision-making, and this is clearly laid out in Colin Campbell's 2015 article "J.L. Ilsley and the Transition to the Post-War Tax System: 1943-1946."[48] The implications of the debt incurred over the course of the war and the massive requirement for new national systems and organizations form the backdrop to the SAR decisions that were made in the 1945-1950 time period. The article highlights the continued need for income tax and why new costs were deeply scrutinized. Therefore, this article provides an understanding of the politics involved in post-war SAR decision-making.

All of the literature cited above is essential to a full understanding of rescue system development in Canada. One may note that little mention has been made of the post-war RCAF activities other than SAR, but the major RCAF developments in the post-war era were found to have little correlation with rescue developments, which is why other RCAF developments have been largely left out of this study. As important as other RCAF activities were to Canada's international relations, they had little impact on rescue activities at home.

The categories of military aviation and rescue history of the Second World War, and post-war aviation development, are both areas where there is a great deal of literature. However, this review has been limited to those titles that provide meaningful evidence specific to rescue system developments, and as those systems pertain to Canada. The literature on the post-war environment in Canada, albeit comprehensive, is limited in its applicability to this subject area. To complement the sources of all three areas of literature, one must turn to the varied and thorough archives in Ottawa.

There is a great deal of primary source material on RCAF rescue systems in the LAC and DHH archives, and it covers all aspects of ASR and SAR since the inception of ASR in

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[46] Historians at DHH provided this information to this author during the week of 21-25 September 2015.
[47] David MacKenzie, *Canada and International Civil Aviation 1932-1948* (Toronto: University of Toronto Press, 1989).
[48] Colin Campbell, "J.L. Ilsley and the Transition to the Post-War Tax System: 1943-1946," *Canadian Tax Journal* (2015), p1-52.

Canada in 1942. Unfortunately, roughly one third of the available documentation in the LAC is "restricted by law," due to international content, but the international nature of this material makes the restricted documentation less relevant to the Canadian developments discussed herein.[49] The restricted material is difficult to access, as it would require permission from Global Affairs Canada, the Department of National Defence, and international partners, which is why this material was not used here. A good deal of the unrestricted material relates to wartime ASR at the squadron level, but for the overseas squadrons and not the squadrons within Canada. This in itself is very interesting as it suggests that ASR was ingrained in organizations that operated within the RAF structure, but for RCAF-only operations, ASR appeared to be left to Commands to deal with as they saw fit.

The records at LAC consist mostly of files that have been transferred from DHH, and they document much of the military-civilian interaction between 1945 and 1959. In addition to RCAF and RCN files on all aspects of ASR and SAR, there are RCMP and Department of Transport files that provide insight into the pre-war method of dealing with SAR requirements in Canada. The post-war RCMP files even have a detailed map of the Mounties' proposed SAR bid from 1945, so there is a great deal of new information to be seen. Another significant contribution from the LAC is the archive material from the Privy Council Office and Ministers of the Canadian Government. These files provide necessary background to government decision-making as the Cabinet grappled with the expansion of organizations amid tight finances.

The decisions made by Cabinet were put to paper and passed to the military, and some of that material still exists within the Canadian Joint Operations Command (CJOC) in Ottawa. Fellow RCAF officers were kind enough to allow a review of the declassified material that was not located in either LAC or DHH, although it is possible that these documents are located in one or both of these locations. The small amount of information at CJOC was useful for an understanding of the key decisions as viewed by military personnel.

The Canadian decisions were all made with an understanding of the international context, and for this overview there is online historical documentation available from the International Maritime Organization (IMO) and ICAO. These documents provide direction from these international bodies to signatory nations, and there are key facts to be gleaned from these documents on how and when international direction was provided on rescue system development. In particular, these documents show how the aviation community led the way for rescue requirements; an approach subsequently followed a few years later by the maritime organization. Indeed, these sources provide the fundamental policy framework within which Canadian decisions had to be made.

This literature review confirms that there is a great deal of unexamined material allowing for an in-depth analysis of ASR and SAR development in Canada. The secondary sources will mostly be used for context while the primary sources are instrumental for the understanding needed to analyze decisions made by both the RCAF and the Canadian government. Both primary and secondary sources will provide evidence that the RCAF was reluctant to develop rescue systems during and after the Second World War.

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[49] "Restricted by Law" is the term used by the LAC to identify sources that cannot be consulted without prior approval from all organizations that provided documentation within the file.

A Summary of Themes

In the process of organizing this study, it became evident that there are three themes woven through all aspects of rescue system development in Canada. They are: one, international pressure on Canada to develop rescue systems, two, a Canadian national requirement to develop and maintain sovereignty, and three, government direction to conduct SAR at the lowest cost. These themes affected both government and RCAF decision-making, as well as relevant public policy, throughout the development of both wartime and peacetime rescue systems.

International pressure came from Allied forces throughout the war, as interoperability was needed to maintain the morale of aviators conducting missions in harm's way and in the critical development of transatlantic flight procedures. By 1944, post-war planning had begun amongst the Allies and initial discussions took place on aviation policy and regulations, which in turn drove post-war SAR development. After the war, the newly instituted ICAO applied pressure on all nations to standardize SAR capability from an aviation perspective. In 1948, the United Nations created the Inter-Governmental Maritime Consultative Organization (IMCO), which was renamed the International Maritime Organization (IMO) in 1982, and this organization formalized a requirement for nations to provide maritime SAR.[50] The international requirements overrode Canadian resistance to national rescue system development.

Canadian sovereignty was front and centre in the expansion of the military during the Second World War, and remained important to decisions made after the war. Canada was caught between a long-standing colonial relationship with the UK and an understanding that the future required a far closer association with the United States. However, it will become clear that there were events during and after the war where Canada had deep concern over American encroachment into Canadian territory, and the RCAF at times took action to minimize the American tendency to be involved in Canadian SAR. Sovereignty in Canada was strengthened by the existence of well-developed rescue systems.

Finally, there was continual pressure in Ottawa to harmonize resource allocation to accomplish all government-mandated tasks with the minimum number of people, the least amount of equipment, and the lowest possible cost. This is much less evident throughout the war, but there were some surprising efforts at resource rationalization even in the war years. Afterwards, the government decided to accept the new responsibility for SAR with all existing departmental resources used in co-operation. Decisions made by the government sometimes left the RCAF without a chair when the music stopped, for rescue mandate allocation, as other departments often refused to share the workload until 1959. This theme of harmonization of resources significantly delayed the development of a CCG for the maritime component of SAR until deficiencies in the SAR service became very obvious. Cost concerns within the air force often fed RCAF reluctance, but conversely, finances drove government decisions to assign SAR to the RCAF.

These three themes will be revisited at the end of each chapter in order to provide continuity of evidence analysis and to highlight key factors that pushed the RCAF towards the development of rescue systems well beyond the air force's commitment to provide a rescue capability for its own aviators. It is all too easy to dwell on the internal actions of the RCAF that minimized the efforts put towards ASR and SAR, but conclusions made with a broader look

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[50] IMO, About IMO: History of IMO: *Brief History of IMO*, copyright 2015
http://www.imo.org/en/About/HistoryOfIMO/Pages/Default.aspx (Accessed 6 November 2015).

at the international and national situation will provide the context needed to judge the decisions that were made. All three themes demonstrate increasing pressures on the government and the RCAF at different stages to develop a national rescue system, and it is evident that they form a critical framework within which this history unfolded. Despite all of these mitigating external factors, it will still become clear that the RCAF was reluctant to own air or sea rescue systems until after 1958.

Chapter 2: Combat Requires Air Sea Rescue After 1939

Canadian search and rescue was not formalized prior to the Second World War and there was no demand on the RCAF to provide rescue services. As we will see in the following discussion, there had been a mix of volunteers and staff paid by the RCN to operate a small Canadian Life-Saving Service for sailors on the coasts and in the Great Lakes, but the outbreak of war saw most of those men and vessels transferred to the RCN for other duties. On land, the RCMP was the lead agency for emergency assistance to Canadians in distress. Overall, it is fair to say that rescue activity was conducted in an ad hoc manner.

Once the war began, the lack of a Canadian domestic rescue service for civilians meant that there were very few resources for rescue assistance. The RCAF, with a few high-speed rescue vessels, assisted the RCMP and Canadian public during emergencies and the military use of resources to assist in civilian distress situations will be referred to as domestic rescues. War would change perceptions on the need for rescue services.

The first nation to change its perceptions was Great Britain, after its Battle of Britain conflict with Germany. In 1940, the German Luftwaffe's rescue service, the *Seenotdienst*, demonstrated clearly the benefits of a search-and-rescue capability for pilots downed at sea during combat. The British development of an Air Sea Rescue (ASR) system in 1941, following the German example, was a necessary reaction to British aircrew witnessing the rescue of enemy aircrew saved from the sea around the UK. Both the German and British ASR developments set the standard for other nations to follow as the war spread from Europe all around the globe. An ASR system was, arguably, a new standard required for areas where combat operations were expected to take place, and this type of system became the international benchmark that the RCAF had to emulate as the fight came close to Canadian shores.

U-boat operations threatened Canadian shores, and Canada believed the east and west coasts were about to become operational combat areas. In accordance with the proven example for such matters set by the RAF, by the end of 1942 there were rescue procedures in place in the RCAF's home war establishment of the Western Air Command (WAC) and the Eastern Air Command (EAC) in order to provide an allied rescue capability if the fight transitioned onto Canadian shores. It will be argued that the threat of war near Canadian shores caused the formation of an ASR system in the RCAF and that in the entire period under study, the formation of an RCAF ASR system, needed for the expected fight on home territory, becomes the conceptual beginning of an integrated aviation and maritime SAR system in Canada.

Pre-War Canadian Rescue Capabilities

Rescue services in Canada, prior to the war, were haphazard and the RCAF did not have any mandated role in the provision of them. "Calls for help could be received by the RCMP, the Navy, the Army, the Air Force, Municipal Police and commercial or civilian organizations."[1] There was negligible rescue regulation at the national or international level, the paucity of documented guidance underscoring the lack of a national rescue policy.[2] At sea,

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[1] The Para Rescue Association, *That Others May Live*, p10.
[2] A detailed search was made for documentation critical of rescue services in the late 1930s in RCMP and Department of Transport files, but nothing was found.

volunteers of the Canadian Life-Saving Service (CLSS) provided a limited rescue service to mariners of Canadian oceanic areas and the Great Lakes, although by 1939 it was greatly diminished from its heyday in 1915 when there were 40 stations across the nation.[3] On land, whether it was for response to a crashed aircraft or for humanitarian assistance, the RCMP coordinated rescue assistance using resources from any available organization.[4] Simply stated, there was no Canadian rescue system.

The lack of formal rescue policy or procedures meant that the RCMP was more likely to receive calls for help than the RCAF, so the RCAF dealt with budget cuts resulting from the Great Depression, and responded to humanitarian requests only on an occasional basis.[5] There are no detailed records of humanitarian flights within five years prior to the war, but there is a report on humanitarian flight provision by J.A. Wilson, the Controller of Civil Aviation, written in 1934. For the period 1932-1934, one airline operating in North West Canada, Canadian Airways, stated that a staggering 167 humanitarian flights had been conducted and other airlines added another 35 flights to the total.[6] If there were any RCAF humanitarian flights in this period, they were not recorded in this report and humanitarian flights were known to be very sporadic requests for the RCAF.[7]

The RCAF may not have been greatly involved in humanitarian flights, but it did have a limited rescue presence in the maritime domain. The RCAF of 1936 flew seaplanes at five units across the country, and to support the seaplanes, the RCAF had acquired 88 various marine vessels to tow the planes, service them, and to assist with rescue if needed.[8] Four of these vessels were high-speed rescue craft, capable of 35 knots for prolonged distances.[9] There were two of these vessels on each coast, and they were available for rescue work as needed under the command of the station where the vessels and the seaplanes were based.[10]

Despite the RCAF's ability to perform maritime rescue, it was not called upon to perform such work because the RCMP or CLSS was normally called upon to do so in maritime emergencies.[11] In 1938, however, the RCMP handed over nine counter-rumrunner vessels to the RCAF as part of an overall program to boost resources within the RCAF and RCN for war, and these vessels augmented the military rescue capability at the seaplane units.[12] What little rescue capability the RCAF had at the beginning of the war was for the rescue of aircrew from crashed seaplanes, normally flying close to home station. However, when the RCMP handed over fast rescue vessels to the RCAF, it also meant that the RCMP had so few maritime resources left at its disposal that it could no longer perform maritime rescue to Canadians after the Second World War began.

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[3] Evans, *Rescue at Sea*, p209.
[4] LAC, RG24-D-1-c, Vol. 8164 File Part 1-2, 1700-27 SUB 1, Organization and Administration – Air, Sea, Search and Rescue Services, Interdepartmental Committee on SAR, Vol. 1, Prepared by Chairman S/L R.J. Lehman, 30 November 1945, "Minutes of Meeting 4 of the Interdepartmental Committee on Post-War Air Sea Rescue."
[5] Douglas, *National Air Force...*, p89.
[6] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue Policy, SAR – Organization and Administration, Report to the Chief of the General Staff from Controller of Aviation, J.A. Wilson, 30 April 1934, "Flights of Mercy."
[7] Douglas, *National Air Force...*, p115.
[8] Vernon, "RCAF Marine Craft," p103 and 106.
[9] Pilborough, *The Royal Canadian Air Force marine squadrons...*, p62.
[10] Halliday, "The Role of the Boats..."
[11] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Memorandum for Cabinet Defence Committee, from E.W.T. Gill, Secretary, Cabinet Defence Committee, 8 January 1946, "Air, Sea, Land Rescue Services; Special Peacetime Functions of Armed Services."
[12] Ibid.

Also at the beginning of the war, as the RCAF official history points out, both the Canadian government and the RCAF were well aware that the United States was planning for an eventual war with Japan. The RCAF had deep concern that the Americans would use Canadian territory as they saw fit to defend against a Japanese threat to North America, unless Canada had an acceptable force at the ready.[13] The RCAF would require aircraft, manpower, and stations within Canada to prove to the Americans that Canada could cope with its own defence responsibilities.[14] Even in 1939, our themes of Canadian sovereignty and international issues affected aviation developments.

Contrary to the international influence on aviation rescue in Canada, civilian maritime rescue developments were based entirely on factors internal to Canada. The last major international pre-war meeting on maritime transportation issues was the 1929 *International Convention for the Safety of Life at Sea*.[15] There was, and still is, regulation imposed on life-saving actions required of mariners, but prior to the war none of these regulations extended to rescue requirements at the national level. The RCAF did not have a maritime rescue mandate, as the RCN was responsible for the limited marine service available.[16]

The most pressing problem in the domain of maritime rescue was the provision of sufficient rescue coverage given the limited volunteer personnel and government vessels, paid for by the RCN.[17] The CLSS went largely neglected without a public outcry, again as a result of Great Depression budget cuts. One exception to public concern over the lack of any rescue vessel occurred on the West Coast of Vancouver Island during the winter of 1938-39, an area notable for many shipwrecks.[18] Repeated requests were made for an RCN ship to provide rescue coverage, but the response to this concern was that finances were tight and nothing could be done.[19] Once the war started, the RCN would neglect the inshore rescue requirement altogether as it needed to focus its efforts on the deep-sea battle, and the RCAF would find itself as the only organization with rescue resources close to shore.[20]

National Standards	**Aviation**. None	**Maritime**. None
Available Resources	**Aircraft**. None	**Vessels**. Four RCAF vessels and a few CLSS and RCMP resources, but many areas went without
Formalized Policy (aviation and maritime only)	**Military rescues**. A station expectation for seaplane operations only	**Civilian rescues**. Limited policy existed with the RCN, responsible for the CLSS, but mostly neglected

Figure 3. Canadian Rescue in 1939

In summary, the evidence shows that the RCAF did not provide Canadian rescue capabilities at the beginning of the war. As depicted in Figure 3 above, the government capabilities that did exist were limited in the maritime domain and nearly non-existent for aviation and humanitarian emergencies, the latter being largely the purview of civilian airlines.

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[13] Douglas, *National Air Force…*, p127 and 132.

[14] Douglas, *National Air Force…*, p130.

[15] IMO, *International Convention for the Safety of Life at Sea*, 1929, (London: 31 May 1929).

[16] Evans, *Rescue at Sea*, p208.

[17] Evans, *Rescue at Sea*, p208.

[18] LAC, RG12 Vol. 2554, File No. 7800-1, Life-saving search and rescue – general, Letter from the Supervisor of Nautical Services, 13 December 1938, "Life Saving Patrol West Coast Vancouver Island – Winter 1938-39."

[19] Ibid.

[20] Evans, *Rescue at Sea*, p208.

There were significant deficiencies in the area of maritime rescue in Canada, and financial pressures limited the government response to calls for increases. Prior to 1939, Organizations had to deal with emergencies on a case-by-case basis, and this would prove insufficient for combat operations.

The ASR Systems of Germany and Great Britain, 1940-1941

The onset of the Second World War changed the perceptions of rescue requirements. When Germany decided to initiate hostilities against the UK to destroy the latter's air force, it already had an established rescue service operating in the English Channel. The German Luftwaffe had created the *Seenotdienst* for ASR in the spring of 1935 because "the early Luftwaffe could ill afford the unnecessary loss of trained aircrews as it played catch-up with the air forces of its potential enemies."[21] The time-consuming nature of training new aircrew drove the German need to save, and return to flying duties, as many existing aircrew as possible. In order to save aircrew during upcoming operations against Britain, there were two He-59 seaplanes paired with rescue boats ready for cross-Channel flight operations in each of seven zones, each with its own RCC in May 1940.[22] The British became aware of this service during July 1940, as German aviators were scooped from the sea after sorties against the RAF.[23]

The RAF, by contrast, only had vessels available for rescue as of June 1940, and it had to resort to impromptu arrangements and borrowed Lysander aircraft to direct surface craft to survivors at the outbreak of the Battle of Britain, in July 1940.[24] During the battle, the RAF learned quickly that its existing rescue services were insufficient. In just two days, 20 and 21 July, twenty-one aircraft were shot down and crashed into the sea, but only six of 40 aircrew were recovered.[25]

In August of 1940, the RAF hastily established a sea rescue service with a mixture of Royal Navy Lifeboat Institution rescue vessels, Royal Navy ships, and RAF high-speed rescue vessels, all supported by any available aircraft.[26] Unfortunately, continuing losses showed the inadequacy of the service as 260 more aircrew were lost to the sea in October alone.[27] In the future, it was deemed essential to recover a higher percentage of downed aircrew.[28]

The British could have foreseen a fundamental problem with their ASR. The RAF had delegated in-flight control of aircraft to each station in the interwar years, but that had proved inefficient when attempting to coordinate aircraft flying missions far from their home station. In 1937, the RAF developed a system called Regional Control to solve the problem. There were voices of concern within the RAF, arguing in 1939 that the system was still flawed due to the lack of coordination between regions, but those voices were not heeded before the Battle of Britain.[29] Air combat would prove the critics correct.

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[21] Galdorisi and Phillips, *Leave No Man Behind*..., p29.
[22] Galdorisi and Phillips, *Leave No Man Behind*..., p29.
[23] Sutherland and Canwell, RAF Air Sea Rescue..., p31.
[24] Galdorisi and Phillips, *Leave No Man Behind*..., p39; and Sutherland and Canwell, RAF Air Sea Rescue..., p9.
[25] Sutherland and Canwell, RAF Air Sea Rescue..., p31.
[26] Sutherland and Canwell, RAF Air Sea Rescue..., p32.
[27] Sutherland and Canwell, RAF Air Sea Rescue..., p32.
[28] DHH, AIR 20/4018, 31 October 1945, "RAF Coastal Command Headquarters History of Flying Control." This history was written as an overview of regional control, followed by the FCO system. Only the last third of the document outlines the history of the flying control organizations within Coastal Command. Copies were not made of the last page, so if the author's name was given, it was not captured during the research.
[29] Ibid.

In 1939, Regional Control was an organization "responsible for providing assistance to aircrew when lost or in trouble and which, further, could be used by operational staffs for diversions when weather conditions made this necessary."[30] The RAF established centres at eight airfields throughout the UK and believed that those eight communications and control facilities would be sufficient for the 132 operational squadrons, four balloon groups, and seven training groups of aircraft operating 2,913 aircraft throughout the UK, often with many of them launching and recovering at the same time.[31] Keeping track of a station's aircraft, with over a hundred stations across the UK and only eight control centres, proved to be impossible during the Battle of Britain.[32]

The problem with the regional system was that one central centre served many stations in the vicinity. This meant that a lost pilot could call for assistance, but during the first winter of the war the system was overwhelmed by the large number of aviators who required assistance, resulting in more calls for assistance than ever had been experienced previously.[33] Compounding the difficulty of coordination was the large number of aircraft passing through one control area to another, with no hand-off of information between regions. In the case of air defence, the lack of a hand-off failed Fighter Command's requirement to have identification of approaching aircraft in order to determine friend from foe.[34] The existing communications and control system proved insufficient to meet the wartime need.

Once the Battle of Britain was over, the RAF realized that it was not just the sea rescue service that had been problematic, but also the Regional Control organization. The RAF discovered that Regional Control "worked out before the war because the amount of flying over water was comparatively small and not usually at any great distance from the coast."[35] However, distance, massive numbers of aircraft, and a lack of communication between centres made this system unacceptable. The answer was a centrally run and interconnected flying control organization that included personnel at both the main centres and at each flying station to help those aviators who needed guidance or rescue assistance. This system was named Flying Control, and it required an expansion of personnel from 140 to 2,000 control-qualified officers to coordinate the control of aircraft and aid to aircrew.[36]

The RAF established the Flying Control Organization (FCO) in February 1941, and by November of that year, the system was in operation at every station and provided coordination in every part of the UK.[37] Included within the FCO was the new ASR service. The ASR system was centrally run from the Air Ministry with an RAF Director at the rank of Group Captain and a Royal Navy Deputy Director of equivalent rank to coordinate efforts between the services.[38] By June 1941, the ASR system was interconnected by telephone "almost into one 'press-button' chain" and the lines linked Naval and RAF Coastal units throughout the country.[39] The chance

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[30] DHH, AIR 20/4018, 31 October 1945, "RAF Coastal Command Headquarters History of Flying Control."

[31] Richards, *The Fight at Odds*..., p406 and 410. The number of squadrons, 132, is based on the RAF organization of September 1939. By the time of the Battle of Britain, there were two RCAF Squadrons in Britain as well as other new squadrons generated by the RAF, compounding the communication problem.

[32] DHH, AIR 20/4018, 31 October 1945, "RAF Coastal Command Headquarters History of Flying Control."

[33] DHH, AIR 20/4018, 31 October 1945, "RAF Coastal Command Headquarters History of Flying Control."

[34] DHH, AIR 20/4018, 31 October 1945, "RAF Coastal Command Headquarters History of Flying Control."

[35] LAC, RG24-D-11, Vol. 11885, CD 18-3-1, West Coast Chart Depot, HMC Dockyard, Esquimalt - Air-sea rescue, 18-3-1, 19 September 1942, "RCAF Sea Rescue Bulletin No. 6, Air/Sea Rescue."

[36] DHH, AIR 20/4018, 31 October 1945, "RAF Coastal Command Headquarters History of Flying Control."

[37] DHH, AIR 20/4018, 31 October 1945, "RAF Coastal Command Headquarters History of Flying Control."

[38] Sutherland and Canwell, RAF Air Sea Rescue..., p32.

[39] DHH, AIR 20/4018, 31 October 1945, "RAF Coastal Command Headquarters History of Flying Control."

of being rescued from the sea increased from 20 percent to 35 percent, and would continue to improve over the course of the war. An immediate 15 percent increase may not sound like much, but it made a significant difference because hundreds of aircrew would ditch into the sea each month and with the improvements, dozens of those aviators would return to fly combat missions again.[40]

The ASR organization included the RAF's high-speed rescue vessels and all the RN assets that had previously been in use for aircrew rescue. In a determined effort to stem losses, the numbers of rescue vessels in 1941 would be expanded to over 300 for the UK coast. The 1941 FCO additions included 36 Lysander aircraft and eight Walrus flying boats that were assigned exclusively to the ASR mission and held on continuous standby for launch, which greatly increased the speed and reach of rescue.[41] Dedicated ASR resources meant they could be equipped specifically for the rescue mission, and that ASR personnel could become experts. These experts provided training to allied aircrew in Britain on ASR best practices, an expertise that would not be duplicated in Canada until 1944.[42]

The amount of resources assigned to the RAF's ASR, even in 1941, was significant. Stations with dedicated ASR had a Lysander and Walrus rescue aircraft at immediate availability with another of each aircraft type at 30-minutes notice to launch.[43] The marine vessels assigned had to be at instant readiness to depart, and there was a second vessel on 10-minute notice to move. A Duty Group Controller oversaw the readiness of all assigned resources. At the end of 1942, the British ASR system provided robust rescue operations over the English Channel, and a similar system was in place in the Mediterranean and in Iceland.[44] Allied aircrew, flying in Britain, immediately benefited from this robust system.

By contrast, the Americans had no rescue system at the start of the war, so US aviators made use of the existing British system, exactly as did RCAF aircrew. Starting in 1943, the US would begin creating its own ASR systems in various theatres of operations.[45] An important difference between the American and Canadian approaches to ASR in North America was that the US had its Coast Guard to operate off the coasts of the continental US and Alaska to continue to provide a domestic life-saving service throughout the war.[46] Any Canadian rescue system would have to be built from scratch, and it would have to provide the level of service expected from British and American forces operating in Canadian areas of operation.

The Luftwaffe's ASR system was the operational example that the British had followed to create their own successful system, but the Luftwaffe's rescue system had one significant flaw; the *Seenotdienst* was not kept informed of operational invasion plans, except those against Britain, so the ASR service was not present in the Spring 1940 invasions of Norway, France, Holland or Belgium.[47] Many lives were lost because this important service was not in place for combat operations in these areas. The lesson from Holland and Belgium, especially, was that

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[40] Sutherland and Canwell, RAF Air Sea Rescue..., p45.

[41] Sutherland and Canwell, RAF Air Sea Rescue..., p39.

[42] DHH, 181.009 (D4586), RAF File S-7, No. 411 Sqn (RCAF), 11 July 1941 to 31 May 1943, "ASR Procedures and Instructions."

[43] DHH, 181.009 (D4586), ... "ASR Procedures and Instructions."

[44] LAC, RG24-D-1-b, Vol. 3896, 1034-3-20, RCAF – Air/Sea Rescue, N.S.S. 1034-3-19, Report to DOD NSHQ from Air Liaison Officer from Atlantic Command HQ to EAC Major R.R. Ings, 25 November 1942, "A.L.O. Visit to the U.K."

[45] Taylor, *That Others May Live*..., p64.

[46] The United States Coast Guard, "The Coast Guard Along the North Atlantic Coast," *U.S. Coast Guard History*, December 1988 http://www.uscg.mil/history/h_index.asp (accessed 21 December 2015).

[47] Galdorisi and Phillips, *Leave No Man Behind*..., p30 and 31.

ASR was required before combat operations began. Combined with the developments of ASR in Britain, it can be summarized that by the end of 1941, it was well established that any expectation of future combat operations in a given area was going to require a rescue system.[48] Without a rescue system, battles could be lost that otherwise might have been won with the addition of aircrew recovered from the sea. With Great Britain on the ropes in Europe, and operations against North America in the realm of the possible, consideration needed to be given to a combat rescue capability in Canadian oceanic areas.

RCAF Rescue Developments 1940-1942

In 1940, the RCAF had yet to become deeply worried about combat operations at home. EAC, based out of Halifax, was concerned about German U-boats and would prosecute sightings, but there was limited operational activity for RCAF aircraft. WAC, with headquarters in Vancouver, had even less operational activity.[49] In stark contrast to the hundreds of aviators downed in the sea each month during the Battle of Britain, EAC lost only one RCAF aircraft to a crash near an airport between 1 May and 31 October 1940, and WAC responded to only one RCAF aircraft crash in that time period, which fisherman located immediately.[50] In 1940, all of Canada's air force at home responded to only two crashes over a greater time period than the whole of the Battle of Britain. In these circumstances, ASR was not a significant concern.

Although the RCAF did not have to respond to aircraft ditching in the sea very often, it did have to respond to civilian requests for assistance, as there was no domestic rescue organization in Canada. Throughout 1940, EAC responded to five requests to search for missing vessels.[51] This demonstrated that the transfer of RCMP vessels to the RCAF for military requirements was having an effect on non-military rescue response, with the RCAF the only real option to assist in the coastal areas of Canada and Newfoundland.

In order to limit the number of military aircraft used for searches, more emphasis was put on the high-speed rescue vessels for rescue activities. In August 1940, the Chief of the Air Staff issued standing orders for rescue vessels "to carry out patrols at sea for the purpose of aiding aircraft in need of assistance or any other necessary patrol or duty they may be required to perform by the Officer in Command."[52] Patrols often assisted with local civilian emergencies.[53] The RCAF had become acutely aware that it would have to be involved in domestic rescue activities as well as meeting its own rescue needs.

By early 1942, the RCAF was quite concerned about the number and type of vessels it needed for military rescue operations, given that U-boat operations had increased along the Atlantic coast.[54] The RCAF had replaced older aircraft in the bomber reconnaissance role with Canso seaplanes, and these aircraft extended the radius of operations from 300 miles from the

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[48] DHH, 181.009 (D4389), RCAF File S202-85-2, WAC No.2 Group Standing Orders for ASR Jun to Sep 42, Memorandum from 1 June 1942, "Establishment of Flying Control and Aircraft Safety Services in Canada." There is no name attached to this memorandum, but it is likely that AFHQ staff officer F/L R.J. Lehman produced it as it was embedded with a host of other letters and memorandums with his signature.

[49] RCAF Operations Records Books, C-12160 Western Air Command Headquarters, Daily Diary 6 March 1938 to 31 October 1942, http://heritage.canadiana.ca/view/oocihm.lac_mikan_135766 (accessed 27 Oct, 2015).

[50] RCAF Operations Records Books, Reel ID C-12156 Eastern Air Command Headquarters 1 May 1940 to 30 September 1944, http://heritage.canadiana.ca/view/oocihm.lac_mikan_135766 (accessed 27 Oct, 2015).

[51] RCAF Operations Records Books, Reel ID C-12156 ... Images 23, 28, 45, 94, and 109.

[52] DHH, 89/625, August 1940, "Standing and Maintenance Orders for High Speed Rescue Vessels."

[53] DHH, 96/24 Air Force Headquarters fonds, Box 7, File 2, "Air Council Minutes from 3 November 1942."

[54] Douglas, *National Air Force...*, p473.

coast to a new maximum of 600 miles.[55] The rescue vessels had a 200-mile radius and it was normal for the vessels to patrol halfway between the station and the aircraft patrol area, but the Cansos considerably exceeded the range of the existing rescue vessels.[56] Coupled with the presence of U-boats in the operational flight areas, the older rum-runner rescue boats had now become obsolete and Air Force Headquarters (AFHQ) needed assistance to be able to rescue aircrew operating far out to sea.

AFHQ's Air Council, consisting of the Minister of National Defence for Air, Charles Gavan Power, and the most senior officers of the RCAF, discussed vessels for rescue work at length the year prior.[57] They had concluded that deep-sea rescue work was not appropriate for the RCAF to attempt, so they had made a formal request to the RCN to take on oceanic rescue work further than 200 miles from shore.[58] The RCN agreed that rescue vessels operating that far from shore should indeed become a Naval commitment, but agreement was not yet achieved on what vessels to purchase or how to coordinate efforts.[59]

The rescue resources that were available by 1942, however, were well-regarded vessels. Canada had six Scott-Paine 70-foot high-speed rescue vessels built in Montreal in 1941 specifically for RCAF rescue work, complete with weapons and a rugged but attractive appearance.[60] These vessels were the best known of the RCAF marine craft and initially, these vessels remained at the command of the station Commanding Officer (CO) where the vessel was based. This meant that COs of stations without such vessels would have to ask the CO of the station with a vessel for authority to use the rescue vessel, knowing the request would strip the owning station of its primary rescue resource. EAC would quickly get involved if there were competing demands for resources, but the procedure wasted critical time during emergencies.[61]

EAC had an important operational responsibility in the Atlantic theatre, but the amount and complexity of flying operations was vastly simpler than RAF activity in the UK, and that slowed flying control development in Canada. Even at the height of EAC operations, there were never more than 200 aircraft operating out of 18 squadrons from 19 different stations throughout the Atlantic Provinces.[62] In 1940, there were less than 80 aircraft flying out of EAC stations.[63] That was in stark contrast to the RAF's 2,913 aircraft operating on high-risk missions at day and night over a much smaller area.[64]

As there was such a low number of RCAF aircraft flying over a large area, the station control of aircraft did not have the obvious deficiencies of the defunct regional control system of the UK. As depicted in Figure 4 below, a total of no more than 200 aircraft operating in an area at least twice the size of Great Britain greatly lessened the requirement for detailed control of aircraft. Aircraft in Canada could depart their station, communicate one-on-one with other

[55] LAC, RG24-D-11, Vol. 11885, CD 18-3-1, West Coast Chart Depot, HMC Dockyard, Esquimalt - Air-sea rescue, 18-3-1, Letter to CNS from AOC EAC, 24 August 1942, "Rescue Boats."

[56] LAC, RG24-D-11, Vol. 11885, ... "Rescue Boats."

[57] DHH, 181.003 (D7) "Summary of RCAF activities 1941."

[58] LAC, RG24-D-11, Vol. 11885, CD 18-3-1, West Coast Chart Depot, HMC Dockyard, Esquimalt - Air-sea rescue, 18-3-1, Memorandum to CNS from CAS, 28 December 42, "Rescue Boats for RCAF."

[59] LAC, RG24-D-11, Vol. 11885, ... "Rescue Boats for RCAF."

[60] Vernon, "RCAF Marine Craft," p100.

[61] Halliday, "The Role of the Boats..."

[62] Douglas, *National Air Force*..., p349, 352, and 357.

[63] Douglas, *National Air Force*..., p352.

[64] Richards, *The Fight at Odds*..., p406 and 410. The number of squadrons, 132, is based on the RAF organization of September 1939. By the time of the Battle of Britain, there were two RCAF Squadrons in Britain as well as other new squadrons generated by the RAF, compounding the communication problem.

stations they might pass near, and switch to operational frequencies without worrying about other aircraft from other stations flying in the vicinity. This meant that there was little incentive for the RCAF to follow the RAF example of an FCO organization throughout Canada until potential combat forced the issue.
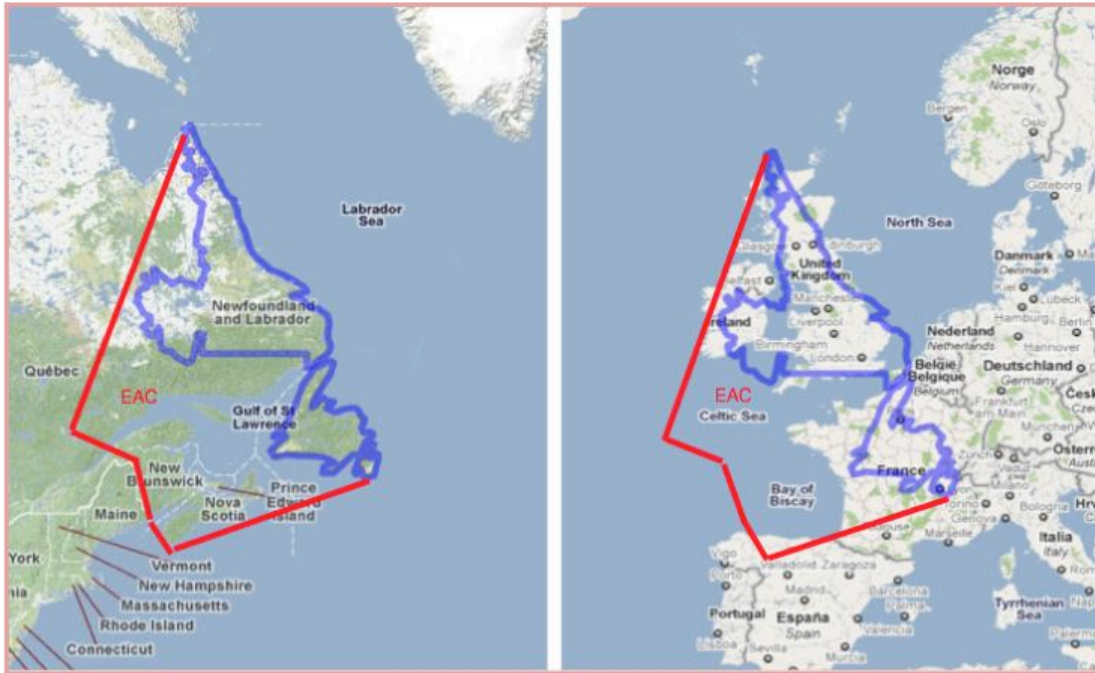
Figure 4. EAC Operating Area Comparison[65]

Although the RAF FCO was well established by September 1941, the RCAF had not taken any similar action in late 1941 because of the expected expense of setting up flying control facilities in Canada and because the British Air Ministry "had not defined any long term policy regarding training of flying control officers."[66] However, the war appeared to be approaching Canadian shores at the end of 1941 and RCAF views on flying control would change as a result.

In October of 1941, German U-boats were creating havoc off of Newfoundland in daring raids against allied shipping close to RCAF air stations.[67] The disaster at Pearl Harbor in December of 1941, along with the Atlantic U-boat threat, greatly increased Canadian government interest on military flying as there was a perceived threat on both coasts. In fact, the number of squadrons to defend Canada was increased dramatically in response "to an atmosphere of near panic in British Columbia."[68] The dangers posed by enemy forces on the East Coast were significant, as outlined below in Figure 5, and greatly increased into 1942.

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[65] The map was taken from the Internet and the lines were copied from information in Douglas, *National Air Force...*
[66] DHH, 181.009 (D4389) ... 1 June 1942, "Establishment of Flying Control ..."
[67] Douglas, *National Air Force...*, p484.
[68] Douglas, *National Air Force...*, p341.

Figure 5. East Coast RCAF Operations 1942-1945[69]

Subsequently, in March 1942, AFHQ decided that there was an urgent need for flying control so that the RCAF system, so similar to the flawed RAF system of 1940, could be corrected before it proved ineffective in combat.[70] There is no coincidence that the RCAF saw an urgent need to revisit a flying control organization in Canada after the public and government became concerned about invasion. The Battle of Britain in 1940 had firmly established that combat operations over water needed a well-organized flying control system with an embedded ASR system.

In order to create an FCO, the RCAF sought recommendations from two officers with flying control experience with the RAF. RCAF Wing Commander (W/C) Andrews and Squadron Leader (S/L) Mouatt were tasked to investigate the issue.[71] They produced a detailed report in August 1942 recommending "the provision of a Flying Control, Aircraft Safety and Sea Rescue organization" that would work in tandem with the civilian air traffic control system.[72] This report was accepted and orders were given immediately to develop an FCO in Canada to include procedures for ASR.[73]

A Deputy Directorate of Flying Control, within AFHQ's Air Member of Air Staff, was responsible for the FCO, with staff for Flying Control, Flying Control Air Safety, and Sea

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[69] Douglas, *National Air Force…*, p499.

[70] DHH, 181.009 (D4389), … "Establishment of Flying Control and Aircraft Safety Services in Canada."

[71] DHH, 181.009 (D4389), … "Establishment of Flying Control and Aircraft Safety Services in Canada."

[72] DHH, 181.002 (164), RCAF File S.204-2-1 Part 1, by W/C Andrews, 8 August 1942, "Operations – Operational Procedure and Control – WAC." No other details were provided on the document.

[73] DHH, 181.002 (164), RCAF File S.204-2-1 Part 1, Operations – Operational Procedure and Control – WAC, 12 August 1942, "Organization Order No. 93, Formation of No.1 School of Flying Control."

Rescue Services.[74] A W/C headed the FCO and 490 personnel were needed to set up the services at all levels.[75] Although it was recommended that a S/L should head the Sea Rescue Services, the rank was downgraded to a Flight Lieutenant (F/L) as there were no dedicated ASR Officers at the command level that made the higher rank necessary at AFHQ.[76] Thus, by the end of summer 1942, a plan to build an FCO with ASR potential was well underway, although it was less robust than the RAF model.

There were still major differences between the RAF and RCAF systems in 1942, but the RCAF FCO was an effective response that, in hindsight, was completed in a timely fashion. Similar to the UK system, the flying control officers had little to no flying experience but were trained "to assist pilots with the safe landing of aircraft," "keeping an accurate record of aircraft movements," and "assisting aircraft lost over sea or land by direction finding services."[77] Many existing deficiencies had been rectified as stations, groups, and commands all would now have flying control officers to coordinate aircraft whereabouts and safety needs.

From an ASR perspective, however, the deficiencies were still considerable even after the policy changes of 1942.[78] There were only six high-speed rescue vessels to provide rescue coverage on both coasts. Aircraft could be sent out for rescues from any RCAF station, but the crews had no survival gear to drop to aviators in the sea, they had no training for that type of mission, and the aircraft could be taken from a high priority combat mission without clear authority from higher headquarters. The coordination of rescue missions fell upon the Senior FCO of the Group missing the aircraft, who already had a very busy job keeping track of all flying operations. Additionally, any assistance required by the Navy had to be requested through the Commands, so there was a potential failure point for communications between the FCO running the search and the higher headquarters authorizing and coordinating the request for urgently-needed Navy resources. These were failings that would need to be resolved while there was still a threat that large air combat operations could take place over Canada.

The development in Canada of the FCO, and its embedded ASR, was taking place at the same time as allied pressure had started to mount on Canada to build these organizations and prepare for combat in Canadian areas. In July 1942, an American Major from the ASR Directorate in Britain wrote a report detailing the differences between the RAF and RCAF organizations and concluded; "if some such [ASR] organization were established on the Atlantic Cost, many valuable lives could be saved."[79] The report highlighted a linkage between the number of lives saved in UK waters and the increasing wartime casualties in Canadian waters.[80] The RAF ASR system was held up as an example for the RCAF to follow.

Separately, a Major R.R. Ings, the Air Liaison Officer from Atlantic Command HQ of the United States Army Air Corps, wrote a similar report in November 1942 that stated his team

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[74] DHH, 181.009 (D4389), RCAF File S202-85-2, WAC No.2 Group Standing Orders for ASR Jun to Sep 42, 14 September 1942, "Standing Orders and Instructions for Flying Control Officers."

[75] DHH, 181.002 (164) ... 8 August 1942, "Operations – Operational Procedure and Control – WAC."

[76] F/L R.J. Lehman was the signing authority for Sea Rescue Services in 1943.

[77] LAC, RG24-E-1-b, Vol. 5421, 67-16-2, Sea Rescue Services – Liaison with Royal Canadian Navy, Memorandum to AMO from AMAS A/V/M N.R. Anderson, 3 August 1942, "Flying Control, Aircraft Safety and Sea Rescue Services."

[78] DHH, 181.009 (D4389), RCAF File S202-85-2, WAC No.2 Group Standing Orders for ASR Jun to Sep 42, September 1942, "Draft Standing Orders for Air/Sea Rescue Services in the RCAF." There is a minute on these Draft orders that they were accepted. All information for this paragraph is taken from this source.

[79] LAC, RG24-E-1-b, Vol. 3410, 466-1-3, Air/Sea Rescue Services – Minutes of RAF Monthly Air/Sea Rescue Meeting – Policy, File 464-3-3 Vol. 2, July 1942, "Air Sea Rescue." The Major's signature is illegible and a day of the month was not provided.

[80] LAC, RG24-E-1-b, Vol. 3410, ... "Air Sea Rescue."

"felt that an [ASR Directorate] might be started on the East Coast of Canada and Newfoundland, where not only the valuable lives of aircrew might be saved, but that some worthwhile attempt could be made to rescue survivors from torpedoed ships."[81] These criticisms likely reinforced the formation of the FCO in Canada, as the RCAF was more than a year behind the changes the RAF was making in response to wartime lessons. With the Battle of the Atlantic approaching its height, the expected combat losses would require an RCAF rescue system capable of providing a service to allied aviators similar to that of Britain.

Canadian ASR Development at the End of 1942

In summary, the transfer of RCMP and volunteer resources to the RCAF and RCN meant that what little domestic rescue there had been in Canada before the war was abandoned. As RCN activities moved further from shore on convoy duties in the first two years of war, a gap of potential rescue resources was created within 200 miles of shore and demands on the RCAF were inevitable. The RCAF had six high-speed rescue vessels to fill the gap, but these few vessels would be insufficient for large combat operations and civilian rescue activity.

With U-boat operations on the East Coast and a Japanese threat on the West Coast in 1942, there was undeniable pressure to create an ASR system in Canada. The Luftwaffe and the RAF had fully demonstrated the benefits for an ASR system to support combat operations, and the RCAF now needed to establish flying control and ASR operations to prepare for combat operations within Canada. The lesson in flying control was partly learned, as an FCO was created in 1942, but ASR in Canada was not as well developed as it had been in the RAF before the changes of 1941. Further progress was urgently required for the expected air combat near Canada's shores in 1943 to avoid learning British lessons the hard way.

For military flight operations, AFHQ acknowledged that cost was initially a factor in delaying the development of an FCO, although the threat of war approaching Canada's shores eliminated cost as a concern during 1942.[82] The limited number of RCAF vessels and aircraft in the rescue role meant that there were known deficiencies in the ASR system immediately upon its formation, but funding was not obtained for additional rescue vessels. Cost was also a factor in RCAF reluctance to develop an FCO and ASR prior to spring 1942.

National Standards	**Aviation**. The RCAF had a rescue policy, but it had inadequate plans for land rescues	**Maritime**. None
Available Resources	**Aircraft**. RCAF aircraft could be tasked, but they had no training or procedures	**Vessels**. Six RCAF vessels and assistance available from the RCN provided coastal coverage
Formalized Policy (aviation and maritime only)	**Military rescues**. Commands and Groups were mandated to respond, but searches would overload the senior FCO	**Civilian rescues**. The RCAF started to respond to civilian rescues, but there was no requirement to do so

Figure 6. Canadian ASR in 1942

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[81] LAC, RG24-D-1-b, Vol. 3896, 1034-3-20, RCAF – Air/Sea Rescue, N.S.S. 1034-3-19, Report to DOD NSHQ from Air Liaison Officer from Atlantic Command HQ to EAC Major R.R. Ings, 25 November 1942, "A.L.O. Visit to the U.K."
[82] DHH, 181.009 (D4389), ... "Establishment of Flying Control and Aircraft Safety Services in Canada."

With the war so close to Canadian shores, the RCAF had responded with the creation of an FCO system with ASR potential in 1942. In the progress towards today's SAR system, this chapter has shown that little was achieved. As explained in Figure 6 above, a rudimentary national system had been formed in 1942, but it was developed only to meet the needs of aircrew downed at sea. Resources assigned to rescue activities were limited to a few high-speed rescue vessels. For civilians, rescue at sea was less likely than before the war as the few dedicated pre-war rescue resources had been transferred from the RCMP and the CLSS to the military. The following chapter will demonstrate how the RCAF developed a system for its own needs, but that the improved system started to fill in rescue gaps for civilian domestic emergencies.

Chapter 3: The RCAF Develops a Domestic Air Sea Rescue System

The initial Canadian ASR system of August 1942, as previously outlined, was developed as a result of expected combat operations over Canada. As will become evident, rising allied expectations and internal pressures caused the RCAF to fully develop ASR into a robust national system by the end of the war. The system, however, developed less for combat rescues and more to assist any aviator or mariner in distress, military or civilian. The lack of any other national rescue system left the RCAF morally bound to provide resources to missing civilian mariners and aviators due to the air force's existing procedures and available resources. The lack of a combat focus for the new ASR system would have long-term repercussions on rescue system development in Canada.

Eastern Air Command (EAC) and Western Air Command (WAC) had been involved in military rescues in Canada since the outbreak of war. While the initial focus of ASR operations had been on military aircraft ditching into the sea, more concerning were American military aircraft crashes along the North West Staging Route (NWSR), a route from Edmonton and through Alaska used by new American aircraft to transit to Russia. The importance of the route to ASR development is that any response to crashes over land along the NWSR did not need to take into account an enemy presence, which further domesticated the RCAF's rescue system.

A civilian manager of 2 Air Observer School in Edmonton, former Captain Wilfrid Reid "Wop" May, developed a parachute rescue capability that would extend the ASR concept over land, specifically along the NWSR, where most of the overland crashes were taking place. The parachute rescue capability continued the RCAF's inadvertent creation of a domestic rescue system and limited possible American encroachment into Canadian territory to search for American survivors of aircraft crashes.

As the war drew to a close, the RCAF believed that post-war ASR requirements for civilian distress situations would best be delivered by a non-military organization. As will be shown in detail, the RCAF initiated interdepartmental discussion aimed at amalgamating marine rescue resources, but this proposal was rejected by a Department of Transportation that failed to see the growing requirement for domestic ASR services until the new International Civil Aviation Organization (ICAO) made rescue a requirement. Additionally, as part of the planning for an extended campaign against Japan in 1945, the RCAF considered making a full-time ASR squadron part of the national Pacific War commitment. However, the war against Japan ended more quickly than expected so combat rescue operations never became part of the RCAF ASR system. This chapter will argue that the ASR system developed by the RCAF included the domestic rescue needs of Canada and in the broader context, a robust rescue system in Canada without a clear combat component meant a handover of ASR to another agency for the post-war era was far from certain.

The Development of Flying Control and ASR Procedures

As we have seen, the 1942 initial ASR capability was part of the Flying Control Organization (FCO) that provided little actual rescue potential. The RCAF high-speed rescue vessels were the main rescue resources for the new procedures, but they could not reach even

halfway to the patrol areas of new aircraft.[1] Meanwhile, RCAF squadron personnel in Britain were being rescued by the effective RAF ASR system, and knowledge of the British rescue capabilities contributed to internal RCAF pressure for better Canadian ASR even as the combat component of RCAF operations moved further offshore.[2] There was a need for a better rescue system in Canada.

In order to improve rescue policy and overall flying operations in Canadian airspace, Canadian Air Publication (CAP) 342 was issued in May 1943.[3] CAP 342 outlined flying control procedures in the RCAF and included guidance for ASR. Changes from the 1942 version of ASR were; the requirement for Commands to provide aircraft for rescue purposes, direction for the Groups to assume responsibility for searches with marine craft within 200 miles of shore, and for the RCN to provide "maximum effort" for searches further out to sea.[4] Concurrently with the CAP 342, WAC developed its own procedures which included providing rescue for "civil planes passing through Command areas" and "ships in distress," demonstrating RCAF awareness of the need for it to assist in providing domestic rescue.[5] It is not clear what official EAC procedures on ASR were in 1943, but it is clear that EAC responded to civilian marine emergencies on a regular basis.[6] One can summarize that the first Canadian steps in the development of ASR included procedures for domestic rescue.

One example of RCAF assistance in domestic rescue took place on 16 January 1943. An RCAF detachment at Cape Scott, Vancouver Island, British Columbia (BC), witnessed a vessel listing badly to starboard and it appeared to sink during a gale.[7] The vessel was identified as the Union Steamship Co. of BC's *S.S. Northolm* with 15 persons on board. An RCAF aircraft, notably already flying on a search mission for a missing civilian aircraft, was redirected to locate survivors.[8] Two other aircraft were tasked to assist as well as the *BC Star*, an RCAF-operated converted fishing boat chartered to transport supplies. After two days of searching, the search was called off and all 15 crew were assumed lost at sea. Similar examples are available for civilian maritime rescues within EAC's area of operations, suggesting that domestic rescues were quite common across the country.[9]

Six months after the *Northolm* sinking, the *BC Star* came to grief while transporting gravel to the southern tip of Haida Gwaii from Bella Bella, both locations in BC. On 23 July 1943, she failed to arrive, but was not reported missing until 3 August.[10] It was subsequently determined that all ten crew had perished at sea without an air search having been conducted. The *BC Star* sinking is important for two reasons. First, the Air Officer Commanding (AOC) WAC ordered an inquiry into the sinking to determine lessons learned, accepting a rescue

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[1] LAC, RG24-D-11, Vol. 11885, ... 24 August 1942, "Rescue Boats."

[2] DHH, 181.003 (D893), 434 Squadron File "Air Sea Rescue," July 1943 to May 1945.

[3] DHH, 81/301, RCAF, CAP 342 1st Edition, *Orders and Instructions for RCAF Flying Control and Air Sea Rescue Service*, May 1943.

[4] DHH, 81/301, CAP 342 1st Edition, *...Air Sea Rescue Service*, p33.

[5] LAC, RG24-E-1-c, Vol. 17,870, Orders, Instructions, Directives – SAR, Letter to CAS, attention DDFC, from AOC WAC, signed by F/L J.M.H. Langford, 3 May 1943, "WAC ASR Services."

[6] RCAF Operations Records Books, Reel ID C-12156 Eastern Air Command Headquarters 1 May 1940 to 30 September 1944, http://heritage.canadiana.ca/view/oocihm.lac_mikan_135766 (accessed 27 Oct, 2015).

[7] DHH, 181.003 (D3569), RCAF File S-202-21-1, January 1943, "Report of RCAF Participation in Search for Survivors of S.S. Northolm." All information for this paragraph is taken from this source.

[8] Details of the air search were not available

[9] DHH, 181.002 AFHQ file 9325-11 Vol. 2 Operations – RCAF, Cover for Convoys, ASR File folder four, 17 June 1942, "Sea Rescue Operations in EAC." The *Empire Seal* rescue of 17 June 1942 is an example.

[10] DHH, 181.003 (D3543) RCAF Binder – *Minister's Information Book: Regulations and Policies Relating to RCAF, January to March 1944*. All information for this paragraph is taken from this source.

responsibility for even civilian charter vessels. RCAF ownership of fault in this case blurred the line between military and civilian rescue efforts and highlighted Canada's lack of any other domestic rescue system. Second, this incident was of enough political importance that it was included in the briefing package for the Minister of National Defence and raised awareness at the highest levels in Canada that the RCAF was involved in maritime rescue situations, as there was no other organization that could effectively respond to emergencies close to shore.

The two incidents identified above took place within 200 miles of shore, which had become the RCAF operating area for marine vessels. The Air Council was still trying to coordinate a marine rescue capability with the RCN that was effective farther out to sea than 200 miles. One possibility was the purchase of specific vessels by the RCAF for the RCN to man and operate. Arrangements had been made with the United States for the RCAF to purchase 104-foot vessels that were suitable for rescue work beyond 200 miles, but the deal was subject to RCN agreement.[11] As the talks progressed, however, there was less need for larger rescue vessels because the U-boats had changed their operational areas to mid-Atlantic in July 1942 due to the increased effectiveness of RCAF anti-submarine operations.[12] Impetus for a combat ASR system was further deflated by the defeat of German wolf packs of submarines in late 1943.[13] On 28 June 1943, the RCN announced that the American rescue vessels were not suitable, and this decision scuttled Air Council efforts to purchase a better maritime vessel for rescue work as the need was less and the combat activity kept moving farther offshore.[14]

The Air Council concluded that there would be no advantage to handing over the control of the rescue boats to the RCN, as had been discussed at length in 1942.[15] EAC and WAC would have to make do with the resources already in their possession and that another meeting would be called to discuss rescue vessels only if the "Commands indicated that further action was required to improve the ASR service."[16] Unlike the British ASR example from 1941, the RCAF and RCN did not pool resources together for ASR within 200 miles, largely due to the lack of enough resources for the area that had to be covered. One implication of the Air Council decision was that the effectiveness of ASR in Canada was very limited in the maritime domain.

Due to the failure to purchase more vessels for rescue, the Air Council made the best of existing resources. This was partly accomplished by grouping all the marine resources on each coast into a squadron in June 1943, to provide higher-level oversight into vessel assignments, and assigning full authority for missions to the Group responsible for that area.[17] This took away Station commander involvement so that the Group could move rescue vessels within the area of responsibility as operational demands warranted. The change of authority saved time by eliminating discussions that needed to occur before the vessel departed the dock, thus improving the maritime rescue capability provided by the RCAF.

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[11] LAC, RG24-D-1-b, Vol. 3896, 1034-3-20, RCAF – Air/Sea Rescue, File C.1034-3-20, Minutes produced by AMAS (DOR) G/C W.I. Clements, 22 June 1943, "Minutes of Meeting Held 22nd June at AFHQ on ASR Organization."

[12] Douglas, *National Air Force…*, p519.

[13] Douglas, *National Air Force…*, p568.

[14] LAC, RG24-D-1-b, Vol. 3896, 1034-3-20, RCAF – Air/Sea Rescue File C.1034-3-20, Memorandum with enclosed minutes to the Naval Service from the Deputy Secretary (staff), minutes signed by AMAS DOR G/C W.I. Clements, 28 June 1943, "Coordination of RCN-RCAF Facilities for Joint Air/Sea Rescue Service."

[15] LAC, RG24-D-1-b, Vol. 3896, 28 June 1943, "Coordination of RCN..."

[16] LAC, RG24-D-1-b, Vol. 3896, 28 June 1943, "Coordination of RCN..."

[17] DHH, 73/1177 Vol. 2, RCAF Organization and Establishments, 1942-1951, "A.M.O. Progress Report for Period June 12 to June 18, 1943."

In EAC, where there were two air Groups needing access to these maritime resources, the new maritime squadron was renamed the EAC Marine Squadron and reported to No.3 Group that was collocated with EAC HQ in Halifax, Nova Scotia.[18]   The Marine Squadron established detachments of vessels to RCAF stations in Quebec and Newfoundland so that rescue resources were made available throughout EAC's area.[19] It is interesting, however, that despite all the effort to maximize the efforts of the Marine Squadrons on both coasts, the marine vessels only conducted six aircrew rescues over the remaining two years of the war.[20] As combat operations largely occurred outside the vessel rescue range of 200 nautical miles, the RCAF rescue vessels were not used anywhere close to full capacity.

It did not go unnoticed that the Marine Squadrons were largely unused for RCAF aircrew rescue. The Department of Transportation (DoT) was not able to offer sufficient assistance to civilian mariners on either coast with resources left over from the war effort, so it sent a letter to the Deputy Minister of National Defence for Air to request possible standing ASR assistance from the RCAF in the Bay of Fundy area and along the west coast of Vancouver Island.[21] DND Air responded that they would assist, although WAC warned that it had insufficient resources.[22] Without a mandate for civilian rescue, but with compassion for those in distress, the RCAF was becoming increasingly involved in domestic maritime rescue.

The aircraft used for rescue were still provided on an as-available basis when the May 1943 ASR regulations provided by AFHQ made Commands responsible for the "provision of RCAF aircraft for air/sea rescue searches when required, having regard to the operational commitments at the time."[23] AFHQ was well aware of the benefits provided by dedicated ASR aircraft, and in October 1943, staff sent a letter to the Commands requesting their input on a plan to either form dedicated ASR squadrons, or to allocate station aircraft solely for ASR purposes.

The WAC response on standby aircraft was that "morale building benefits would be lost if the Air Sea Rescue was confined to a single squadron."[24] EAC agreed that an ASR squadron was not required as they preferred to have each station identify "a standby aircraft at immediate readiness at all times, subject, of course, to operational commitments and serviceability."[25] With this input from both Commands, AFHQ shelved the idea of a dedicated ASR capability. The exchange of letters led to an agreement that any aircraft identified as "on standby" had to be equipped with supplies specific to ASR, which was an important step forward from relying on empty or armed aircraft.[26] Aircraft and crews were still not specified for the ASR role, but the new standby requirement showed incremental progression.

At the end of 1943, the RCAF had an ASR system very comparable to the ad hoc arrangements the RAF had made in August 1940 during the Battle of Britain. However, there

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[18] Vernon, "RCAF Marine Craft," p106. EAC and No.3 Group were collocated and used the same personnel.

[19] Vernon, "RCAF Marine Craft," p106.

[20] Pilborough, *Air Force Marine Squadrons*..., p33.

[21] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue – Policy, File 976-1, 10 November 1943, Letter without title from DM DoT to DMND (air).

[22] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue – Policy, File 976-1, Enclosure to Letter to AOC WAC from CAS, 26 December 1943, "Air Sea Rescue Services."

[23] DHH, 81/301, CAP 342 1st Edition, ...*Air Sea Rescue Service*, p32.

[24] LAC, RG24-E-1-b, Vol. 3199, Equipment and Supplies – Aircraft – RCAF Requirements and Supply of Search and Rescue Aircraft, letter from AOC WAC to DDFC, 24 January 1944, "Air Sea Rescue Aircraft."

[25] DHH, 181.009 (D2283), RCAF File S-2164, No.36 OTU Greenwood, ASR Procedure and Policy, Oct 43 to May 45, a group of letters attached together, 1-22 October 1943, "Standby Aircraft for Air Sea Rescue."

[26] DHH, 181.009 (D2283), ... "Standby Aircraft for Air Sea Rescue."

was a long way yet to go to match the allied systems in operation elsewhere in 1943. Only at the end of 1943 did the FCO School in Patricia Bay, BC, start to produce ASR Officer (ASRO) graduates with a comprehensive understanding of ASR operations.[27] An ASRO-qualified position at the rank of F/L was created in both Commands to take the pressure off of the Senior FCO positions and to provide greater rescue expertise, while the FCO was further expanded to provide "a uniform system of control over the movements of aircraft" in Canada and Newfoundland.[28] In order to provide ASR direction from AFHQ to subordinate positions in the Commands, the Sea Rescue Service staff position in AFHQ was upgraded in rank from F/L to S/L.[29]

In a clear sign that personnel with ASR expertise were few and far between, F/L R.J. Lehman was promoted to S/L in 1944 and remained in the same AFHQ ASRO position until the summer of 1946.[30] He had been working the same ASR issues in the Sea Rescue Service position as part of the Directorate of Flying Control since its inception in 1942, but after the promotion, the Chief of the Air Staff (CAS) often signed his work. This was a subtle but important difference to the status of ASR in Canada in 1944. It was no longer just staff positions sending out ASR directives, but directives with the full authority of the CAS.

Further expansion was desired in the ASR Service because "it had been apparent for some time that RCAF aircrew proceeding overseas [were] greatly handicapped through lack of sufficient knowledge of the RAF ditching procedures, emergency equipment, distress procedures, etc."[31] The RAF offered to send British ASRO experts to Canada and to train a Canadian ASRO in Britain to resolve this problem.[32] The offer was to help the RCAF develop a rescue system that met Canadian requirements but to also provide the ASR expertise expected for operations overseas. The new RCAF priority for ASR was driven by external factors, but always with a view to ensuring the ASR system met Canadian requirements, civil and military.

Rescue by Parachute-Equipped Specialists

As important as sea rescues were to RCAF aircrew, the North West Staging Route (NWSR), from Edmonton to Alaska and then Russia, was a vast area where many aircraft crashes took place. Land rescue parties simply took too long to effect a rescue once search aircraft found survivors from crashes along the NWSR, so there were many casualties.[33] To assist in these searches, the civilian manager of 2 Air Observer School in Edmonton, "Wop" May, had to supply aircrews for searches. He came to believe that the use of parachute-equipped rescuers could jump out of aircraft at the crash site, stabilize crash survivors, and clear an area near the site of the crash from which the survivors could be safely extracted by aircraft.[34]

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[27] DHH, 181.003 (D984), Monthly Review of RCAF Ops in North America 43-44, "November 1943 Edition," p3.

[28] LAC, RG24-E-1-b, Vol. 5421, 67-16-2, Sea Rescue Services – Liaison with RCN, Letter to Dept of National Defence for Air from AOC EAC, 24 September 1943, "Flying Control Establishment in EAC."

[29] LAC, RG24-E-1-b, Vol. 5421, 67-16-2, Sea Rescue Services – Liaison with RCN, Memo to distribution list from AMAS A/V/M N.R. Anderson, 14 October 1943, "Flying Control Establishments."

[30] This was determined by examining the signature blocks on the letters from AMAS DDFC.

[31] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue – Policy, File 976-1, Memorandum to D/A.M.A.S./Ops from DDFC, signed by F.L. R.J. Lehman, 27 December 1943, no title given.

[32] LAC, RG24-E-1-b, Vol. 3411, Letter to CAS AM R. Leckie from RCAF Liaison with HQ No. 45 Group RAF, W/C L. de S. Duke, 30 May 1944, "Air/Sea Rescue."

[33] Denny May, "RCAF Rescue Service," *The Adventures of W.R. (Wop) May*, http://www.wopmay.com/current/adventures/rcafRescue.htm (accessed 16 December 2015).

[34] The Para Rescue Association of Canada, *That Others May Live…*, p14.

This parachute rescue capability was developed entirely for domestic rescues of military aircrew.

May came to this solution as the result of a search mounted from Edmonton in February 1943 for two missing transport aircraft. The search lasted 19 days, and although there had been survivors, the two pilots did not live long enough to be rescued.[35] May was aware that Smokejumpers in the US had started using parachutes in 1939 to deploy into an area in order to fight forest fires, and he knew this could be an answer for future crashes along the NWSR.[36] In June 1943, May wrote a proposal for parachute rescue and sent it to the Air Council requesting RCAF permission to train a number of civilian personnel in parachute jumping "who could be dropped at the scene of aircraft crashed in isolated localities to give assistance."[37] Without any explanation, the Air Council rejected the proposal.[38]

May remained undeterred. The Civilian Public Service Program in the US, training smokejumpers, offered a brand new parachute-training course to military personnel for the American ASR system that was in development.[39] May sent four volunteer civilian mechanics from his school to begin training in the fall of 1943 and they conducted regular training afterwards to maintain their readiness for future rescues.[40] These personnel were available for rescue work, as were aircraft for searches, through coordination with May. Even though the jumpers were not used in any actual rescues during the war, the Americans were very grateful for this standing rescue capability, and the unfettered use of Canadian search aircraft for missing American planes. After the war, Brigadier General Dale Gaffney of the United States Army Air Corps presented Wilfrid May with the American Medal of Freedom for providing "a rescue service indiscriminately to Americans and Canadians thus saving many of our fliers."[41] It is notable that the praise May received was for a purely domestic rescue service operating under no enemy threat. The US appreciated not having to provide this service itself.

In March 1944, Group Captain (G/C) Z.L. Leigh of AFHQ conducted a routine inspection of facilities in Western Canada as part of his duties, and he was provided a demonstration of the parachute rescue capability by W.R. May's mechanics.[42] Leigh was suitably impressed, possibly assisted by the fact that May was an old friend, and immediately recommended that the RCAF absorb this capability.[43] Including parachute rescue into the RCAF marked a significant turning point in Canadian rescue as the parachute rescue capability was a highly capable addition to the otherwise lackluster ASR service.[44] The transfer of

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[35] The Para Rescue Association of Canada, *That Others May Live…*, p14.

[36] May, "RCAF Rescue Service," *The Adventures of W.R. (Wop) May…*

[37] DHH, 96/24 Air Force Headquarters fonds, Box 7, File 2, "Air Council Minutes from 7 June 1943."

[38] DHH, 96/24 Air Force Headquarters fonds, Box 7, File 2, "Air Council Minutes from 7 June 1943."

[39] Forest History Society, *History of Smokejumping*, updated 12 September 2011, http://www.foresthistory.org/ASPNET/Publications/smokejumping/sec2.htm (accessed 16 December 2015).

[40] Forest History Society, *History of Smokejumping…* This source states that the courses for rescue personnel started after the fire season ended in September 1943 due to the high demand for fire fighting training that summer. There is a discrepancy between all available sources on the timing of the course these mechanics took in Missoula. They started the course anytime between May and October, and this author has assumed October is the correct date because W.R. May is assumed to have waited for a response from AFHQ, which occurred in June, before obtaining company permission and making course arrangements for the mechanics after the main training season.

[41] May, "RCAF Rescue Service," *The Adventures of W.R. (Wop) May…* The award was presented to May in 1947.

[42] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue – Policy, File 976-1, Letter to DDFC from AMAS/D of ATC, G/C Leigh, 4 April 1944, "Air Rescue Development."

[43] Z. Lewis Leigh, *And I shall Fly: The Flying Memoirs of Z. Lewis Leigh* (Toronto: Canav Books, 1985), p179.

[44] LAC, RG24-E-1-b, Vol. 3411, File Part 1-3, 466-1-5, Air/Sea Rescue Services – Parachute Rescue Personnel and Equipment Policy, Vol. 1, 20 July 1944, Letter to AOC EAC from CAS, "Parachute Rescue Personnel."

capability was partly initiated by the fact that May's school was about to close, and if arrangements were not made, the RCAF would lose access to the four trained parachute rescue mechanics and that would decrease the services available to American aircraft transiting through the area.[45] From an RCAF perspective, the parachute rescue capability was a cost-effective method of increasing capability in an ASR capability highly valued by the Americans.

The CAS, Air Marshal Robert Leckie, fully supported the integration of the parachute rescue capability for the protection of aircrew operating along the NWSR.[46] On 22 April 1944, he requested that staff investigate the feasibility of enlisting the four civilian parachute rescue mechanics into the RCAF.[47] As the NWSR was increasingly important, he also created the North West Air Command (NWAC) to relieve the NWSR commitment from WAC.[48] A great deal of effort was expended to ensure that a rescue effort could be made available for any allied aircrew lost on that route, and it is clear that these actions were greatly appreciated by the Americans.[49] There is no evidence to suggest that the rescue capability was used for civilian crashes, but it was available if needed.[50]

The process to enlist the four mechanics happened very quickly and by 1 June 1944, the four civilian parachute rescue mechanics had become Sergeants in the RCAF, specifically assigned to provide a rescue service on the NWSR.[51] Not only was the enlisting complete, but plans were in place by 1 June for the four new Sergeants to start a training syllabus to train 20 more parachute specialists for NWAC and further distribution to EAC and WAC.[52] Part of the impetus to increase the parachute rescue activity was that the Americans had made it known that they were interested in setting up Rescue Units along the Northern staging routes, which included Canadian territory between Alaska and Edmonton.[53] One interpretation of RCAF ASR in 1944 is that the air force lead role in land-based ASR offset potential criticism of the RCAF in the maritime domain. It is also likely that the parachute rescue capability decreased American interest in setting up ASR units in Canada.

The development of this land-based rescue service is logical based on the context of mid 1944. One can assume that RCAF personnel were readily available by this stage of the war, with 20,000 applicants for the 20 new parachute rescue specialist positions, and the British Commonwealth Air Training Plan was producing enough pilots that the RAF was no longer accepting fighter pilots from Canada in August 1944.[54] By using some of the personnel coming out of the training pipeline in an ASR role, this was a cost effective way to increase the ASR capability without allocating greater numbers of expensive aircraft to Commands in Canada.

Further incremental advances were taking place to outfit aircraft with specialized gear to enable more effective rescues, thus using easily available resources to improve a system

[45] LAC, RG24-E-1-c, Vol. 18,113, ... 4 April 1944, "Air Rescue Development."

[46] LAC, RG24-E-1-c, Vol. 18,113 Search and Rescue Policy, SAR – Organization and Administration, Letter to AMP from AMAS A/V/M W.A. Curtis, 22 April 1944, "Enlistment RCAF – Procedure re."

[47] LAC, RG24-E-1-c, Vol. 18,113, ... 22 April 1944, "Enlistment RCAF – Procedure re."

[48] Douglas, *National Air Force...*, p491.

[49] May, "RCAF Rescue Service," *The Adventures of W.R. (Wop) May...*

[50] The Para Rescue Association of Canada, *That Others May Live...*, p29. The first operational jump by parachute rescue personnel did not take place until 7 July 1946.

[51] LAC, RG24-E-1-b, Vol. 3411, File Part 1-3, 466-1-5, Air/Sea Rescue Services – Parachute Rescue Personnel and Equipment Policy, Vol. 1, Memo to AMAS from DAC W/C H.B. Norris, 1 June 1944, "Parachute Rescue Personnel and Equipment."

[52] LAC, RG24-E-1-b, Vol. 3411... 1 June 1944, "Parachute Rescue Personnel and Equipment."

[53] DHH, 181.009 (D6412), RCAF File 64-1-3, AFHQ General Air Research Oct 42 to Aug 44, Memorandum to CAS from and AMAS from DGR A/V/M E.W. Stedman, 14 Feb 1943, "Helicopters."

[54] The Para Rescue Association of Canada, *That Others May Live...*, p18; and Douglas, *National Air Force...*, p291.

without limiting aircraft available to the Commands for other missions.[55] Personnel and equipment improvements were not the only ones needed, as the search procedures for aircraft over land were nowhere near as well developed as search procedures over water. Search patterns for missing aircraft were built upon procedures developed to hunt U-boats.[56] These patterns took into account wind, sea drift, and all available radio direction finding data. Plus, the RCAF had procedures for communications between RCAF vessels and aircraft, and increased coordination with the RCN.[57] Rescue at sea was efficient, despite the lack of dedicated aircraft to the role.
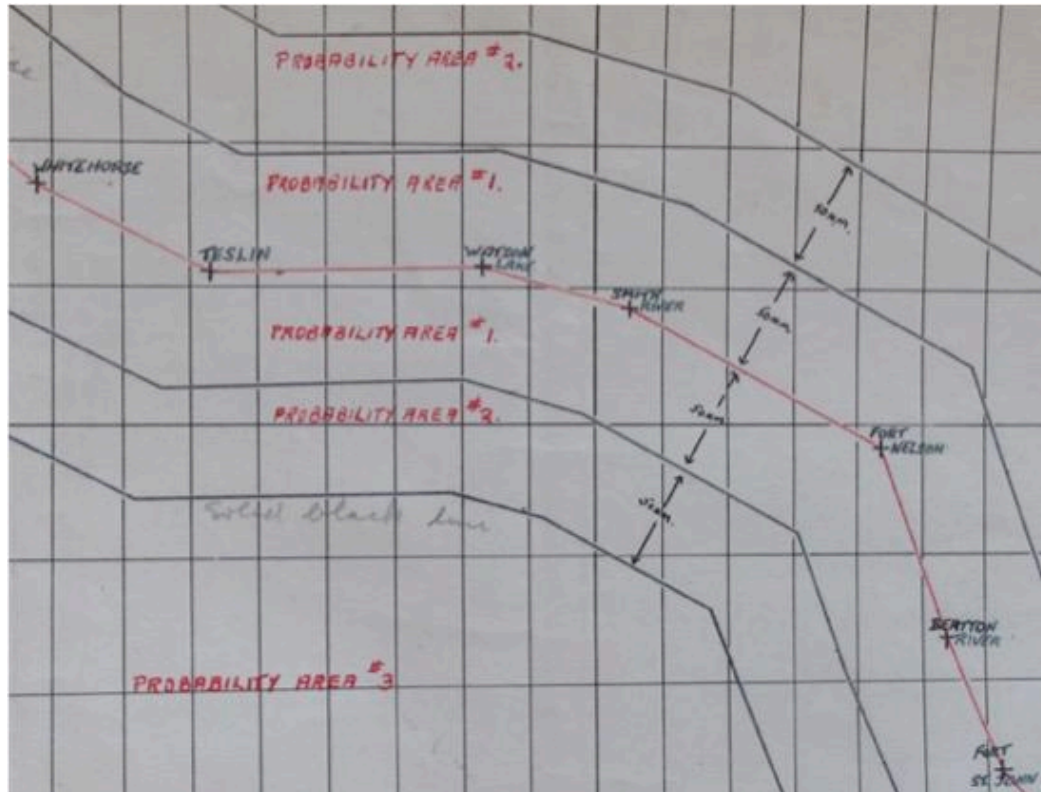
Figure 7. NWSR Search Procedures in June 1944[58]

By contrast, the search pattern for land-based searches appeared to be arbitrarily assigned as 50 nautical miles on either side of the planned aircraft track for the initial search, followed by an expansion to 100 nautical miles on either side of track if the aircraft was not found in the initial search area.[59] Given that one block of the search area could encompass up to 10,000 square nautical miles to search, it could take over 100 hours to search that one block out

[55] DHH, 181.003 (D984), Monthly Review of RCAF Ops in North America 43-44, "April 1944 Edition," p24.

[56] DHH, 181.003 (D984), Monthly Review of RCAF Ops in North America 43-44, "March 1944 Edition," p35-37.

[57] DHH, 181.003 (3439), EAC – Searches for Missing Aircraft – 20 Dec 1943 to 10 May 1944. A review of the operations reports in this file shows a lot less small problems of coordination with the RCN than earlier searches.

[58] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue – Policy, File 976-1, 7 June 1944, "NWAC Suggested Search Procedure for the NWSR."

[59] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue Policy, SAR – Organization and Administration, 7 June 1944, "Suggested Search Procedure for the NWSR." A hand-written minute states this procedure was accepted.

of many that might be assigned. The search procedure is depicted in Figure 7 above, and it is worth noting that a search aircraft would take over two hours just to search from one side of the search area to the other, and the crew was only searching half a mile out on either side of the aircraft.[60] The long searches made it clear that the RCAF had the time and resources in 1944 to establish long and costly searches in Canada.

By the end of 1944, 20 additional personnel were selected for parachute training in Edmonton for further employment in EAC, WAC, and NWAC, and another 20 trainees were planned.[61] The additional personnel allowed for rescues over Canadian territory and advance the theme of the RCAF ASR system as a domestic capability. During the development of the parachute rescue capability, there was no discussion in any document of utilizing this capability in a combat environment. The lack of combat focus for this capability was perhaps not intentional, but ASR was clearly a system designed only for use in Canada.

The Push and Pull for a Full ASR System

The introduction of parachute rescue specialists was but one development in a string of changes that was enhancing ASR in the RCAF. These developments will be outlined and include; the expansion of specially trained ASROs right down to the Station level, standby crews for ASR, and an increasing interest in ASR operations by Commands. The driving force was a mixture of pushing from allied nations, and pulling from personnel internal to the RCAF. Despite some gaps left in the Atlantic area, in 1944, Canada had a fully developed rescue system that proved effective for aviation and maritime rescue throughout the country.

The RCAF's increasing rescue effectiveness was perhaps surprising as the demand for ASR services in Canada simply was not at the same level as that of operational theatres elsewhere. As an example, in September 1944, EAC reported no searches while WAC reported one search for an aircraft that crashed near Vancouver. Yet, in the UK, a typical month around the same time would have 360 aircrew rescued, let alone the number perished in the sea.[62] Therefore, it is somewhat surprising that ASR in Canada received the level of interest that it did. It is probable that part of the explanation for the RCAF drive for ASR was based on increased numbers of RCAF officers returning from operational theatres where ASR was a critical component of operations. One can reasonably surmise that the drive to increase the ASR capabilities without the combat requirement for the capability resulted in a natural domestication of the ASR service in Canada.

Increases in ASR needed individuals within the RCAF to drive policy forward, and in all the documentation there are very few specific personnel mentioned. One such individual behind increased ASR development was the EAC ASRO in 1944, F/L Alguire, who wrote a detailed report in April 1944 that drove EAC ASR policy until the end of the war. This report recommended the addition of ASRO positions at each station, and provided solid evidence that

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[60] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue Policy, SAR – Organization and Administration, 976-1, Letter to Air Member CJS from CAS, signed by F/L R.J. Lehman, 24 April 1944, "ASR – Policy and Procedure in the RCAF."

[61] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue Policy, SAR – Organization and Administration, Letter from No.3 Training Command to No. 10 AOS in Chatham, 2 November 1944, "Emergency Equipment Room."

[62] DHH, 181.009 (D95), Air Sea Rescue No. 423 Sqn, Dec 42 – May 45, Summer 1944, "Maps of RAF rescues;" and DHH 181.003 (D5186), Summary of RCAF Activities, progress Reports Sep 44 to Feb 45, "AMAS Division Report for September 1944."

the FCO was occasionally overwhelmed with ASR duties.[63] Subsequently, the AOC EAC started sending letters to AFHQ requesting the creation of an ASRO position for each of the 18 stations across the command. In December 1944, AFHQ agreed, but to only 16 ASRO positions due to lower flying levels at some stations.[64] The Flying Control School in Patricia Bay, BC, arranged for specialty courses to produce ASROs in the quantity desired.[65] F/L Alguire's persistence paid off and the additional ASRO positions created at the station level made the RCAF's ASR congruous with the RAF system, from a personnel perspective. The major difference remaining between the two national systems was that the RCAF system did not, or very rarely, have to respond to rescue missions under combat conditions.[66]

Unlike the ASRO resolution, assigning dedicated aircrew and aircraft to ASR was still a hurdle. EAC continued to resist assigning aircrew dedicated to ASR, although that resistance was subjected to a new requirement to have at least some aircrew trained in specialty rescue equipment.[67] Two differing approaches to trained aircrew were considered: to train specific ASR aircrew dedicated to the rescue role, or to train all aircrew on the new procedures. The first approach limited the usefulness of those crews when not employed on ASR duties, while the second approach was very expensive.[68] The compromise solution employed was to limit the types of aircraft that could hold ASR duties and to train three crews per aircraft type at select stations on how to use the specialty equipment.[69] The idea was that the trained aircrew would be used for other types of flying duties when not holding ASR standby, but not all aircrew received the specialty rescue training.

Essentially, EAC trained more crews than needed for the ASR role, but the aircrew flew multiple mission types, unlike RAF and American aircrew who were assigned only to the ASR mission.[70] At roughly the same time, this multi-purpose aircrew approach was extended to WAC, keeping the system similar across the country.[71] The squadrons where these dual-qualified personnel were stationed were renamed "composite" squadrons, and this multi-purpose approach to holding rescue duties, and yet flying other mission types, is still in use today.[72] Dual qualifications were, and still are, a cost-effective approach to rescue standby in Canada. A potentially unintended consequence, which would come up again later, was that

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[63] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue Policy, SAR – Organization and Administration, Report written by F/L Alguire, 24 April 1944, "Report on Air/Sea Rescue in EAC."

[64] LAC, RG24-E-1-b, Vol. 3210, Letter to AOC EAC from CAS, 9 November 1944, "Establishments Air/Sea Rescue Officers."

[65] LAC, RG24-E-1-b, Vol. 3210, 185-A-6, Requirements and Establishments, Letter to AMSO from AMAS A/V/M W.A. Curtis, 9 December 1944, "Requirements and Establishments Air/Sea Rescue Officers."

[66] Multiple files at DHH and LAC were researched that contained honours and awards files for daring rescues, but none of the folders contained award nominations for rescues in combat conditions.

[67] LAC, RG24-E-1-b, Vol. 3210, 185-A-6, Requirements and Establishments, Letter to AMSO from AMAS A/V/M W.A. Curtis, 16 November 1944, "Establishments Air/Sea Rescue Officers."

[68] LAC, RG24-E-1-b, Vol. 3199, Equipment and Supplies – Aircraft – RCAF Requirements and Supply of Search and Rescue Aircraft, Letter to Dept of National Defence for Air from AOC WAC, signed by W/C E.W. Beardmore, 16 September 1944, "Airborne Lifeboats – Operating Crews."

[69] LAC, RG24-E-1-b, Vol. 3199, ... 16 September 1944, "Airborne Lifeboats – Operating Crews."

[70] Galdorisi and Phillips, *Leave No Man Behind*..., p39-47.

[71] LAC, RG24-E-1-b, Vol. 3199, Equipment and Supplies – Aircraft – RCAF Requirements and Supply of Search and Rescue Aircraft, Letter to Dept of National Defence for Air from AOC WAC L.F. Stevenson, 21 April 1944, "Air/Sea Rescue Aircraft."

[72] LAC, RG24-E-1-b, Vol. 3199, Equipment and Supplies – Aircraft – RCAF Requirements and Supply of Search and Rescue Aircraft, letter to DDFC from AOC WAC, 24 January 1944, "Air Sea Rescue Aircraft." This author was posted to a SAR Squadron until September 2014, and transport missions are still conducted by SAR squadrons. However, very recent decreases in funding mean that at present, SAR squadrons are largely limited to SAR only.

sufficient numbers of aircrew were trained that could respond to large military or civilian rescue missions.

Despite all the advances in ASR, the North Atlantic remained a troublesome sector for rescue until the end of the war. Flying over the Atlantic was largely coordinated by Ferry Command, an RAF organization whose function was to deliver aircraft built in North America to the RAF, and it operated out of Dorval, Quebec. The Command reported 560 personnel lost in 151 crashes over five years of operation.[73] Flying over the Atlantic was anything but routine, and the resulting loss of aircrew was nearly double the losses of EAC and WAC over the same time period.[74] Surprisingly little was done about this problem, even though the Americans felt that the presence of just one surface ship might be enough to noticeably reduce loss of life.[75] A meeting was held in March 1944 with RCAF, RAF, and US Army Air Corps personnel to resolve some of the concerns, but the most they could agree to, was to pool all rescue equipment of the three services at stations used by two or more of the air forces.[76] The meeting was not enough to convince their respective commanders to reduce the loss of aircrew over the Atlantic.

The following year, an ASRO specialist from the RAF, F/O Alexander, toured Atlantic rescue stations to determine the effectiveness of rescue over the Atlantic. He concluded that procedures were faulty by all the services, and that more should be done. Examples of his recommendations to improve the chances of rescue were: modify the routes for transiting aircraft to have more possible diversion airports, place weather ships along known transatlantic routes, and monitor emergency frequencies.[77] However, it appears the report was never acted upon.[78] Alexander did not single out the RCAF in his report, so by and large it appears that the RCAF ASR service in 1945 was aligned with expectations from other allied nations.

The end of the war in Europe, May 1945, meant a realignment of resources for the continued war against Japan. In Canada, this meant bringing some squadrons home and disbanding many others, but sending some squadrons into the Pacific theatre.[79] As one of the eldest squadrons still in service, 404 Squadron was selected for conversion to Canada's first dedicated ASR squadron to support allied forces in the Pacific.[80] However, Japan surrendered before the deployment happened, so the ASR squadron was never formed. Canada never did take that final step to a dedicated ASR squadron oriented to combat rescue.

The final configuration of ASR was robust for the amount of activity experienced. There was only one Squadron dedicated to ASR on each coast, 122 Sqn at Patricia Bay in British Columbia, and 167 Sqn in Dartmouth Nova Scotia, but trained crews at various stations supplemented them.[81] The Squadrons had parachute rescue specialists that could be deployed to

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[73] Christie, *Ocean Bridge...*, p305.

[74] The numbers of lost and rescued aircraft are not all compiled in one, or even several, locations. From 1 January 1944 to 1 June 1945, EAC reported 29 lost or crashed aircraft and it is clear that the losses were significantly lower in WAC. Other evidence shows there were only 3 RCAF crashes in Canada in 1940 and 51 crew were saved from 18 crashes in the eighteen months prior to the EAC report. Therefore, a reasonable estimate is 60-80 crashed aircraft.

[75] LAC, RG24-E-1-b, Vol. 3410, 466-1-3, Air/Sea Rescue Services – Minutes of RAF Monthly Air/Sea Rescue Meeting – Policy, 7 April 1945, "Minutes of Monthly RAF ASR Meeting."

[76] LAC, RG24-E-1-c, Vol. 18,115, Search and Rescue – Operations, Letter to AOC No.3 TC from AOC EAC, signed by G/C W.A. Orr, 18 March 1944, "Search for Lost Aircraft."

[77] Christie, *Ocean Bridge...*, p260-264.

[78] Christie, *Ocean Bridge...*, p264.

[79] Greenhous et al, *The Crucible of War...*, p117.

[80] Greenhous et al, *The Crucible of War...*, p117.

[81] LAC, RG24-E-1-b, Vol. 3199, Equipment and Supplies – Aircraft – RCAF Requirements and Supply of Search and Rescue Aircraft, letter from AOC WAC to DDFC, 24 January 1944, "Air Sea Rescue Aircraft;" and letter from AOC EAC to DDFC, 16 September 1944, "Airborne Life Boats – Operating Crews."

land crashes to save survivors. Dedicated ASROs within the flying control organization would run the investigation for missing aircraft. Reports of distressed civilians in aircraft crashes or vessels at sea would receive RCAF response. Overall, the resources were few, but as a system, it was quite effective for the limited scope of rescue at that time.

By the end of the war, the ASR service in Canada included ASROs at all the busy stations. There was command and staff involvement, a reasonable policy framework, and specialty aircrew flying aircraft with dedicated equipment for rescues. All of this was overseen by AFHQ for national ASR standards. Allied interoperability had been a factor in developing Canadian ASR, as was the need to provide a rescue service to prevent the Americans from providing ASR on Canadian soil. The transition to an effective system took far longer than it took the UK or US, but at the end of the war, RCAF ASR was a very effective system used for military and domestic rescues.[82]

ASR to SAR Transition Planning

Initial international post-war planning for aviation took place in Chicago in December 1944. This storied meeting created the Provisional ICAO, which laid the groundwork for the final organization, ICAO, as well as laying the foundations for a Canadian aviation metaphorical transfer from a British orbit to an American one.[83] The development of international aviation was considered a critical component of any nation's post-war economic well-being, so most nations attended the Chicago convention and Canada found itself in the enviable position of mediator between the big powers of the US and the UK.[84]   The role of mediator, however, came at the cost of increased tension with Great Britain, as Canada was clearly favouring the US position.[85]

Tension was evident in the vote over the proposals for the location of ICAO Headquarters. Canada proposed Montreal as the permanent home of ICAO with strong American support due to proximity and American influence over the Canadian government.[86] The British voted against this proposal for precisely the same reasons, and instead supported a bid for Paris to host ICAO.[87] The end result of the Provisional ICAO meetings was international agreement on an aviation organization with executive powers, and based in Montreal. This was a win for Canada, but strong support of executive powers for ICAO and sponsoring the headquarters meant that ICAO would have considerable authority over Canada's rescue organization. ICAO was to prove highly influential to future Canadian rescue development after the war.

The final statistics of the war would later indicate that ASR worldwide had saved 13,269 lives, of which 8,604 were British and Allied aircrew, and these statistics bolstered ICAO's position that civil aviation needed a rescue service.[88] American and British forces had ASR squadrons all over the globe and the addition of this type of service to post-war aviation was not questioned. As the Provisional ICAO delegates discussed the requirements of post-war

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[82] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue Policy, SAR – Organization and Administration, 976-1, Letter to Air Member CJS from CAS, signed by F/L R.J. Lehman, 24 April 1944, "ASR – Policy and Procedure in the RCAF."

[83] MacKenzie, *International Civil Aviation*..., p192.

[84] MacKenzie, *International Civil Aviation*..., p170 and 190.

[85] MacKenzie, *International Civil Aviation*..., p199.

[86] MacKenzie, *International Civil Aviation*..., p193.

[87] MacKenzie, *International Civil Aviation*..., p193.

[88] Whittle and Borissow, *Angels Without Wings*, p36.

aviation, even the first draft text contained the statement; "each contracting State undertakes to provide such measures of assistance to aircraft in distress in its territory as it may find practicable."[89] ICAO's insistence on a rescue service for civil aviation was a direct result of the allied ASR experiences around the world during the war.

By contrast with the number of American and British lives saved through ASR, Canadian ASR was much less utilized. Two reports would provide limited clarity on ASR achievements in Canada during the war. One report from AFHQ covered the period of August 1942 to April 1944, the initial period of an ASR capability, and "18 successful rescues have been effected, involving some 55 persons."[90] The second report was from EAC and reviewed searches from 1 January 1944 to 1 June 1945, and it identified that 29 aircraft were lost in that period with 25 of them located within five days.[91]

This data is hardly exhaustive because it is not known how many aircraft were lost in the first period, or how many of these incidents were in both reports, but it does strongly suggest that there were less than three military aircraft crashes per month in Canada during the war. That was miniscule loss in comparison to the hundreds downed at sea off of Britain each month, as well as the losses in other operational theatres. With such little rescue work required for military operations, it is easy to see how the system would have embraced domestic rescue missions as a way to gain rescue experience for ASR aircrews during the war.

In the waning days of the Second World War, the question in Canada was no longer one of utility of an ASR system in Canada, but who would take the lead role in rescue operations in peacetime. The RCAF took the lead on initiating discussion and called a meeting in November 1944 to discuss the "amalgamation of the marine services of the various departments into one government marine service."[92] The Departments of Transport, Mines and Resources, and Fisheries, as well as the RCAF, RCN, and RCMP attended the meeting. The Minister of National Defence for Air had approved in principle an amalgamated service that "could look after marine rescue work and provide patrol and preventative services."[93] The proposed service was a coast guard service where experts in coastal water responsibilities would take over the rescue role from the military.

The Department of Transport (DoT) challenged the need for a new organization, as it "doubted if air-sea rescue work could be classed as a national responsibility."[94] The RCMP, RCAF, and RCN, were convinced that one amalgamated rescue organization was necessary. If a new organization was not possible, however, then the military and police organizations agreed that the RCMP "would take over air-sea rescue if necessary." In the aftermath of the meeting, the Canadian Cabinet did consider a coast guard service, but concluded; "the establishment of a Coast Guard to provide new services offers no apparent advantage."[95] There was not yet sufficient national interest in post-war rescue organization, so interest in a coast guard was still a long way off.

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[89] ICAO, *Convention on International Civil Aviation* (Chicago: 7 December 1944), p11.
[90] LAC, RG24–E-1-c, Vol. 18,113, ... 24 April 1944, "ASR – Policy and Procedure in the RCAF."
[91] DHH, 181.009 (D4436), RCAF File 2-36-1, WAC ASR, Searches General Sep 44 to Oct 45, Report written by ORS/EAC/WHC, 24 July 1945, "A Review of Searches for Missing Aircraft, EAC, 1 January 1944 to 1 June 1945."
[92] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Memorandum to D. of P. from A/Dir of Plans Commander F.A. Price, 23 November 1944, "2nd Meeting of the Inter-Departmental Committee on Water Services."
[93] LAC, RG24, Vol. 8164, ... 23 November 1944, "...Committee on Water Services."
[94] LAC, RG24, Vol. 8164, ... 23 November 1944, "2nd Meeting ... Water Services." All the facts for this paragraph are taken from this source.
[95] LAC, RG-2, Vol. 124, Cabinet Documents, 9 February 1949, "Document No. 890." This document refers to, and details, a 17 July 1945 report on the suggested formation and subsequent rejection of a Canadian Coast Guard.

The discussions resumed in June 1945, after the RCMP had concluded a detailed study of the ASR system. It noted in part that "the position of the RCAF is now such that they cannot support an air/sea rescue force on a scale adequate to meet service and commercial needs on their projected annual appropriations" and the RCAF "proposed that the liability for the future provision of an air/sea rescue service should be assumed by the RCMP."[96] The RCN was in full agreement that the ASR functions should transfer to the RCMP and proposed to return resources back to the RCMP, as it had taken control of many RCMP vessels when war broke out.[97]

When the war ended, there was still no agreement from the DoT on amalgamation, but the RCN, RCMP, and RCAF were aligned, had ministerial agreement, and planned to proceed with a limited amalgamation of rescue services under the lead of the RCMP.[98] It is very clear that the RCAF had no intention of providing domestic ASR after the war.[99] The RCAF had a vision of its future, represented by post-war RCAF Plan B and accepted by the government, and there was no mention of any rescue capability, military or otherwise.[100] The RCAF intended to only provide functions it considered military in nature, and ASR had not met that definition based on the RCAF wartime experience within Canadian territorial lands and waters.

Summary of Canadian ASR

The RCAF had initiated an ASR service in August of 1942, but the growth and sophistication of both the FCO and the ASR organization had been based on procedures using personnel already busy with other duties. Changes were made in 1943, and shortly afterwards it was evident by the number and type of changes that ASR had become a priority for the RCAF to provide. The RCAF took one look at the new parachute rescue capability and eagerly absorbed that capability into the ASR service, which had become very effective by the end of 1944. Allied pressure and internal willingness to expand ASR meant that the capability became comparable to other allied services by the end of the war. Arguably, the RCAF had created a system far more suited to domestic rescue than the combat rescue for which it was originally intended.

International pressures were important to the growth and development of the RCAF's ASR system. The RAF applied pressure on the RCAF to produce aircrew that had a solid understanding of ASR procedures, which Canadian trained aircrew did not have in 1943. The RCAF needed to reduce the operational training requirements in the UK so the aircrew could join the fight quicker. An increase in ASRO personnel and dual-qualified aircrew resolved the majority of these concerns. Additionally, the US was expanding its ASR requirements over the globe, and if Canada wished to avoid an American ASR presence on its territory, it would have to provide a rescue capability along the NWSR. The RCAF development of Wilfrid May's fledgling parachute rescue capability resolved this concern, but the parachute rescue capability furthered the domestication of the RCAF rescue system. One can reasonably conclude that international pressure furthered ASR improvements in Canada, but the lack of operational rescue missions meant that the system developed became more domestic than combat capable.

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[96] LAC, RG24-D-1-c, Vol. 33,825, File Part 7, 1700-27, Organization and Administration – ASR Services, Memorandum to the MND Naval Services from CNS, 19 June 1945, "Air/Sea Rescue."

[97] LAC, RG24-D-1-c, Vol. 33,825, ... 19 June 1945, "Air/Sea Rescue."

[98] LAC, RG24-D-1-c, Vol. 33,825, File Part 7, 1700-27, Organization and Administration – ASR Services, Letter from MND Air to MND Naval Services, 12 June 1945, untitled.

[99] LAC, RG24-D-1-c, Vol. 33,825, ... 19 June 1945, "Air/Sea Rescue."

[100] DHH, 96/24 Air Force HQ fonds, Box 9, File 4, 23 Aug to 2 May 46, 29 January 1946, "Air Council Minutes;" and RCAF Plan B in the same file.

Cost was always a factor in the allocation of squadrons and capabilities. Cost may have prevented the RCAF from purchasing large American rescue vessels that would have been operated by the RCN, and it was certainly a factor that limited the number of aircraft in Canada. Because aircraft for EAC and WAC were limited, the commands resisted using aircraft solely for the ASR role. Maritime vessels were amalgamated into one squadron on each coast to maximize efficiency, and dual qualified aircrew manned aircraft that did not have to remain completely dedicated to ASR. Personnel were not expensive by contrast with more aircraft, which remains true today, so personnel increases in the FCO and ASR were viable solutions to the rescue system problems that increased the overall rescue capability while minimizing equipment requirements. Cost can be considered an important factor that limited the growth of ASR to just the Canadian area of operations, thus limiting the RCAF from providing a combat rescue squadron in operations overseas.

The RCAF ASR system developed after 1943 under a reduced enemy threat to Canadian shores, and it became remarkably useful for domestic rescue. The threat of combat along Canadian shores had been key to the RCAF decision to follow RAF ASR development, but when that threat moved offshore, the Canadian system changed from the intended combat focus to a capability well suited for domestic rescues. There was certainly no reluctance on the part of the RCAF to create a rescue system between 1943 and 1945, but the domestication of the system, and the experience the air force obtained in rescue organization, weakened the RCAF argument that the system should be handed over to another organization.

National Standards	**Aviation**. The RCAF had a rescue policy, but it had inadequate plans for land rescues	**Maritime**. None
Available Resources	**Aircraft**. RCAF aircrew had training and procedures, but there were no ASR aircraft for Prairies and Ontario rescues	**Vessels**. Six RCAF vessels and assistance available from the RCN provided coastal coverage only
Formalized Policy (aviation and maritime only)	**Military rescues**. AFHQ had well-developed policy and trained personnel to handle investigation and coordination	**Civilian rescues**. The RCAF still responded to civilian rescues, but there was no requirement to do so

Figure 8. Canadian ASR in August 1945

From today's perspective, some progress was made between 1943 and 1945 towards the current organization. A national rescue system was available for military aviation rescue, as depicted in Figure 8 above, and the system was incidentally used to support civilian aircraft crashes as well as mariners in distress. Aircraft, increasingly specialized for rescue throughout the war, were added as rescue resources. The system was developed for military needs, but it had proved capable for civilian rescue. This chapter has shown the evolution of combat rescue in Canada and how civilian rescue requirements became integrated within the rescue efforts provided by the air force. The following chapter will describe how the RCAF's system became formalized for domestic rescue.

Chapter 4: The RCAF Retains Search and Rescue for Aircraft in 1947

The Canadian Cabinet formed an Interdepartmental Committee in mid 1945 to make recommendations for post-war ASR in Canada, and it would unanimously conclude that the RCAF ASR system would best be transitioned to the RCMP. As will be explained, the RCAF supported the RCMP's proposal to lead Canada's rescue service as mandated by the International Civil Aviation Organization (ICAO), particularly because it included a maritime rescue component in addition to the aviation requirements. The planned transfer of ASR to the RCMP would allow the RCAF to focus on what it felt were military matters.

The requirement for a post-war rescue system was a serious matter. The Second World War had proved that aviation was a critical component of international travel and transport, and if Canada wanted to be part of the massively expanding post-war international trade using aviation, it would have to be an integral partner developing international aviation regulations and rescue services. Despite a clear interest in post-war civil aviation, the Canadian government had no appetite for an expensive new organization under the RCMP that aimed to provide capability outside the core ICAO demand of aviation rescue resources. Equally, the government wanted no part of an RCAF with interest in only roles the air force deemed to be military, which was one of several factors that led to Cabinet's decision to assign the SAR mandate informally to the RCAF in 1946, and officially in 1947.

The RCAF prepared for the 1947 decision by immediately rebuilding the ASR system it had allowed to languish. In 1948, the new SAR system, smaller than the RCMP vision, was up and running to meet ICAO requirements for aviation at a fraction of the cost of the RCMP proposal. This chapter will argue that the RCAF did not volunteer for the SAR mandate and failed to understand the role it would have to play in SAR matters no matter which organization led the SAR mission. The decisions on SAR organization made in 1946 and 1947 formalized a civilian role for the RCAF that the air force would struggle to accept.

The RCMP Bid for SAR

The ASR system developed by the RCAF during the war had become a source of pride in 1945, and the system had included searches for missing mariners and missing civilian aircrew.[1] In the last year of the war, the system had saved 52 RCAF personnel and it had conducted 18 humanitarian flights.[2] This effective system needed a lead agency, and quickly, as the RCAF was "rapidly curtailing its Air Sea Rescue facilities in line with the general policy of contraction of that service."[3] As the Department of Transport (DoT) had refused to participate in an amalgamated marine rescue service in 1944, the RCN, RCAF, and RCMP worked together and concluded that the RCMP was the best organization to take on ASR in the post-war

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[1] LAC, RG24-E-1-c, Vol. 18,113 Search and Rescue Policy, SAR – Organization and Administration, Letter to Dept of National Defence from AOC No.2 AC, A/V/M K.M. Guthrie, 25 April 1946, "Air Land Sea Rescue Facilities for No.2 Air Command."

[2] DHH 181.009 (D5200), Department of National Defence for Air 1945-1946, AMA Directorate, "Annual Report."

[3] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Prepared by Chairman S/L R.J. Lehman, 30 November 1945, "Minutes of Meeting 4 of the Interdepartmental Committee on Post-War Air Sea Rescue."

period. The transfer of ASR to the RCMP would relieve the RCAF "of an obligation which has developed since the outbreak of war and will continue to exist in the post war period."[4]

The ASR capability needed to be maintained because it was essential to ICAO standards, and Canada was deeply invested in ICAO because there were massive post-war benefits expected from the growth of aviation.[5] Prime Minister Mackenzie King made it clear that aviation was critically important to the future when he stated in April 1943 that Canada was prepared to support "whatever international air transport policy can be demonstrated as being best calculated to serve not only the immediate national interests of Canada but also our overriding interest in the establishment of an international order which will prevent the outbreak of another war."[6] The idea was that an interdependent and international aviation organization would integrate nations enough that it might limit future wars. Combined with the economic expectations of Canada's position along major new international flight paths, the rescue and other regulatory expectations of ICAO had the highest support possible in Canada.[7] However, there were limited rescue resources to meet the desired ICAO capability across the country.

The wartime RCAF had only 122 Squadron in Patricia Bay, British Columbia and 167 Squadron in Dartmouth, Nova Scotia, with an aircraft ASR capability. The RCAF planned to retain these rescue facilities after the war "on a reduced basis" until a transfer to another agency could take place.[8] ICAO was the driving force for a continued rescue service, but "no explicit agreement was reached as to the minimum air search rescue facilities which would be supplied by the contracting countries within their territorial limits."[9] The lack of minimum limits was wise as the standards developed in war were strictly concerned with aircrew involved in combat operations, so there had not been enough information available with which to develop civil rescue standards. ICAO deliberately left it to each nation's discretion on how many resources would be required for the SAR service they felt was necessary, although it was understood that standards would come later.[10]

Throughout the autumn of 1945, discussions took place on the transfer of the rescue capability in Canada. One of the changes that occurred during this time was the name of this type of service due to the inclusion of land rescue capabilities for aviation. "Following the lead of [Provisional ICAO], it is proposed that hereafter the rescue organization be referred to as the Search and Rescue Service."[11] The non-military nature of the proposed new service, captured in the duties and new name of the service, factored considerably into the interdepartmental recommendation to transfer the service to the RCMP.

The RCAF was reducing rapidly in the post-war environment, and it was trying to remain focused on the possibility of further war in an uncertain world. Air force priorities were summed up as follows; "due to the radical change in warfare brought about by the introduction

[4] LAC, RG24-E-1-c, Vol. 18,112 Search and Rescue – Organization and Administration 1945-1954, Letter to Hon. D. Abbott from Hon. C. Gibson, 8 June 1945, untitled.
[5] MacKenzie, Canada and International Civil Aviation..., p119.
[6] MacKenzie, Canada and International Civil Aviation..., p125-126.
[7] MacKenzie, Canada and International Civil Aviation..., p124.
[8] LAC, RG24-E-1-b, Vol. 3199, Equipment and Supplies – Aircraft – RCAF Requirements and Supply of Search and Rescue Aircraft, Letter to Air Member Canadian Joint Staff, Washington, from CAS, signed by S/L R.J. Lehman, circa July 1945, "Air Sea Rescue Aircraft."
[9] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Minutes produced by W/C A.M. Cameron, Secretary of ICSAR, 25 January 1946, "First Meeting of the Revised ICSAR at 1000 hours on 24 January 1946."
[10] DHH, 112.3M2 (D340), May 1947, "Report of Interdepartmental Committee on Search/Rescue."
[11] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, circa January 1946, "Proposed Plan - National and International Commitments for Search and Rescue Throughout Canada."

of the atomic bomb, and homing and guided missiles as offensive weapons of tremendous destructive power, it is not possible to state specifically the role of an Air Force of the future."[12] What was clear was that the RCAF had larger military concerns than domestic rescue immediately after the war ended.

Between June and November of 1945, an Interdepartmental Committee on Post-War Rescue met four times to make detailed recommendations on SAR for Canada.[13] This committee was formed of RCMP, RCAF, RCN and DoT personnel. The fourth meeting included a detailed proposal for the RCMP to assume responsibility for SAR, and this proposal was unanimously accepted by the agencies involved.[14] The agreement can be summarized as follows: a rescue service was needed to meet ICAO requirements, the RCAF had built a satisfactory ASR system that could form the basis of a post-war SAR system, and the RCMP was a civil organization with experienced aviation and marine organizations that could easily be expanded to lead the SAR function. The main recommendation of this committee was that the RCMP should become the lead agency for post-war SAR in Canada, and this recommendation went to Cabinet for consideration in December of 1945. No other option had been documented as a possible alternative to the RCMP proposal.

The recommendation from the post-war rescue committee was a very robust RCMP proposal for post-war rescue. The plan included an increase of 1,066 personnel, of which 366 would have provided the air rescue component, and 700 personnel would have provided the marine rescue component.[15] Of the marine component, approximately 280 of those personnel would have been RCMP officers conducting duties in the protection of revenue service as well as providing a rescue service. The RCAF and RCN agreed to provide 38 aircraft and 44 vessels from left over resources from the war to be based at police locations across the country. The number of vessels was surprising, as the RCAF had relied primarily on only six high-speed launches for its coastal rescue service that had been used for domestic rescues during the war, but this plan wisely expected that the maritime rescue requirement would expand over time.[16] The RCMP proposal was based on the assumption that the RCMP and the military would achieve support from the Cabinet level that the marine portion of rescue was of enough importance, in addition to the ICAO requirements, to justify the $5,859,370 expense of the RCMP proposal for SAR.

One aspect of the proposal that was not addressed in the documentation of the SAR discussions was the potential inclusion of Newfoundland and Labrador into Canada as an additional province. The RCMP proposal did not include any resources or bases in Newfoundland or Labrador, and any resources added would have increased the cost of the proposal. This potential problem was magnified by the fact that the US had a SAR capability at Goose Bay and at Argentia, which was an ICAO-demanded capability that would eventually

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[12] DHH, 96/24 Air Force Headquarters fonds, Box 9, File 4, 23 Aug 44 to 2 May 46, "Report of the Post-War Planning Committee," 31 October 1945.

[13] LAC, RG2-B-2, Vol. 103, File T-30-1, Territorial Waters and Districts – Official – Air Search Rescue, Canadian Coast Guard, Prepared by Chairman S/L R.J. Lehman, 30 November 1945, "Meeting Four of the Interdepartmental Committee on Post-War Air Sea Rescue."

[14] LAC, RG2-B-2, Vol. 103, File T-30-1, ... 30 November 1945, "Meeting Four ... Rescue."

[15] LAC, RG2-B-2, Vol. 103, File T-30-1, ... 30 November 1945, "Meeting Four ... Rescue." All of the information in this paragraph is obtained from this document.

[16] Hugh A. Halliday, "The Role of the Boats: Air Force Part 46." *Legion Magazine*, 30 Aug 2011.

have to be replaced with Canadian resources.[17] The RCAF had limited SAR resources already established in Goose Bay, Labrador, for its own military requirements, which further demonstrated the RCAF desire to keep its own rescue needs separate from the domestic SAR system and highlighted the inherent duplication in the RCMP proposal.[18]

Figure 9. Aviation Portion of Proposed RCMP SAR Bid, November 1945

The RCMP bid for SAR was a very generous plan. Figure 9 above shows only the air bases, but the vessel locations were largely co-located with the air bases to ensure interoperability between the differing capabilities.[19] The relatively short distance between various rescue locations ensured that Canadians could have received assistance within a few hours. The inclusion of a marine rescue component was one potential difficulty in obtaining Cabinet approval for this plan, as there was no international demand yet for the maritime aspect of a SAR service.[20] As well, there were two other problem areas that would need to be resolved.

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[17] LAC, RG24-E-1-c, Vol. 18,112, SAR – Organization and Administration 1945-1954, 976-0 Vol. 6, Letter to CAS from AOC TC, signed by Air Commodore W.W. Brown, to CAS, 19 May 1949, "SAR - Commitments, Newfoundland."

[18] LAC, RG24-E-1-c, Vol. 17,554, Co-operation and Liaison with ICAO – SAR, 1945-1953, File 004-4 SAR Vol. 1, Letter from Acting SSEA to High Commissioner for Canada in Newfoundland, 16 August 1946, untitled.

[19] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Draft document to His Excellency the Governor General in Council, to be signed by Ministers of Justice, Naval Services, National Defence for Air, Transportation, and Reconstruction, 10 December 1945, "Recommendation for Search and Rescue."

[20] LAC, RG24, Vol. 8164 ... 10 December 1945, "Recommendation for Search and Rescue." The minutes clarify that the committee was fully expecting Cabinet support.

The first problem was poor communications over the oceanic areas. The RCAF and RCN knew that any vessels and aircraft operating at distances of several hundred miles out to sea at that time would not have sufficient communications with shore-based services.[21] A High Frequency Direction Finding (HF/DF) system that covered all of the Canadian area would be required to provide basic communications with transoceanic flights and to provide bearing information on aircraft declaring a distress situation. The HF/DF system that had been used in wartime had been specific to military needs and was insufficient to the large area of coverage needed for ICAO purposes. The only organization with detailed expertise in this area was the RCN; therefore, the RCN would have to provide personnel and equipment for the new service.

The second potential problem was the integration of flying control personnel from the RCAF into the RCMP. It may be recalled that the RCAF had developed a flying control organization (FCO) that was integrated with the civilian air traffic control system in Canada, and the proposed RCMP bid would add a layer of complexity to the air traffic system.[22] This was not discussed at all in the available documentation, but it should have been apparent to knowledgeable observers that the RCMP SAR plan would require additional personnel for coordination and control of aircraft in Canada, beyond what was already in place for civil and military aviation needs. It had been established in 1941 that any rescue service required complete integration into the air control organization, and this would not change in the post-war environment.[23] It is reasonable to assume that the RCMP proposal had duplication included.

Based on the two problems outlined above, one can conclude that an amalgamation of all rescue resources into one entity was a potentially more efficient response, such as the previously discussed 1944 proposal for a coast guard from the RCAF, RCMP, and RCN that had not been supported by DoT. Without agreement from all departments, the dream of a Coast Guard was left for later. However, the RCMP proposal did have some solutions to the problems. The solutions required personnel and equipment from the RCAF and RCN, but that was readily coordinated and by the end of 1945, solutions were well underway.

The RCAF had identified key ASRO personnel, including the previously discussed persuasive EAC ASRO F/L Alguire, who were screened and kept in service beyond the end of 1945 specifically for a transfer to the RCMP as soon as approval was obtained for the new service.[24] It was important that these experts were retained in the SAR system because: they understood the integration required into the FCO and civilian air traffic systems, they had operational rescue experience, and they had been involved in the ICAO SAR discussions.[25] The CAS demonstrated very high-level RCAF support for the RCMP proposal for SAR by ordering the screening and retention of the ASRO personnel specifically for transfer to the RCMP.[26]

What is not clear is how the RCAF planned to provide expertise for its own post-war rescue requirements or if it would maintain expertise for military rescue. The approved plan for

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[21] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Minutes Prepared by EAC ASRO F/L G.L. Alguire, 3 December 1945, "EAC Air Sea Rescue RCAF-RCN Conference." This source provides all the facts for this paragraph.
[22] LAC, RG24-E-1-c, Vol. 17,870, Orders, Instructions, Directives – SAR, Letter to AOC No.9 Group in Rockcliffe, from CAS, signed by S/L R.J. Lehman, 20 August 1945, "ASR Instruction, etc."
[23] DHH, AIR 20/4018, 31 October 1945, "RAF Costal Command Headquarters History of Flying Control."
[24] LAC, RG24-E-1-b, Vol. 3210, 185-A-6, Requirements and Establishments – Air Sea Rescue Officers, Memorandum to D/AMP from DPC G/C W.I. Clements, 19 December 1945, "Air Sea Rescue Officers."
[25] LAC, RG24-E-1-b, Vol. 3210, ... 19 December 1945, "Air Sea Rescue Officers."
[26] LAC, RG24-E-1-b, Vol. 3210, 185-A-6, Requirements and Establishments – Air Sea Rescue Officers, Released by DPC G/C W.I. Clements, 17 December 1945, "Message from AFHQ to EAC."

the RCAF did not contain an ASR capability in the fall of 1945, but it did in January 1946.[27] Obviously, plans were very much in flux. What is certain is that the air force had aircraft to spare for the RCMP proposal, leftover from the war effort.

No transfer of aircraft had been processed before Cabinet viewed the proposal, but the War Assets Corporation had already transferred over 25 marine craft to the RCMP from the RCAF and the RCN, primarily for the protection of revenue, but also in anticipation that the RCMP bid for SAR would be accepted.[28] In the rapidly changing post-war environment, it was assumed that the unanimously agreed-upon proposal from the SAR experts would be heeded. In order to minimize the disruption to SAR operations while decisions were formalized, personnel and equipment were pre-identified for transfer as concurrent activity.[29]

It can be summarized that the RCMP bid was a robust and well thought-out SAR proposal that envisaged rapid growth of SAR requirements in Canada. Multiple departments would be directly involved in the provision of capabilities for SAR because the proposal relied on assets and personnel from the RCN and RCAF, so the final proposal was not the amalgamation that had initially been anticipated. An underlying issue was that military organizations had not only created initial rescue systems in Canada, but all indications were that they would continue to be involved in rescue to some extent, and this could be viewed as inefficient if the RCMP was responsible for the SAR service. The price tag associated with the RCMP bid was considered a necessary expense by the organizations directly involved in SAR, but this price had yet to be scrutinized against other post-war requirements.

The SAR Mandate Decided

The ministers directly involved with the RCMP proposal for SAR were the Ministers of National Defence for Air and Naval Services, and the Minister of Justice, who was responsible for the RCMP. All three ministers had supported the idea, but the planning had been conducted in isolation from the Cabinet. When the proposal went to Cabinet, the full scrutiny of ministers with a great deal of weight in Cabinet was brought to bear on the plan. Discussion will demonstrate that Cabinet members were concerned about the costs associated with the new SAR service as well as the post-war direction the military services were taking that might isolate the military from the civilian populace.

Canada's finances were a mess after the war, like many other nations, and there were many new pressures on the government. Minister of Finance James Lorimer Ilsley was particularly concerned due to "defence expenditures several times larger than before the war; increases in the normal overhead costs of government; and 'vastly increased' expenditures on social security and social welfare activities."[30] These concerns made Cabinet look deeper in to the RCMP proposal for cost effectiveness.

The new Minister of National Defence in 1945, Douglas Abbott, gave several speeches after the decision on SAR was made that are useful to shed light onto the cost concerns that were considered by Cabinet during SAR decision-making. Cabinet was deeply concerned about defence expenditures of the late 1940s as they were significantly higher than the 1930s, and other departments such as External Affairs and the Department of Finance required millions

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[27] DHH, 96/24 Air Force Headquarters fonds, Box 9, File 4, 23 Aug 44 to 2 May 46, "Report of the Post-War Planning Committee," 31 October 1945; and, "Air Council Minutes," 29 January 1946.
[28] LAC, RG2-B-2, Vol. 103, File T-30-1, ... 30 November 1945, "Meeting Four ... Rescue."
[29] LAC, RG24, Vol. 8164, ... 3 December 1945, "EAC ... RCAF-RCN Conference."
[30] Campbell, "J.L. Ilsley and the Transition ...," p13.

more than pre-war budgets due to the need for complex post-war international engagement and financial complications arising from the war.[31] In addition, costly DoT expenditures were a priority because infrastructure maintenance in Canada had been deferred during the war and bridges and ferry replacements required millions more in investment.[32] All of these pressures combined with annual interest costs up to $200 million on $13 billion of debt, which was debt pressure nearly five times higher than ten years earlier.[33] Ministers were feeling pressure from constituents to decrease taxation and yet to provide new services that a war weary nation believed it deserved.[34]

The financial pressures on the federal government were critically relevant when the $5.8 million RCMP proposal for a new SAR service in Canada came before Cabinet. Minister of Justice Louis St. Laurent, who had been an advocate for his RCMP's plan, was the first to bow to the inevitable pressure from other Ministers on the necessity of the proposal. He asked his fellow Cabinet members on 28 December 1945 if the SAR service required for ICAO requirements "might be carried on adequately and with less expense under the auspices of the Navy and/or the Air Force."[35] The RCMP proposal for SAR remained on the table for the month it required the Cabinet Defence Committee to consider the military options, but effectively; the RCMP proposal was finished during just one cabinet meeting.

High cost was an understandable explanation for the failed RCMP bid, but cost was supplemented by another significant concern. The Cabinet applied surprising pressure on the military, through the MND, to re-integrate the military services into civilian society. The RCAF had proved its mettle in combat and there could not have been an expectation that it would return to its "bush pilots in uniform" reputation from the 1930s, but members of the government clearly wanted a military that supported the civilian populace even in times of peace.[36] Undersecretary of State A.D.P. Heeney clarified the Cabinet's position that although DND was "known to be reluctant to undertake such additional responsibilities [such as SAR,] of a non-military nature... there is considerable goodwill to be maintained by co-operating closely with civil departments in such matters."[37] The military could not avoid all "non-military" tasks.

It can be surmised that the government wanted to retain the rescue experience of the military in the expansion of SAR to include civilian aircraft. It must be remembered that the military requirement to search and rescue its own aircrew was not going away, so the air force argument that it was not an appropriate organization to lead SAR was weakened. The civilian part of SAR made sense to be a part of the existing military SAR service in order to reduce overall costs. These factors were clearly understood by Cabinet as they mused over the civilian roles the military would have to acquire in the post-war period.[38]

The idea of integrating the military into civilian affairs was not a passing phase. Brooke Claxton, an experience soldier from the Great War, became the Minister of National Defence in December 1946 and the following summer he produced formal defence objective

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[31] LAC, MG32 B6, Vol. 15 Speeches, 11 July 1946, "Memorandum to Mr. Abbott re: Government Expenditures."
[32] LAC, MG32 B6, Vol. 15 Speeches, 11 July 1946, "Memorandum to Mr. Abbott re: Government Expenditures."
[33] LAC, MG32 B6, Vol. 15 Speeches, 18 November 1946, "Speech to Eastern Townships Associated Board of Trade."
[34] LAC, MG32 B6, Vol. 15 Speeches, 18 November 1946, "Speech ... Board of Trade."
[35] CJOC Historical Files, "Cabinet Defence Committee Minutes for 10 January 1946," p2.
[36] Douglas, *National Air Force*..., p117.
[37] LAC, RG2-B-2, Vol. 103, File T-30-1, Territorial Waters and Districts – Official – Air Search Rescue, Canadian Coast Guard, Privy Council Office – Air Search Rescue, 8 January 1946, "Cabinet Document D-30."
[38] LAC, RG2-B-2, Vol. 103 ... 8 January 1946, "Cabinet Document D-30."

guidance that "the Armed Forces form an integral part of the life of the community."[39] The RCAF had been assigned responsibility for the North West Staging Route, also a role the RCAF considered to be civilian, and tension began between the Liberal government's desire to integrate the RCAF into civilian aspects of aviation and the RCAF's noted desire to avoid tasks it considered "non-military."[40] The RCAF was not going to be allowed to focus only on wartime tasks even though it was clearly against providing any civil domestic role.

Once the Cabinet decided to look into cost options for the RCAF or RCN to assume responsibility for SAR, at the beginning of January 1946, the way forward was decided very quickly. The RCN had neither the manpower nor the aviation experience over land that the ICAO SAR service would require.[41] The RCAF, however, had both the experience and sufficient aircrew to include SAR missions. The Cabinet Defence Committee discussed alternatives to the RCMP SAR proposal, and on 10 January 1946, decided "that an adequate rescue organization for aircraft in distress could be provided by existing services in co-operation and that the Department of National Defence for Air should undertake responsibility for necessary coordination to this end."[42]

Over the following year, details were produced to finalize the RCAF SAR organization. The RCAF had initially decided to maintain the wartime structure of ASR and proposed that organization for SAR requirements, but it did not meet ICAO's developing standards.[43] The five air stations with rescue resources that had been sufficient for wartime RCAF requirements were insufficient for total coverage of Canada.[44] The answer was determined to be an additional four air stations with a SAR capability, and three of these additional locations were approved in the northern areas of Canada: Whitehorse in the Yukon, Churchill in Manitoba, and Goose Bay in Labrador. The final addition to the SAR system was a temporary and small aircraft detachment in St. John's, Newfoundland, from the rescue unit in Greenwood, Nova Scotia.[45] The number of marine vessels on each coast was considered adequate and the aircraft were left over from the war, keeping expenses at a minimum.

Throughout 1946, the RCAF had restarted training of parachute rescue personnel and ASROs, and it formalized its first Rescue Coordination Centre (RCC) in Halifax on 1 January 1947.[46] On 2 June 1947, the Cabinet was made aware that the initial SAR organization developed by the RCAF had cost $1,066,000, but another $696,000 was needed to upgrade the system to nine air stations in order to meet ICAO standards.[47] It had been found that the RCAF needed an additional 142 personnel to its establishment to complete the SAR organization, and the RCN required an additional 10 personnel to establish and maintain the HF/DF system over

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[39] LAC, RG24, Vol. 18,826, Box 159, July 1947, "Canada's Defence: Information on Canada's Defence Achievements and Organization."
[40] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan G*, 1 September 1950 Revision.
[41] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Report by RCN Director of Plans, Captain H.N. Lay, 7 February 1946, "RCN Facilities available for ASR."
[42] CJOC Historical Files, "Cabinet Defence Committee Minutes for 10 January 1946," p2.
[43] DHH, 112.3M2 (D340), May 1947, "Report of Interdepartmental Committee on Search/Rescue." This source supports all the information in this paragraph.
[44] As discussed previously, there had been only two dedicated ASR squadrons, but there had been trained personnel with appropriate equipment at three other locations across the country.
[45] Smith, *Seek and Save...*, p25.
[46] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue – Policy, File 976-1, Letter to CAS from AOC #10 Group, Air Commodore FG Wait, 26 June 1947, "SAR Coordination Centre."
[47] LAC, Canada, Cabinet Documents, RG-2, Vol. 66, 2 June 1947, "Document No. 468."

oceanic areas.[48] SAR operations were conducted by the RCAF throughout this period as the system expanded.

The additional personnel for the military, 152 total, was a lot less than the RCMP proposal for 1,066 personnel. The financial cost savings of $4 million was equally attractive, so on 9 April 1947 the Cabinet Defence Committee ordered the RCAF to take immediate responsibility for SAR in Canada, in anticipation that Cabinet would agree.[49] Cabinet formally approved the new RCAF SAR system on 18 June 1947, as it proved functional on the coasts and was expanding rapidly throughout the country.[50]

The approval of the RCAF SAR organization saved the government over $4 million when compared to the RCMP proposal, but the RCAF organization operated in only nine locations across the country, compared to the RCMP plan for 15 locations.[51] Five RCCs were organized around the country, still embedded into flying control, and five personnel manned each RCC.[52] The personnel in each RCC were available for other air station duties, meaning that the RCC personnel were cost effective for both rescue and RCAF purposes.[53] Therefore, duplication between RCMP and the RCAF was avoided by the RCAF SAR organization, existing ties between the RCN and RCAF were augmented through the HF/DF system, and the RCAF was already integrated into ICAO SAR standards and the Canadian systems of air traffic control. Given the pressures for the government to utilize existing resources to the fullest, the decision to assign SAR to the RCAF was logical and cost effective.

Implementation of the RCAF's SAR Organization

As the SAR system became fully manned in 1948, the SAR mandate was not initially a large requirement. In the first year of operations, there were only 50 SAR missions performed by the nine rescue units at stations across the nation, which meant that each SAR squadron was averaging a mere five or six missions a year.[54] Although aircrews had to conduct SAR training as well as operations, there was plenty of time for the RCAF to use those crews and aircraft for other flying operations.[55]

The system created by the RCAF was well positioned for rescues across the country, and included Labrador. Figure 10, below, shows the locations of RCAF aircraft stations and the medical personnel attached for rescue purposes, although the SAR facilities in Newfoundland were not made permanent until 1954.[56] The locations were Whitehorse in the Yukon, Vancouver in British Columbia, Edmonton in Alberta, Churchill in Manitoba, Trenton in

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[48] DHH, 112.3M2 (D340), May 1947, "Report of Interdepartmental Committee on Search/Rescue."

[49] DHH, R.L. Raymont fonds 73/1223, Memorandum to Distribution List from CAS, signed by S/L R.B. Inglis, 9 April 1947, "Air Force; SAR Arrangements." This document summarizes Cabinet Defence Committee guidance from 31 March 1947.

[50] LAC, Cabinet Conclusions, RG-2, Privy Council Office, Series A-5-a, Vol. 2640, No. 5435, 18 June 1947, "National Defence – Air Search and Rescue Service."

[51] DHH, 112.3M2 (D340), May 1947, "Report of Interdepartmental Committee on Search/Rescue."

[52] DHH, 181.009 (D3311), RCAF Aircraft Control, SAR Generally, 15 Jan 45 to 9 May 48, Letter from AOC NWAC to S/L Greenwood, 1 December 1947, untitled.

[53] There is no list available of work duties for RCC personnel in 1947, but documentation from both 1943 and 1948 make it clear that the maintenance of rescue equipment and training of aircrew were key duties performed by ASROs, and later, RCC controller personnel.

[54] DHH, 79/631, RCAF SAR Operations 1947-1970, DIS Files 1-14, SAR Ops 1947, File 1, "RCAF SAR Operations 31 March 47 to 31 March 48."

[55] Smith, *Seek and Save...*, p22.

[56] LAC, RG24-D-1-c, Vol. 33,825 ... 6 August 1947, "Interim SAR Organization;" and, Smith, *Seek and Save...*, p48.

Ontario, Greenwood and Halifax in Nova Scotia, Goose Bay in Labrador, and Torbay in Newfoundland. Although this was not as robust as the RCMP plan, it was still a sufficient number of resources spread across the nation.
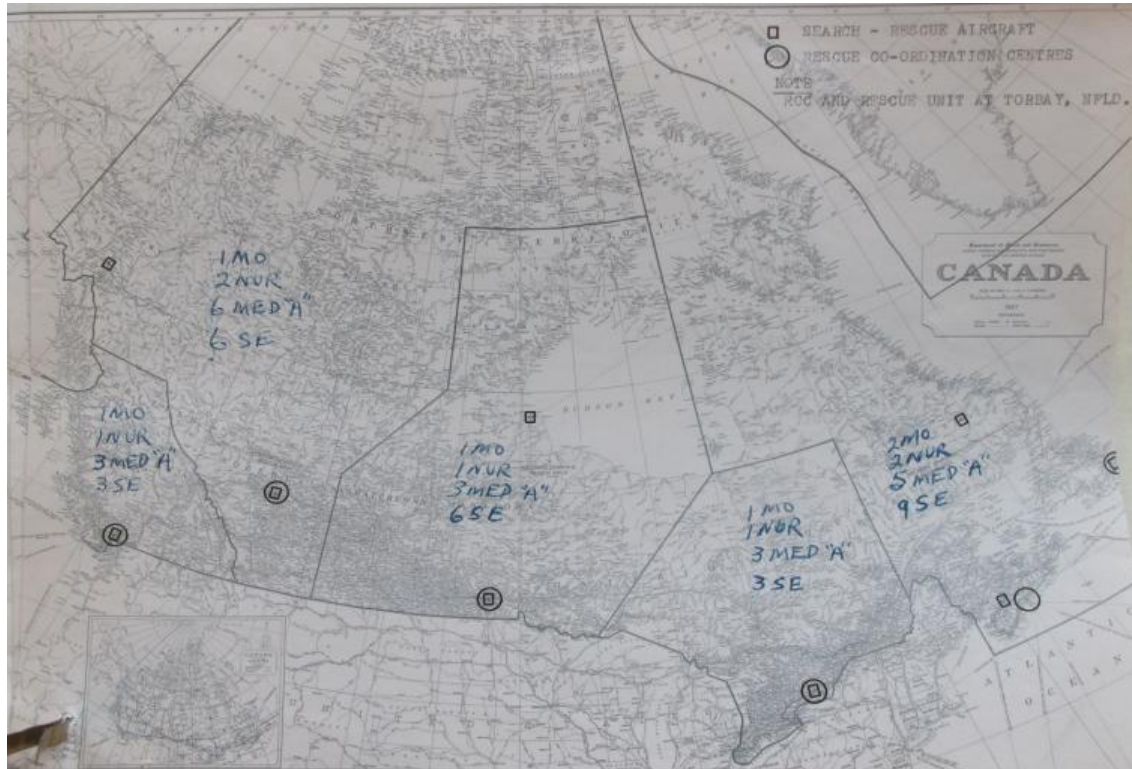

Figure 10. RCAF SAR Resources in 1947[57]

Each boxed-in area represents a region served by an RCC, with six total to support coordination of rescue activity. Figure 10 includes hand written notes for the placement of medical staff and parachute rescue technicians, called Safety Equipment Workers in those days. The entire SAR personnel component of the RCAF in 1948 consisted of the previously identified 142 new positions, which was only half of one percent of the planned military strength of the RCAF.[58] The aircraft the SAR system used were left over from the Second World War, like the C-47 Dakota, Canso seaplane, and Lancaster bomber.[59] Therefore, SAR was a very small portion of the post-war RCAF with limited new expensive requirements when the system was first operational.

The majority of SAR cases in 1948 were marine and humanitarian missions, as only 12 of the 50 missions in the first year were directly related to ICAO-required aircraft searches.[60] The low number of aircraft crashes in the immediate post-war period appears to have been one

[57] LAC, RG24-D-1-c, Vol. 33,825, File Part 7, 1700-27, Organization and Administration – ASR Services, Letter to Distribution List from A.T. Cowley, Director of Air Services, 6 August 1947, "Interim SAR Organization."
[58] DHH, 96/24 Air Force Headquarters fonds, Box 9, *RCAF Plan F 1949*. The RCAF was planning to expand to 25,135 service personnel and 5,341 civilians in 1949, which were the figures used to obtain the percentage.
[59] DHH79/631, RCAF SAR Operations 1947-1970, DIS Files 1-14, SAR Ops 1949, File 3, 1950 (exact date not provided), "RCAF Press Release No. 7615."
[60] DHH, 79/631, RCAF SAR Operations ... "RCAF SAR Operations 31 March 47 to 31 March 48."

factor that significantly limited the RCAF view of the importance of this post-war capability. No matter the reasons, RCAF planning documents from 1948 until 1959 do not outline any expectation from SAR resources during war scenarios, domestic or deployed.[61] Given the wartime pressures that created the rescue system in the first place, and the military response that was proven to be necessary during those years, the lack of war planning for SAR is curious.

One post-war military application of SAR was the response to foreign military aircraft downed inside Canada. There were two large foreign military searches after 1947 that demonstrated the RCAF's thorough response to American military aircraft crashes. The first very significant foreign aircraft for the RCAF to respond to was Operation Attaché in September 1948.

A United States Navy aircraft vanished between Churchill and The Pas, Manitoba, on 12 September 1948.[62] Onboard the aircraft was the United States Navy Attaché to the American Embassy in Canada, Captain Ouster, with three other American servicemen, and a senior British Navy liaison officer. The United States Air Force (USAF) immediately provided a B-17 Flying Fortress aircraft with parachute-equipped doctors among a total of 40 aircraft provided by Canada and the US. However, the US worked within the Canadian SAR structure because RCAF Air Commodore (A/C) Martin Costello of Winnipeg commanded the overall effort with over 300 RCAF personnel involved. Coordinating the detailed search itself was G/C Leigh, the officer who had initially recommended a parachute rescue capability within the RCAF.[63]

The Americans did not need to provide leadership for the search, and was able to limit the number of aircraft provided, due to the large Canadian expert response that located all five personnel alive and well after 13 days of searching. It is only supposition that the USAF would have responded differently if another organization had been responsible for SAR, but it is important to note that the relationship between Canadian and American militaries was very strong in the post-war environment.[64] It is quite possible that if the RCAF did not respond to American military crashes in Canada, the Americans would have intervened with more resources and perhaps would have taken a more commanding role.

Operation Brix in 1950 was another mission where RCAF assistance was essential. A USAF B-36 Peacemaker declared an emergency on 13 February 1950, north of Vancouver Island, during a flight between Eilson Field, Alaska, and Fort Worth, Texas.[65] This type of aircraft was known to carry nuclear weapons for flight-testing, and there was a possibility of nuclear weapons on board.[66] The initial response to the emergency revealed a cryptographic communications problem between the RCN and RCAF, slowing response to the potential nuclear crisis.[67] RCC Vancouver, as a military entity, had contacted American military authorities and 28 military aircraft and four US Coast Guard cutters were dispatched to assist

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[61] DHH, 96/24 Air Force Headquarters fonds, Box 9, *RCAF Plan E 1948*, to *Plan H 1951*; and LAC, RG24-E-1-c, Vol. 18,117, SAR – Operations, File 976-100, Memo to CAS from CNS Vice-Admiral H.G. DeWolf, 15 July 1960, "Responsibility for SAR."

[62] DHH 79/631, RCAF SAR Operations 1947-1970, DIS Files 1-14, SAR Ops 1948, File 2, *Operation Attaché*, 12 September 1948. All the information for this paragraph has been taken from this official report.

[63] Leigh, *And I shall Fly*..., p184.

[64] DHH, R.L. Raymont Collection (73/1223) Series VII, Box 124, File 3122, *Post Hostilities Planning – Joint Draft Group of Working Committee on Canada – United States Post War Defence Relationship*, circa September 1945.

[65] LAC, RG24-D-11, Vol. 11,807, COPC 115-45 (B36), Flag Officer Pacific Coast File, ASR B36 File, report drafted by F/L D.G. Bell-Irving, 8 July 1950, "Operation Brix 1950."

[66] LAC, RG24-D-11, Vol. 11,807, COPC 115-45 (B36), Flag Officer Pacific Coast File, ASR B36 File, Letter to Naval Secretary from H.G. Dewolf, Flag Officer Pacific Coast, " 8 July 1950, "Operation 'BRIX.'"

[67] LAC, RG24-D-11, Vol. 11,807 ... 8 July 1950, "Operation 'BRIX.'"

with the search, supplementing the large Canadian response that included the RCN destroyer, HMCS Cayuga.[68] The SAR response in this instance was wholly military, and necessarily so.

Five USAF personnel died in the B-36 crash, but 12 personnel were saved through heroic efforts of all the personnel involved in the rescue.[69] The lesson, however, was that the RCAF, and indeed even the RCN, needed to be involved in SAR communications efforts to be able to respond quickly to emergencies that could so clearly impact the safety of Canadians. Despite the majority of SAR missions involving civilian aircraft or vessels, military aircraft flying over Canada with nuclear munitions meant that air defence authorities needed to be immediately aware of military aircraft emergencies. As RCAF officers were the coordinators in RCCs, coordination could occur quickly with Canadian or American military agencies in response to any military aircraft emergency.[70] RCAF SAR personnel performed an essential role in rescue communications in this instance that stressed the importance of military integration between air traffic and rescue services.

Given the RCAF effort in SAR missions for the Americans, the apparent lack of RCAF SAR planning for deployed air force rescue resources was surprising given the USAF's successful use of helicopters for combat SAR in Korea, 1950. The USAF used helicopters on the battlefield to save 996 men from enemy territory over the course of the Korean War, which demonstrated the continued importance of SAR forces in a combat environment.[71] The RAF ASR service had already proved the importance of rescue after the Battle of Britain; making the military provision of SAR services a fairly obvious linkage. The RCAF, however, relied on allied capabilities for the combat applications of SAR, and failed to include the capability in any war planning until 1960.[72] Within the RCAF, the military applications of SAR operations were either misunderstood or ignored.

It can be argued that a military use of rescue resources was a new post-war reality. Another mission type that the RCAF could not escape, no matter who led the SAR mandate, was the humanitarian mission. The RCAF was the only post-war organization in Canada with a near all-weather aviation capability.[73] In the humanitarian mission, potential growth in civilian usage of RCAF rescue resources was controlled by assistance from the police. The RCMP agreed that humanitarian requests for RCAF assistance were to be filtered by the police and referred requests to civilian agencies when practicable.[74] Lost hunters, and similar matters, would be handled locally while small northern communities with dire needs would receive timely RCAF support.[75] RCMP involvement meant that only serious matters would require RCAF aircraft assistance, because military aircraft and aircrews were the only credible

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[68] LAC, RG24-D-11, Vol. 11,807, ... ASR B36 File, Report to Flag Officer Pacific Coast from Captain(N) Medland, 21 June 1950, "Operation "BRIX" – Conference 27th February 1950."
[69] LAC, RG24-D-11, Vol. 11,807 ... 8 July 1950, "Operation Brix 1950."
[70] LAC, RG24-E-1-c, Vol. 18,112 Search and Rescue – Organization and Administration 1945-1954, Letter to CAS from AOC NWAC, 20 May 1950, "RCC Officer Establishments." Edmonton, Winnipeg, and Trenton RCCs had one officer answering the RCC phone system during normal working hours, after hours, an NCO was on call from home.
[71] Robert F. Futrell, *The United States Air Force in Korea: 1950-1953, Revised Edition* (Washington, D.C.: Office of Air Force History, USAF, 1983), p572.
[72] LAC, RG24-E-1-c, Vol. 18,117, ... 15 July 1960 "Responsibility for SAR."
[73] DHH 181.009 (D5200), Department of National Defence for Air 1945-1946, AMA Directorate, "Annual Report." This document describes SAR flying conditions with significant risk of a forced landing and yet all missions were successfully prosecuted, which is well beyond the limits set by ICAO for civilian flying.
[74] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue Policy, File 766-1 SAR Policy, Letter with Report enclosure to Dept of National Defence for Air from AOC WAC A/V/M J.L. Plant, 1 May 1946, "ASR Organization Conference in WAC, held on 15 April 1946."
[75] DHH 181.009 (D5200), Department of National Defence for Air 1945-1946, AMA Directorate, "Annual Report."

resources for urgent humanitarian aid in bad weather. Therefore, humanitarian missions should be viewed separately from the SAR marine and aircraft mandate because this type of mission would likely have fallen upon military aircraft regardless of the organization responsible for SAR operations.

An aspect of humanitarian operations that is important to this discussion is ministerial involvement in ongoing rescue operations. On 10 November 1949, the Minister of DoT, Lionel Chevrier, contacted the Minister National Defence, Brooke Claxton, requesting details of an RCAF mission to save someone named Father Dionne missing off of Eskimo Point in Hudson's Bay.[76] The mission for Father Dionne was a routine operation, but clearly Father Dionne had connections that made the search for him worthy of high-level attention. Although he was never found, RCAF assistance in matters important to Ministers was directly supporting Claxton's 1947 stated desire for an integrated RCAF within society, and undoubtedly made the Minister amenable to RCAF aims in Cabinet discussions. The small SAR community provided the RCAF with important leverage in an era when the RCAF desired large funding increases to provide defences against a Soviet threat.[77]

As the cost of SAR increased after 1947 with more and more missions, the RCAF lobbied the new Interdepartmental Committee for SAR (ICSAR) for costs to be shared with DoT. The annual recurring SAR costs for the RCAF were estimated at $1,544,362, and it was proposed that a cost sharing arrangement should be coordinated due to the DoT responsibility for civilian air traffic.[78] The proposal was refused without an explanation. Another attempt at obtaining funding support from DoT was made on 28 May 1947, this time for a lowly $8,100 that had been spent by the RCAF searching for a Transport Canada aircraft.[79] The $8,100 bill was given to Claxton for transfer to the DoT, but Cabinet refused that as well.[80] With no financial support from the Minister of Transport, or anyone else, the RCAF had to foot the bill for civilian SAR operations, aviation and marine.

Another potential avenue for cost recovery was ICAO, but with many nations involved in this sensitive area of discussions, ICAO had yet to make any decisions on what costs, if any, that commercial airlines would have to pay for search or rescue efforts.[81] ICAO discussed the potential of cost recovery well into the 1950s, meaning that the RCAF needed interim options. After financial arrangements were reviewed and it was determined that any cost recovery was going to prove extraordinarily challenging, the RCAF decided to simply absorb all the costs for domestic SAR, at least temporarily.[82]

Wrangling over money aside, the Canadian decision to assign SAR to the air force was not unique, as both Great Britain and the United States came to similar conclusions that the military organizations were best suited for domestic rescue work. The RAF had kept marine

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[76] LAC, RG24-E-1-c, Vol. 18,117, SAR – Operations, 976-5 Vol. 1, Missing Persons Cases, Letter from Brooke Claxton to Lionel Chevrier, 10 November 1949, "Search for Father Dionne and Party."

[77] Ray Stouffer, *Swords, Clunks & Widowmakers: The Tumultouous Life of the RCAF's Original 1 Canadian Air Division* (Trenton: Canadian Department of National Defence, 2015), p7 and 17.

[78] LAC, RG24, Vol. 8164, File Part 1-2, 1700-27 SUB 1, Vol.1, Memorandum to the Cabinet from Minister DND (Air), 9 December 1946, "Report of the ICSAR."

[79] CJOC Historical Files, "Cabinet Defence Committee Minutes for 28 May 1947," p4.

[80] CJOC Historical Files, "Cabinet Defence Committee Minutes for 28 May 1947," p4.

[81] LAC, RG24-E-1-c, Vol. 18,113, Search and Rescue Policy, File 976-1, Letter to AOC NWAC from CAS, signed by A/C J. MacL. Murray, 24 June 1947, "Financial Recoveries arising out of SAR Operations."

[82] LAC, RG24-E-1-c, Vol. 18,113 ... 24 June 1947, "Financial Recoveries arising out of SAR Operations." Temporary turned into permanent, as the RCAF still pays for its entire portion of SAR operations. The funding formula in use today has the RCAF and CCG paying for their own personnel and resources, and DoT pays receives an amount normally less than $1 million for SAR prevention.

rescue vessels and aircraft assigned to domestic SAR and were actively looking at helicopters to supplement SAR resources to reduce the requirement for RAF marine vessels.[83] In the US, the Aerospace Rescue and Recovery Service was formed in 1946 as a global rescue service to American military personnel, as well as a service to provide domestic rescue resources for military or civilian aircraft crashes within all States.[84] One significant difference, however, was that the US had a Coast Guard with an assigned responsibility for all SAR matters over coastal waters.[85] One can conclude that it was common practice in the post-war environment to use military resources for rescue services. Given the actions of Canada's allies and the fact that the RCAF would have to continue to provide rescue services for its own aircraft, it could not have been much of a surprise to the RCAF that Canada chose a similar SAR mandate path to Canada's closest allies and assign rescue to its air force.

  The SAR system that was developed, immediately following the 1947 decision to assign SAR to the RCAF, responded to many missions that would very likely have been assigned to the RCAF regardless of the organization responsible for domestic SAR. There were expectations of support from the American military to help recover their aircrew, and there were national defence concerns associated with some military aircraft crashes. The RCAF may not have had a clear understanding of its inescapable roles within domestic rescue missions.

Summary of Canadian ASR to SAR Transition

  In the first few years after the war, ICAO became a considerable force in civil aviation regulation and a SAR capability provided by ICAO's signatory nations was a clear expectation. Canada, the UK, and the US chose similar paths to the SAR mandate, assigning their national air force for domestic aviation crash response. That a SAR system was needed was not disputed, and the transition to a military-led SAR system by the three allies showed that they shared post-war realities of tight budgets and little appetite for new organizations.

  Sovereignty was not a major factor in rescue system development for Canada in the first years after the war, but the USAF's SAR bases in Newfoundland were a reminder that the Americans were still involved in Canadian territorial rescue operations well after the war. Any American concern over involvement in Canadian SAR was tempered by the RCAF's response to American aircraft crashes. The RCAF organized and led SAR operations in a manner that satisfied American rescue requirements and limited the number of vessels and aircraft assigned by American military forces over Canada to search for their own downed personnel. Although it was not a major factor in this time period, sovereignty was an important outcome of rescue systems to meet ICAO demands and it is likely that the RCAF underplayed its importance.

  Cost was critically important to the decision to assign aviation SAR to the RCAF instead of the RCMP. However, the burden of this new role was not entirely on the air force. The RCMP maintained responsibility for missing persons over land and ensured that RCAF resources were only called out for urgent requirements. The RCN provided personnel and built the necessary communications facilities needed for the system to become effective. The RCAF paid for most of the increase in expenses to provide a domestic SAR capability, but it did have some access to government resources to assist it in this new mandate. Cost proved to be a large factor, both in real dollar value and in obtaining the most value from its air force, and it was enough for the government to override RCAF objections to the "non-military" rescue role.

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[83] Sutherland and Canwell, *The RAF Air Sea...*, p135-137.
[84] Taylor, *That Others May Live*, p73 and 77.
[85] Galdorisi and Phillips, *Leave No Man Behind...*, p109.

The air force was ordered by government to take on responsibility for aviation SAR because it was cost effective, it was desired to have the RCAF integrated into society with at least one domestic role, and some of the personnel, vessels, and aircraft were already equipped and ready for the role. The RCAF may not have understood the positive implications of leading the SAR service, but it did not delay in recreating a rescue system. The cost to the RCAF was an increase of 142 personnel and $1,762,000, which was authorized by the government.

In hindsight, progress towards today's SAR system was considerable, but with some key limitations. A national rescue system was created, but only for aviation rescue. Maritime rescue was still an incidental activity provided by the RCAF. Specific aircraft and vessels were the resources used for rescue, and although they were leftover equipment from the Second World War, they were largely sufficient for the requirement of that time.

National Standards	**Aviation**. Required by ICAO, ordered by the government, and maintained by the RCAF	**Maritime**. None
Available Resources	**Aircraft**. RCAF aircrew had training and procedures in nine locations across the country	**Vessels**. Six RCAF vessels and assistance available from the RCN provided coastal coverage only
Formalized Policy (aviation and maritime only)	**Military rescues**. RCCs had been established to investigate and respond to air incidents	**Civilian rescues**. The RCAF included policy to assist when requested, but this was not advertised to the public

Figure 11. The RCAF's SAR System in 1948

The Figure above shows that policy and resources had improved, but strictly to meet the civilian aviation mandate. Even though the system was formalized for civilian aviation requirements and the process was similar, the combat component of rescue was inexplicably overlooked and would remain so treated throughout the 1950s. In conclusion, the RCAF became the lead organization for aviation rescue in Canada during 1947 and the following chapter will demonstrate how the RCAF rescue system expanded to include maritime rescue responsibilities three years later.

Chapter 5: The Mandate Expands to Maritime Rescue in 1950

The RCAF established an aviation SAR system to meet ICAO requirements in 1947, but it will become evident that the RCAF's goal was to hand over the SAR mandate to any other agency. The RCAF was concerned about its role in the SAR mandate because maritime rescue was about to become a mandated national activity, and the RCAF was the obvious candidate to lead the maritime rescue function. Confirming RCAF concerns, developing civilian transportation safety requirements led the United Nations to create the Inter-Governmental Maritime Consultative Organization (IMCO) in 1948 as a maritime version of ICAO. During the first conference in 1948, IMCO formally agreed that signatory nations should provide a SAR capability to maritime vessels operating in their territorial waters.

As with the aviation mandate, the Canadian government intended to provide this requirement with the least amount of money and resources, so it turned down a growing call for a Canadian Coast Guard and added the maritime rescue component to the aviation mandate already assigned to the RCAF. The RCAF proved unwilling to provide maritime vessels for this responsibility and chose instead to use helicopters as a rescue platform for mariners in distress. However, ICAO flexed its executive powers and declared this change of capability as unacceptable due to proven limitations of helicopter resources.

Unwilling to rebuild the dwindling in-house marine rescue capability, the RCAF recruited the RCN to assist as able and proceeded with an increase in helicopter support to meet the maritime mandate within the military's existing means. However, the RCN's limited near-shore rescue capacity and the RCAF's lack of interest left the maritime rescue capability in an unsatisfactory state. This chapter will argue that the RCAF minimized resources and efforts for the maritime mandate in the broader hope that the entire SAR mandate could later be transferred to another organization.

The Maritime SAR Mandate

The SAR service developed in 1947 for ICAO requirements was required to have surface marine craft to provide rescue resources for civilian aircraft that ditched at sea.[1] The RCAF had expertise in the delivery of maritime rescue, as it had been the only wartime organization operating rescue craft within 200 miles of shore. As previously discussed, the RCN had made it clear during the initial SAR deliberations that their ships required four hours to depart the dock, thus making RCAF resources generally more responsive and attractive for SAR vessel requirements.[2] Both organizations would provide existing vessels on an as-available basis, primarily for aviation rescue, but neither organization shied away from assisting with maritime emergencies.

It should be made clear that the only requirements for surface rescue vessels in Canada before 1948 were ICAO requirements for aviation rescue from seas and the Great Lakes, and

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[1] LAC, RG24-D-1-c, Vol. 8164 File Part 1 – 2, 1700-27 SUB 1, Organization and Administration – Interdepartmental Committee on Search and Rescue, Minutes prepared by Secretary of ICSAR W/C A.M. Cameron, 7 June 1946, "Minutes of the Fourth Meeting of ICSAR."

[2] LAC, RG24-D-1-c, Vol. 8164 File Part 1 – 2, 1700-27 SUB 1, Organization and Administration – Interdepartmental Committee on Search and Rescue, Message to Naval Secretary DND from the CO Atlantic Coast, 12 December 1945, "ASR Naval Assistance."

not for the rescue of maritime vessels. The Interdepartmental Committee on SAR (ICSAR) in 1946 had debated the available government resources that were the most effective for the aviation requirement, and concluded that RCAF resources would take on primary responsibility for ocean-based rescues.[3] Any other government vessel, including RCN or Canadian Army vessels, could be considered a secondary resource for SAR operations. One can see that the RCAF already had a limited role in maritime rescue, but it was assisted in maritime rescue missions by other military branches with ships at sea.

Support to aviation rescue for oceanic areas in 1947 appeared effective using RCAF vessels and aircraft, but the trouble was how to respond to shipping emergencies in the Great Lakes. ICSAR agreed that the number of existing RCAF resources in the Great Lakes were insufficient, so other agencies would need to provide marine vessel coverage for aircraft downed in the Great Lakes.[4] It was expected that the RCMP and DoT would have more resources available in the near future, so the RCAF was not expected to increase vessel resources in that area.[5] As the SAR discussions progressed in 1947, it was clear that DND, the RCMP, and DoT were all going to be expected to provide maritime resources for aviation rescue.[6] ICSAR recommended that the new SAR organization would provide assistance to mariners "wherever possible, particularly to shipping in distress in Canadian coastal waters."[7] Therefore, immediately after the formation of the SAR organization, it was already determined that the RCAF would have a role in maritime rescue.

In January of 1948, the government of Canada was invited to a meeting in Geneva to discuss the establishment of the United Nation's IMCO, an organization created to formalize international maritime transport and safety standards.[8] The DoT was assigned sole responsibility for the meeting, and it was to determine how the growth in maritime rescue was going to affect SAR policy in Canada.[9] Following the Geneva meeting, a subsequent International Convention for the Safety of Life at Sea was held in London, June 1948.

The convention built upon IMCO desires to improve the safety of marine transportation and Regulation 15 of the subsequent documentation required contracting governments "to ensure that any necessary arrangements [were] made for coast watching and for the rescue of persons in distress at sea round its coasts."[10] There were no minimum rescue services required, similar to the approach that ICAO had taken a few years prior, but it did set the stage for future SAR resource monitoring as it stated "each contracting government undertakes to make available information concerning its existing rescue facilities and plans for changes therein, if any."[11] It was reasonable to assume that minimum requirements for maritime SAR facilities would be mandated eventually, which suggests that the maritime mandate would be resisted by the RCAF for fears it would need to purchase more vessels.

ICAO was an organization with a similar agenda, and it had completed a transition from an agency that documented nation's best practices, to an agency that set the standards for

[3] LAC, RG24-D-1-c, Vol. 8164, File Part 1 – 2, 1700-27 SUB 1, Organization and Administration – Interdepartmental Committee on Search and Rescue, Minutes prepared by Secretary of ICSAR W/C A.M. Cameron, 22 March 1946, "Minutes of the Third Meeting of ICSAR."
[4] LAC, RG24-D-1-c, Vol. 8164 ... 7 June 1946, "Minutes of the Fourth Meeting of ICSAR."
[5] LAC, RG24-D-1-c, Vol. 8164 ... 22 March 1946, "Minutes of the Third Meeting of ICSAR."
[6] Ibid.
[7] LAC, RG24-D-1-c, Vol. 8164 ... 25 January 1946, "First Meeting of the Revised ICSAR..."
[8] LAC, RG2, Cabinet Documents Vol. 66, Doc. No. 593, 22 January 1948, "United Nations Maritime Conference."
[9] LAC, RG2, Cabinet Documents Vol. 66, Doc. No. 593, 22 January 1948, "United Nations Maritime Conference."
[10] IMO, *International Convention for the Safety of Life at Sea, 1948* (London: 10 June 1948), p206.
[11] IMO, *International Convention for the Safety of Life at Sea, 1948* (London: 10 June 1948), p206.

aviation rescue facilities. There were indications that IMCO was on the same path. Therefore, Canada needed to consider options not just for the immediate rescue requirements on the coasts, but also for future requirements on the assumption that IMCO might grow in authority much as ICAO had already by 1949. One possible response to IMCO's requirement for maritime rescue in Canada was the creation of a Canadian Coast Guard, an option that was favoured by the sea-going Canadian public.[12] In order to identify the potential benefits of an additional organization for maritime rescue against expected high setup costs, on 17 February 1949, Cabinet ordered ICSAR to study possible options for a rescue capability to meet immediate and perceived future IMCO requirements.[13]

ICSAR included the Canadian Maritime Commission, Mines and Resources, the Ministry of Justice, the Ministry of Fisheries, the Ministry of Finance, National Health and Welfare, DND, and DoT.[14] The majority of these representatives believed that "the present arrangements in which the RCAF coordinated the search and rescue activities of the other government departments [were] quite satisfactory."[15] Therefore, there appeared to be no incentive to spend the extra money on a new organization that amalgamated sea rescue services. Air Vice Marshal (A/V/M) Sleemon, speaking on behalf of the RCAF, conceded; "operating experience indicated that the present disposition of search and rescue facilities was satisfactory."[16] There was no general support for a coast guard in Canada in 1949, so the matter was shelved.[17]

The "satisfactory" SAR service in question was composed of six high-speed launches, 28 aircraft that were still in the same locations as in 1947, and five RCCs operated by the RCAF, which had emergency authority over available government maritime vessels capable of rescue efforts.[18] Satisfactory was a relative term, as the RCN was not happy with the lack of support for a coast guard and the fact that tasking authority for ships could come from an air force RCC without any maritime expertise.[19] The Naval Officers Association of B.C. had been one of the applicants in 1949 for the immediate formation of a coast guard, and their stated desire was for an organization that "would direct existing vessels to the scene of the trouble."[20] The Naval Officers, with good reason, believed that experienced mariners should be the ones to direct maritime vessels to rescue situations, rather than aviation experts.

One way to process all of the above information is to conclude that the RCAF was less concerned about the addition of maritime rescue to the SAR mandate than the RCN because the RCAF did not have the marine resources or knowledge for maritime SAR, unlike the RCN. When the matter of maritime rescue was discussed again in 1950, the RCAF expressed willingness to coordinate maritime rescue, but "it [was] not prepared to assume and direct responsibility for operational control of the ships of other government departments on the

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[12] LAC, RG24-D-1-c, Vol. 8164 ... Multiple Newspaper Clippings Supporting a Canadian Coast Guard, 1949. Dates and Authors were not available on most of the clippings.

[13] LAC, Cabinet Conclusions, RG-2, Privy Council Office, Series A-5-a, Vol. 2643, No. 8464, 17 February 1949, "Search and Rescue Coast Guard Service."

[14] LAC, Cabinet Conclusions, Vol. 2643, No. 8464, 17 February 1949, "Search and Rescue Coast Guard Service."

[15] LAC, RG24-D-1-c, Vol. 8164 File Part 1-2, 1700-27 SUB 1, Interdepartmental Committee on SAR, Vol. 1, Minutes of meeting prepared by W/C A.H. Newsome of the PCO, 30 March 1949, "Interdepartmental Committee on Search and Rescue."

[16] LAC, RG24-D-1-c, Vol. 8164 ... 30 March 1949, "Interdepartmental Committee on Search and Rescue."

[17] The Coast Guard is not discussed in Cabinet, after February 1949, until after the Coast Guard is formed in 1962.

[18] LAC, RG24-D-1-c, Vol. 8164 ... 30 March 1949, "Interdepartmental Committee on Search and Rescue."

[19] LAC, RG2, Cabinet Documents Vol. 124, Doc. No. 147-50, 22 May 1950, "Re: Search and Rescue Service."

[20] LAC, RG24-D-1-c, Vol. 8164 File Part 1 – 2, 1700-27 SUB 1, Organization and Administration –Interdepartmental Committee on Search and Rescue, February 1949, "Aide Memoire on a Canadian Coast Guard."

ground of lack of technical knowledge of seafaring matters."[21] The RCN, by contrast, likely saw itself as a target for similar incremental increases from IMCO that the RCAF was dealing with from ICAO in aviation rescue. Even if the RCN was going to increase resources for SAR, it most likely did not want to have those resources fall under the direct control of the RCAF.

One other concern of the Naval Officers Association was that the loss of one vessel, the US Army's *Clarksdale Victory*, resulted in a SAR response that consisted solely of US Coast Guard resources.[22] The incident took place in Canadian waters off of Haida Gwaii, BC, in November 1947, and there was no record of RCAF aircraft assisting in this rescue.[23] The most likely explanation for the lack of RCAF searching is that a formal process for handling maritime emergencies did not exist, so the vessel's foreign operator would not have known whom in Canada to notify of the potential emergency. Therefore, Canadian sovereignty could be perceived as at risk because Canada did not always respond to maritime distresses in its area, forcing the Americans to respond to emergencies in Canadian waters. It is quite possible that the RCN believed that additional American involvement of maritime rescue within the Canadian oceanic area could directly lead to more rescue requirements from the RCN. The RCN had consistently stated its lack of suitability for SAR work, so Naval Officers supported the Canadian Coast Guard proposal, as likely relief from the possibility of routine SAR operations in the future.[24]

From the RCAF perspective, the main concern in SAR discussions was personnel.[25] Priorities at the time were the development of a fighter force to protect vital areas from the communist threat, an anti-submarine capability to protect sea lines of communication, a tactical force to support the army in the event Canada was invaded, a small bomber element, and a transport organization to support all elements. A personnel ceiling was potentially limiting the approved growth within those areas of concern, and was threatening to limit Canadian assistance with the planned American air defence network. Rescue efforts were not a priority at all; so as long as the proposed maritime mandate did not require additional personnel, the RCAF was uninterested.

As ICSAR finalized the recommendation for maritime SAR as anticipated, expanding the existing aviation SAR mandate of the RCAF to include maritime SAR, the RCN formalized its concerns. The proposal for maritime SAR gave the RCAF's RCCs direct tasking authority over any government vessel for marine emergencies, but the RCN demanded chain of command involvement before the RCAF could task an RCN vessel.[26] The chairman of ICSAR, J.V. Clyne, advised the government not to listen to the RCN because the involvement of shore-based command centres might delay an urgent RCN ship response to a maritime emergency.[27]

All other government agencies had agreed to abandon their own taskings when the RCAF RCCs called for urgent assistance, so the RCN concern was not considered very important in light of the cost savings that could be achieved by simply expanding the mandate of the RCAF. Subsequent to these discussions, the Cabinet set aside the RCN concern of

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[21] LAC, RG2, Cabinet Documents Vol. 124, Doc. No. 147-50, 22 May 1950, "Re: Search and Rescue Service."

[22] LAC, RG24-D-1-c, Vol. 8164 ... February 1949, "Aide Memoire on a Canadian Coast Guard."

[23] Associated Press, "Fear 47 Died in Shipwreck," *The Milwaukee Journal*, Wednesday, November 27, 1947. Haida Gwaii was previously known as Queen Charlotte Islands.

[24] LAC, RG24-D-1-c, Vol. 8164 ... February 1949, "Aide Memoire on a Canadian Coast Guard."

[25] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan F, 1949*, p1 and 2. All information for this paragraph is taken from these two pages.

[26] LAC, RG2, Cabinet Documents Vol. 124, Doc. No. 147-50, 22 May 1950, "Re: Search and Rescue Service."

[27] LAC, RG2, Cabinet Documents Vol. 124, Doc. No. 147-50, 22 May 1950, "Re: Search and Rescue Service."

tasking authority and made the RCAF responsible for maritime SAR in Canada on 26 June 1950, as the most cost effective solution.[28]

The SAR expansion into maritime rescue was announced to the public on 21 July 1950, and the announcement gave the RCAF's RCCs in Halifax, Trenton, and Vancouver full tasking authority over 234 government-owned vessels, for maritime SAR purposes only.[29] The RCN continued to raise its concerns until 12 July 1951, when the Cabinet changed the wording slightly on the SAR directive to mollify the RCN.[30] Aside from the RCN problem with direct tasking authority, all members of ICSAR agreed that the RCAF approach to SAR was the most cost-effective response to the international requirements.[31] With much less discussion than aviation SAR, and no other options really considered, maritime SAR was made the responsibility of the RCAF.

It is difficult to understand the apparent lack of RCAF effort to avoid the maritime SAR mandate, given its past support for an amalgamated organization to conduct maritime SAR. Indeed, the official RCAF policy on SAR, and other civilian commitments, was "to reduce these non-combatant commitments to the minimum acceptable and while they must be provided for, they should not be permitted to assume priority or scale of effort which would detract from combat efficiency."[32] The document further outlines that "restricted peacetime appropriations together with the obvious fact that these activities do not contribute to operational efficiency, clearly shows the desirability of being rid of them."[33]

Arguably, the RCAF might have believed that an amalgamated SAR service would have been easier to pass on to another organization, especially if the RCN succeeded eventually in its quest for a Canadian Coast Guard. Continuing this line of argument, if maritime and aviation SAR were all part of one system, then it could be a fair assumption that the transfer of SAR to another organization would likely have included both components, and the RCAF would have rid itself of all aspects of SAR. The obvious hole in this logic is that the RCAF had seamless integration into the flying control system in Canada that any other organization would have to duplicate, and the RCAF would still have had to provide for humanitarian missions and military aircraft rescues. The RCAF, however, made no recognition that these facets were important military contributions. The RCAF had already demonstrated a lack of appreciation for the military benefits to SAR involvement, so leadership may have ignored gaps in the logic.

The idea that the RCAF agreed to the maritime mandate in 1950 in order to facilitate a complete handover in the future of all aspects of the SAR mandate, bears further scrutiny. It should be recalled that the RCAF supported an amalgamated marine rescue service in both 1944 and 1946, but not in 1949. The RCAF expected that any growth in the SAR service by the air force was to be as a direct result of increased SAR military flying, and not expanding civilian domestic requirements.[34] The 1950 Plan G 1 September 50 Revision document for the future direction of the RCAF stated that the RCAF wished to be rid of SAR, and other "non-operational commitments," but it also stated "the aim at present will be to seek a method of

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[28] LAC, Cabinet Conclusions, Vol. 2645, No. 9983, 26 June 1950, "Search and Rescue Service."

[29] LAC, RG24-D-1-c, Vol. 8164 ... Newspaper Clipping, Canadian Press, Ottawa, 21 July 1950; and LAC, RG2, Cabinet Documents Vol. 124, Doc. No. 147-50, 22 May 1950, "Re: Search and Rescue Service."

[30] CJOC, SAR Historical File, 12 July 1951, "Cabinet Directive Circular No. 22."

[31] LAC, RG2, Cabinet Documents Vol. 124, Doc. No. 147-50, 22 May 1950, "Re: Search and Rescue Service."

[32] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan G, 1 Sep 50 Revision*, p4.

[33] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan G, 1 Sep 50 Revision*, p8. This statement is in specific reference to the SAR organization and support to the NWSR.

[34] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan F, 1949*, p8.

being relieved of as many non-combatant commitments as possible."[35] Amalgamating aviation and maritime SAR into one organization available to be transferred to another organization was one possible way of being relieved of the SAR service.

The Low Priority of Maritime Rescue

Once the maritime mandate was formally assigned to the RCAF, actions were taken by the RCAF to limit its allocation of non-aircraft resources to this new role. During the 1949 ICSAR discussion on maritime SAR, A/V/M Sleemon hinted at the RCAF's future actions towards SAR when he said "there was some doubt as to whether a substantial extension to the present [RCAF SAR] service could be achieved unless the public were prepared to support a separate organization."[36] Whether the substantial expansion he mentioned could not be achieved due to lack of government priority or RCAF funding limitations, a domestic SAR service was clearly not an RCAF funding priority.[37]

The best example of the low funding priority for the SAR service was the subsequent actions regarding the high-speed rescue vessels. It may be recalled that G/C Leigh had been the officer that had convinced the CAS to acquire the parachute rescue capability for the RCAF in 1944. His previous support of SAR was still evident in late 1950, when he was again part of AFHQ. Upon finding out that the RCAF was to become responsible for marine SAR, Leigh sent a letter to a superior officer, whose name and position is illegible on the document, proposing the purchase of replacement high-speed rescue vessels dedicated to the SAR role in order to carry out the maritime SAR responsibility effectively.[38] He wished to avoid complications of trying to task marine vessels from the RCMP, RCN, or DoT during emergencies.[39] His concern was logical, as the existing high-speed vessels were in a poor state and tasking other government departments could take valuable time, but his suggestion was not popular. The response from the superior officer was crystal clear: "we will <u>not</u> make the RCAF into a coast guard – nor will we take on the seaborne aspects of SAR."[40] Another minute on the document echoed this policy, with another illegible signature and lack of position detail from a superior officer, and advised G/C Leigh that the RCAF would only coordinate maritime SAR operations, rather than providing maritime resources.

The RCAF refusal to provide marine vessels to SAR operations was demonstrated shortly after G/C Leigh's letter. Plan H, 1951, included a plan to purchase 15 Sikorsky, Bell and Piasecki helicopters for SAR duties to supplement the helicopter purchases that had already been completed for SAR, and these resources were planned as the RCAF response to maritime and aviation rescue.[41] Helicopters were able to conduct rescue work over land and the ocean, and as they were modern aviation resources capable of other RCAF missions, it was good sense to have them as part of the RCAF inventory. The Sikorsky and Bell helicopter deliveries were

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[35] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan G, 1 Sep 50 Revision*, p3.

[36] LAC, RG24-D-1-c, Vol. 8164 ... 30 March 1949, "Interdepartmental Committee on Search and Rescue."

[37] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan H, 1 June 1951*, p3.

[38] LAC, RG24-E-1-c, Vol. 18,112 Search and Rescue – Organization and Administration 1945-1954, Letter to AMOT from DAO G/C Leigh, 3 November 1950, "Search and Rescue – Marine Distress Policy."

[39] Ibid.

[40] LAC, RG24-E-1-c, Vol. 18,112 ... 3 November 1950, "Search and Rescue – Marine Distress Policy." The signatures of the officers who responded are illegible and positions are not indicated. Emphasis included is that from the document.

[41] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan H, 1 June 1951*, p3.

underway in 1951 and expected delivery completion was 31 March 1953.[42] So, with helicopters arriving at rescue squadrons, the RCAF announced the disbandment of the two coastal marine squadrons in April 1952.[43]

The disbandment of the marine squadrons was part of "a new policy in regard to marine operations, which envisages the reduction of our marine branch to the status of range patrol and local crash duty only."[44] The RCAF advised ICAO of its intention to replace the rescue vessels with helicopters. ICAO, with growing authority, responded that the reduction of vessel support was unacceptable and quoted the following US Coast Guard research:

> By no means will the helicopter entirely eliminate the present methods and
> equipment used in the saving of life and property at sea. Rather, it will serve as
> an indispensable assistant to (a) the surface vessel and its boats, (b) the shore
> lifeboat station, and (c) the conventional fixed wing aircraft. It possesses
> certain inherent limitations that restrict its use under all conditions.[45]

The rebuke from ICAO went uncontested, but the RCAF still concluded that it should provide airborne equipment and not surface vessels. The air force had made it very clear in 1949, before the decision was made to expand maritime SAR to the RCAF, that it had no intention of providing resources specifically for the maritime mission.[46] The RCAF proceeded with the disbandment of marine squadrons, continued to pursue the purchase of helicopters, and formally requested the RCN to provide offshore surface vessels for rescue work.[47] To assist the RCN in rescue work, the RCAF gave the RCN the six high-speed rescue vessels.[48]

The motivation of the RCN to assist with marine SAR is not evident. One possible interpretation is that the RCN won a minor inter-service victory by claiming additional operational area from the maritime domain abandoned by the RCAF after air force vessels were limited to close proximity to air stations. Another possible interpretation is that the lack of a clear organization responsible for marine SAR could hasten the creation of a coast guard. Perhaps the RCN understood the RCAF desire to get out of the marine environment and focus on aircraft. Whatever the motivation, the RCN agreed to provide maritime SAR assistance as a temporary measure until fully replaced by RCAF helicopters.[49]

The RCN agreed in 1952 to a role in SAR, although the RCN and RCAF had differences in views that worked towards the same results. The RCN did not feel it necessary to maintain the high-speed rescue vessels for rescue work, and that "RCN or other Government departments would provide suitable vessels for that purpose," subject to availability.[50] The RCAF interpretation was that; "as the search and rescue commitment on the West Coast is

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[42] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan H, 1 June 1951*, p3.
[43] LAC, RG24-E-1-c, Vol. 18,113, SAR – Policy, File 976-1, Letter to ICAO from Deputy Minister for Air C.M. Drury, 1 April 1952, "Disbandment of Marine Squadrons."
[44] LAC, RG24-E-1-c, Vol. 18,113 ... 1 April 1952, "Disbandment of Marine Squadrons."
[45] LAC, RG24-E-1-c, Vol. 18,113, SAR – Policy, File 976-1, Letter to CNS from CAS, 17 February 1952, "SAR - Provision of Surface Rescue Vessels."
[46] LAC, RG2, Cabinet Documents Vol. 124, Doc. No. 147-50, 22 May 1950, "Re: Search and Rescue Service."
[47] LAC, RG24-E-1-c, Vol. 18,113, SAR – Policy, File 976-1, Coverpage and minutes to Chairman of ASR Facilities W/C J. Woolfenden, from D/Dir RCN Plans and Operations Commander R.C. Chenowith, 15 April 1952, "Minutes of ASR Meeting."
[48] DHH 74/438, Former RCAF Air/Sea Rescue Launches.
[49] It is not known if the RCN was aware that ICAO would not accept helicopters-only for maritime rescue.
[50] LAC, RG24-E-1-c, Vol. 18,113 ... 15 April 1952, "Minutes of ASR Meeting."

being handed over to the Royal Canadian Navy, there is no longer a requirement for an auxiliary marine squadron."[51] The end result was a reduction of small high-speed rescue craft to assist Canadians in distress at sea.

The RCAF completely divested itself of any rescue vessels that could be used outside of the immediate air station area, and at some point the RCN must have realized that its provision of maritime SAR resources was no longer a temporary requirement. The RCN "found itself with a moral obligation to supply rescue facilities" due to the resulting gap in rescue capability.[52] However, the RCN still had a four-hour response time, it refused to use the old RCAF vessels for rescue, and the state of maritime rescue capability was in worse shape than when the RCAF was first given the responsibility for maritime SAR.[53] Maritime rescue was the equivalent of a hot potato that no one wanted to hold.

The Aviation and Maritime SAR System

Maritime and aviation rescue were frequently interrelated. Moving back in time a little to illustrate some of the aviation complications that affected subsequent RCAF policy towards maritime rescue, we return to the new Province of Newfoundland in 1949. The RCAF had an established SAR capability in Goose Bay, Labrador, but the Canadian government had not supported permanent SAR resources to Newfoundland.[54] The inclusion of Newfoundland into Canada, however, resulted in concerns that the "necessity for using USAF aircraft for relatively minor and simple SAR incidents and initially in more serious cases, could be detrimental to Canadian prestige in the new province of Newfoundland."[55] As a direct result, an RCAF aircraft was temporarily deployed from Greenwood, Nova Scotia, to Torbay, Newfoundland, in late 1949. The SAR aircraft in Torbay was intended to decrease American involvement in Canadian SAR.[56] The movement of existing aircraft to Torbay was a partial resolution to American involvement in Canadian SAR missions obtained at negligible cost to the RCAF.

The Americans did not appear to resent requests for rescue assistance, and perhaps that was because the RCAF response to American SAR missions was exemplary. As an example, Operation Mike was an RCAF and USAF search for a missing USAF C-54 aircraft that disappeared between Alaska and Great Falls, Montana, in January 1950. The RCAF assisted in what is believed to be the largest single search in Canada. More than 3,000 RCAF flying hours were flown in the fruitless month-long search, but the time spent searching met American expectations.[57] Although USAF policy was to provide a Search coordinator, the RCAF was the lead agency in all of the aircraft crash investigations because the RCAF produced a large and

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[51] DHH, 79/98, RCAF Organization Order 46/52, 24 June 1952, "Disbandment of 1 Marine Sqn (Aux) RCAF Patricia Bay, BC."

[52] LAC, RG24-E-1-c, Vol. 18,128, File No. 978-7-3, SAR – Crash Rescue Assistance by Others, SAR – Liaison between RCAF and Others, Civilian Organizations, Minutes prepared by Chairman S/L K.B. Handley, 17 February 1953, "Local ICSAR (Pacific Area), 8th Meeting."

[53] LAC, RG24-E-1-c, Vol. 18,128 ... 17 February 1953, "Local ICSAR (Pacific Area), 8th Meeting."

[54] Figure 4 showed that the RCAF had planned on an RCC and squadron in Torbay, but for reasons unclear, the system authorized in 1947 did not include resources in Newfoundland.

[55] LAC, RG24-E-1-c, Vol. 18,112 Search and Rescue – Organization and Administration 1945-1954, Letter to CAS from AOC TC, 19 May 1949, "SAR – Commitments, Newfoundland."

[56] Smith, *Seek and Save*, p25.

[57] DHH, 79/631, RCAF SAR Operations 1947-1970, DIS Files 1-14, SAR Ops 1951, File 5, February 1951, "Directorate of Public Relations Release No. 7813."

effective response in all of the incidents where USAF aircraft crashed in Canada.[58] The close relationship between the RCAF and the USAF certainly minimized friction over who would respond to which rescue mission over Canada.

If the RCAF had to respond often to American aircraft crashes, there was no resentment. ICAO SAR policy in 1952 examined a proposal to demanding neighboring countries to pay for SAR missions in foreign territory, and Canada initially supported the proposal.[59] One would think that cost recovery would have been appealing to Canada, considering that 12.9 percent of SAR missions in the early 1950s were for foreign aircraft, and the majority of foreign aircraft SAR missions were American crashes in Canadian territory.[60] However, when the RCAF was requested to comment, it strongly recommended that Canada avoid cost recovery options and that the RCAF should continue to foot the bill for SAR operations for Americans.[61]

External Affairs in Canada was confused about the RCAF reluctance to accept American funding. The RCAF explained that the US paid for its own SAR resources used in Canadian missions, but if the US had to pay for their own resources and pay Canada a fee, the Americans could reasonably demand a greater level of authority in how those resources were used.[62] "If the United States were paying part of the cost, control of some large scale operations over Canadian territory would pass to the USAF. Air Commodore Carscallen is of the opinion that the preservation of Canadian sovereignty in this type of operation is worth the additional cost to Canada."[63] The RCAF was content to limit resources in the delivery of SAR, but not at the expense of having the Americans conduct a Canadian mandate. External Affairs supported the RCAF proposal and cost recovery was not pursued, nor did ICAO ever implement cost recovery.[64] Cost recovery was overly complicated for rescue activities.

Quite apart from cost, ICAO policy on national resources for the SAR mission stemmed from a stance on military forces conducting SAR that was vastly different from the RCAF desire to be rid of SAR. The ICAO Draft SAR Manual from 1951 clarifies that "many states have vested primary responsibility for search and rescue in a military service," and provided a list of the most beneficial military services, primarily communications.[65] It appeared standard for military forces worldwide to provide SAR services, and ICAO was sold on the benefits that military forces brought to this capability.

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[58] CJOC, Treaty Series, 1949 No.2, Exchange of Notes between Canada and United States of America, effective 31 January 1949, "Constituting an Agreement Relating to Air Search and Rescue Operations Along the Common Boundary of the Two Countries."

[59] LAC, RG25-A-3-b, Vol. 8012, File Part 1, ICAO - Standards and Recommended Practices for SAR, 72-ADU-39-40 Pt 1, Letter to External Affairs from Air Transport Board, 6 May 1952, "Cost of SAR."

[60] LAC, RG25-A-3-b, Vol. 8012, ... 6 May 1952, "Cost of SAR."

[61] LAC, RG25-A-3-b, Vol. 8012, File Part 1, ICAO - Standards and Recommended Practices for SAR, 72-ADU-39-40 Pt 1, Memorandum for Economic Division from Mr. Wershof, 29 May 1952, "Costs of SAR Operations by Air."

[62] LAC, RG25-A-3-b, Vol. 8012, File Part 1, ICAO - Standards and Recommended Practices for SAR, 72-ADU-39-40 Pt 1, Unnamed Letter to Secretary Air Transport Board from Under-secretary of State for External Affairs, 30 May 1952, "File 72-ADU-39-40."

[63] LAC, RG25-A-3-b, Vol. 8012, File Part 1, ICAO - Standards and Recommended Practices for SAR, 72-ADU-39-40 Pt 1, Memorandum for Mr. Wershof from R.A.J. Phillips, 28 May 1952, "Costs of SAR Operations by Air."

[64] LAC, RG25-A-3-b, Vol. 8012 ... 30 May 1952, "File 72-ADU-39-40."

[65] LAC, RG24-E-1-c, Vol. 17,554, Co-operation and Liaison with ICAO – SAR, 1945-1953, File 004-4 SAR Vol. 1, 19 July 1951, "ICAO Draft SAR Manual."

The following year, ICAO produced a progress report on SAR facilities worldwide that identified a continuing shortage of Canadian SAR facilities in Newfoundland.[66] The progress report was a formal and public declaration that some nations, like Canada, still had work to do to meet ICAO standards. The report identified that the USAF had to supplement Canadian SAR facilities in order to ensure that sufficient SAR resources were available on the airway approaches to North American from Europe, which must have been considered undesirable for Canadian sovereignty interests.[67] Therefore, there was still some improvement of SAR in Canada that was required for aviation safety and to reduce American involvement in Canadian SAR responsibilities. The ICAO report identified that Canadian SAR expansion would not require much in the way of additional resources, but if anything, the RCAF was inclined to reduce SAR resources, not expand them.

The RCAF had become quite efficient in its use of personnel for the SAR mandate, in order to prevent growth of the SAR organization. As an example, RCC personnel were not even required to be at the office all the time. An officer was in the office during normal working hours, but after hours and on weekends and holidays, a non-commissioned member would be on call at home.[68] RCC personnel could be called to work by flying control personnel at any time an emergency was reported, and this procedure minimized the number of people required to coordinate rescues.

It is worth noting that RCAF SAR aircraft were only responsible for 2.66 percent of total annual RCAF flying by 1951.[69] After the new aviation and maritime SAR system became established, the size of the SAR community grew to 947 personnel out of an establishment of 53,700 RCAF personnel in 1956.[70] This represented the high mark for the SAR community within the RCAF, and yet still it was only 1.8 percent of the RCAF strength, which included all aircrew trained for SAR duties even if they were mostly involved in other RCAF missions.[71]

Even as the SAR organization grew in personnel, it was consolidated. By 1956, all of the northern SAR units had been disbanded and the growth of personnel was to ensure that enough aircrew and parachute rescue specialists were available at the units that performed rescues.[72] Those SAR aircraft units that remained were composite units, meaning they performed communications flights, short transport missions, provided platforms for general officers to maintain flying skills, as well as search and rescue activities.[73] The composite units that remained were 102 in Trenton, Ontario, 105 in Namao, Alberta, 111 in Winnipeg,

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[66] LAC, RG24-E-1-c, Vol. 17,554, Co-operation and Liaison with ICAO – SAR 1945-1953, File 004-4 SAR Vol. 1, 1 February 1952, "ICAO Second North Atlantic Regional Air Navigation Meeting, May 48, Progress Report No. 1A."

[67] LAC, RG24-E-1-c, Vol. 17,554 ... 1 February 1952, "ICAO Second ... Report No. 1A."

[68] LAC, RG24-E-1-c, Vol. 17,870, Orders, Instructions, Directives – SAR, Command Instruction SOAT/10 signed by AOC Training Command, A/V/M C.R. Slemon, 15 May 1951, "TC Search and Rescue Organization."

[69] LAC, RG24, Nol. 20,617, AFHQ Director of Flight Safety Statistics, 1942 to 1952, September 1950, "Flight Safety Report, Hours Flown per type of Accident."

[70] DHH, 181.004 (D28), "'RCAF Programme of Activities, 1957-1960" (although it actually covers 1955-56), p16.

[71] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, 976-2, details were not obtained, 10 February 1959, "DoT – RCAF Meeting on SAR Operations in Canada." There is a 1958 document that suggests there may have been a few more personnel allocated to SAR between 1956 and 1958, but a detailed count was not conducted before reductions took place. The RCAF used SAR personnel for air transport and communications flights, as well as other duties, throughout the 1950s; LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, 976-2, Letter to CAS from AOC TC G/C Z.L. Leigh, 9 October 1959, "SAR Aircraft – 111KU Winnipeg, Utilization on Other than SAR Missions."

[72] DHH, DND, *Report of the Department of National Defence for the Fiscal Year 1954-55* (Ottawa: Edmond Cloutier, 1956). It appears that the report for 1955-56 is in the wrong cover.

[73] DHH, 181.004 (D26), RCAF Programme of Activities, 1955-56.

Manitoba, and 121 in Vancouver, British Columbia.[74] In addition to the composite units, there were rescue units in Torbay, Newfoundland, and Greenwood, Nova Scotia. Although the organization was smaller, the capabilities had been enhanced to provide effective rescue capability.

One can reasonably summarize that Canada was following standard international expectations for the SAR organization by using the RCAF, but the RCAF used the least amount of resources as possible to the extent that even sovereignty concerns did not result in more resources assigned to SAR. Five stations with rescue aircraft and helicopters were deemed sufficient in an era when the air force had other higher-priority missions to maintain.

Summary of Canadian SAR Expansion

The RCAF had a difficult time coming to terms with the provision of SAR in Canada. From the RCAF's perspective, it believed it should be expected to provide fixed-wing aircraft and helicopters for SAR, if it had to provide for SAR at all, but it was not about to provide maritime vessels in the delivery of that service. However, the RCAF belief that helicopters only were sufficient for maritime rescue did not stand up to ICAO scrutiny. The RCAF was uncomfortable with the role the Americans were taking to respond to Canadian rescue deficiencies, although the RCAF took limited actions to address the problem. The RCAF was balancing a requirement to perform rescue activities at an acceptable level to international and national agencies with the minimum cost possible. The reality was that minimal marine rescue resources increased risk to mariners that appeared ignored by the RCAF and all other Canadian government organizations involved.

Canada's SAR service provided safety measures for international visitors travelling by ship or aircraft, so there was international pressure on the RCAF to provide adequate maritime resources. The RCAF saw little to no military value to SAR, which made it difficult for the air force to understand the international pressure. Although Canada was providing very limited amounts of resources, which sometimes required American support in the new Province of Newfoundland and Labrador, the strong relationship between the USAF and the RCAF prevented international pressure from becoming a serious concern for the government. RCAF actions from 1949 to 1954 highlight that considerable international effort had been needed even to get a small increase of RCAF resources in Torbay, Newfoundland.

The risk to Canadian sovereignty sometimes came from unexpected quarters, as External Affairs considered negotiations with ICAO to make foreign nations responsible for the cost of SAR when aircraft of their nation crashed in another country. The RCAF believed that demanding money from the Americans meant giving up control over rescue activities within Canada. As this demand could be a step towards loss of control over one's territory, the RCAF suggested that it needed to absorb the cost of all searches within Canada, regardless of the nationality of anyone requiring rescue. Sovereignty was occasionally an RCAF priority, but with American rescue assistance, sometimes sovereignty was insufficient justification for more funding allocated to the domestic rescue service.

Within Canada, the addition of the maritime rescue requirement came with no additional funding. The government was quite content to use existing resources under the authority of the RCAF; so increased calls for a Canadian coast guard were ignored. Conspicuously absent in the discussions on maritime rescue was DoT, which would eventually

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[74] DHH, 181.004 (D26), RCAF Programme of Activities, 1955-56.

have to own up to its responsibility for a service that had been deemed by the RCAF to have little to no military value. In short, the lowest cost for SAR had been achieved, but with little real interest from an RCAF that minimized maritime resources in the broader hope that the entire SAR mandate could later be transferred to another governmental organization.

National Standards	Aviation. Required by ICAO, ordered by the government, and maintained by the RCAF	Maritime. Required by IMO, ordered by the government, and coordinated by the RCAF
Available Resources	Aircraft. The RCAF aircrew had reduced to five locations across the country, despite the increasing number of missions	Vessels. No RCAF vessels, four hour notice-to-move assistance from the RCN, and helicopters that were limited in range
Formalized Policy (aviation and maritime only)	Military rescues. RCCs had been established to investigate and respond to air incidents	Civilian rescues. The RCAF was mandated to investigate and task resources, but there was no organization formally tasked to respond to emergencies

Figure 12. The RCAF's SAR System in 1956

In light of the decreases from the system set up in 1948, progress was decidedly mixed. In a major step forward, a national standard was conceptually developed in 1950 for both aviation and maritime emergencies in Canada, although the location of resources had yet to match the new standards as depicted in the above Figure 12. Marine resources, however, took a large step backward as the high-speed rescue vessels were retired without adequate replacement. Helicopters had been expected to be a better alternative to vessels, but that expectation failed scrutiny. This chapter outlined the growth of the SAR service into a national aviation and maritime system, but demonstrated significant maritime resource problems. The next chapter will demonstrate how the resource problems were rectified, why standards were further developed, and that the RCAF finally incorporated military wartime policies back into the system.

Chapter 6: The RCAF Resigns Itself to the SAR Mandate after 1958

The RCAF's SAR system had to respond to an ever-increasing number of rescue missions in the early 1950s, with hours flown on SAR missions increasing at what must have been perceived as an alarming rate. Rescue requirements had the potential to increase well beyond the available RCAF resources because transatlantic flights were becoming far more frequent and marine rescue resources were not often near where they were most needed. There were potential solutions that could have been explored, but the lack of Air Force Headquarters' (AFHQ) interest in domestic SAR, demonstrated previously, meant that the SAR organization was left without the tools to solve the problems.

Developments in 1958 will show how the RCAF dealt with some of the problems. AFHQ developed standards to ensure services were provided in a consistent manner throughout the country, and it lengthened the time for aircraft to launch on SAR missions as one method to reduce the strain on the system. The RCAF also considered a helicopter rescue capability for support solely to fighter operations in order to ensure that air force crews had a rescue capability even when the SAR organization was busy with domestic missions. It will become clear that the attempts at solving the problems were largely ineffective, and in keeping with the 1950 policy "to seek a method of being relieved of this non-operational commitment," an attempt was made to hand the SAR mandate over to the DoT in 1959.[1] These developments demonstrated an inconsistency in the RCAF approach to SAR and the lack of air force focus on maritime SAR requirements apparently spurred the DoT into effective action.

It will become clear that both DoT and the RCAF planned relief for the SAR organization in 1959. The RCAF purchased new helicopters and aircraft specifically for the SAR role, and DoT became responsible for maritime distress coordination. Three years later, the Canadian Coast Guard (CCG) was formed and it took on effective responsibility for all aspects of maritime SAR. Concurrently, the RCAF conducted studies that convinced its leadership that the RCAF should plan to remain in the aviation SAR service. The changes made after 1958 allowed the RCAF, with expanding assistance from the DoT, to stabilize the SAR organization into a long-term effective state. It will be argued that the RCAF SAR system challenges of the mid 1950s were resolved through DoT assistance with maritime rescue after 1958. In the broader context, the assistance provided by the DoT was enough for the RCAF to abandon its reluctance to rescue and the RCAF has successfully led the SAR effort ever since.

The Struggle to Keep Up with SAR Demand

The 1950s were a turning point for SAR in Canada, with the RCAF fears of becoming a domestic rescue agency in danger of being realized.[2] It has already been outlined that in the first year of SAR operations in 1947, there had only been 50 missions and that this amount of SAR activity was an insignificant drain on RCAF resources at that time. However, after the maritime SAR mandate had been added to RCAF SAR duties, and with a growing overall public expectation of rescue services, the number of missions in 1950 increased to 252 with a

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[1] DHH, 96/24, Air Force Headquarters fonds, Box 9, *RCAF Plan G, 1949*, p3.
[2] LAC, RG24-E-1-c, Vol. 18,112 ... 3 November 1950, "Search and Rescue – Marine Distress Policy."

resulting 4,667 hours flown by RCAF aircraft.[3] As the number of hours flown by SAR aircraft rose, the inadequacies of the system became obvious.

Marine missions were a large part of the increase of hours flown for SAR, but aviation rescue requirements had been on the rise as well after 1950. With increasing numbers of civilian aircraft plying domestic aviation routes, ICAO produced a report in 1953 that showed that air traffic worldwide had increased since 1947 by 148 percent. The increase in air traffic was largely responsible for more aircraft hours flown on SAR, as the hours used for rescue missions nearly doubled from just two years earlier.[4]

The number of hours flown is meaningless without context, and today's SAR system can provide us with important insight into the expansion of SAR throughout the 1950s. The current available SAR numbers are 655 missions and 2,499 hours flown by RCAF SAR aircraft in 2014, and it is reasonable to assume that the number of flying hours flown in 2014 is a rough and consistent expectation of yearly RCAF aircraft hours for SAR.[5]

In stark contrast to SAR activity today, SAR operations in 1956 had risen to 8,737 hours flown for 223 missions.[6] The difference in activity is that in 2014, each SAR operation averaged 3.8 hours of aircraft flight time, when in 1956 each operation averaged 39.2 hours of flight time. Put another way, the RCAF has become ten times more efficient in how it prosecutes SAR missions with available resources. The lack of efficiency in the 1950s search procedures compounded the difficulties encountered by the rise of the number of missions, strongly suggesting that an inefficient use of resources could not be sustained indefinitely.

Throughout the mid 1950s, the hours remained around 8,000 hours flown per year with an annual cost to the RCAF of $6 million.[7] The RCAF had nine air stations supporting SAR around the country and the stations were exceptionally busy. Even the well-known supporter of the SAR organization, G/C Leigh, had had enough of the ever-increasing impact to other RCAF missions and complained to AFHQ about the ability of RCCs to task resources directly.[8] His concern was that the RCCs did not require chain of command involvement to pull aircraft from other missions to SAR, much as had been the case prior to 1943. In 1956, RCAF aircraft utilization for SAR missions appeared limitless as the SAR mandate doubled in hours flown from 1950 to 1956, and with no end to the increase in sight.

Sympathy for the RCAF, however, should be tempered by the fact that very little work appears to have been conducted to limit the size of search areas that RCAF aircraft had to cover

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[3] Smith, *Seek and Save*, p23. The hours flown for SAR in 1950 may have been even higher as the RCAF had demonstrated inconsistency in how it accounted for all flying hours in the late 1940s and early 1950s.

[4] DHH, 79/631, RCAF Search and Rescue Operations 1947-1970, DIS Files 1-14, SAR Ops 1955, File 7, 8 September 1953, "Royal Canadian Air Force Release No. 8275;" and LAC, RG25-A-3-b, Vol. 8012 File Part 1, ICAO – Standards and Recommended Practices for SAR, File 72-ADU-38-40- Pt. 1, 1953, "ICAO Report on Development of Civil Air Transport."

[5] Canadian Armed Forces, *SAR Program Review*..., p21; and email from Senior Staff Officer SAR for 1 Cdn Air Div, LCol Bryn Elliott, on 20 November 2015. The actual number of flying hours on SAR missions is higher as missions flown by CH-124 Seakings and CP-140 Aurora aircraft were not captured in the SAR reporting, but those flying hours typically do not exceed 200 hours in any given year, based on the Author's experience at an RCC. The consistency was determined by looking at the data available to Maj Gillian Parker, J3 SAR-2, at CJOC during a visit 23 September 2015.

[6] DHH, DND, *Report of the Department of National Defence for the Fiscal Year 1954-55* (Ottawa: Edmond Cloutier, 1956), p56. It appears that the report for 1955-56 is in the wrong cover.

[7] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, File 976-2, DoT and RCAF Meeting headed by A/V/M de Niverville, the Director of Air Services for the RCAF, and R.W Godwin, the Assistant Director General of Air Services, for DoT, 10 February 1959, "SAR Operations in Canada."

[8] LAC, RG24-E-1-c, Vol. 18,112, SAR – Organization and Administration 1945-1954, 976-0 Vol. 7, Letter to CAS from AOC TC, G/C Leigh, 29 December 1953, "Operations Policy SAR – Emergency Operations."

for survivors. The RCAF had a few tools it could have employed to limit search activity. Namely, the RCAF could have purchased modern aircraft to search more effectively, it could have used historical data to limit the size of search areas, or it could have could have hired maritime experts to coordinate searches over water. None of these options was used effectively.

The first option was the potential to purchase new aircraft for more efficient searching of large search areas. However, it has clearly been outlined that the RCAF had no interest in increasing resources for a mandate it did not wish to retain. The RCAF had no plans in 1956 to replace the ageing Dakota, Canso, or Lancaster aircraft used for SAR operations, so the option of purchasing more aircraft would not be pursued until the late 1950s.[9]

Another of the possible methods to control the usage of resources was the size of search areas for aircraft lost over land areas. One may recall that the 1944 procedure had been to assign a one hundred nautical mile by one hundred nautical mile square search area to aircraft until the search object was found. In 1948, the guiding document on SAR had refined the procedure based on 8 percent of the distance flown since the last known position of the missing aircraft, but the division of the search area was "divided into blocks of 300 square miles."[10] The 1948 procedure produced an overall smaller area than the 1944 procedure, but not by much. In 1956, the area had been further refined to "possibility areas" extending as far as 20 miles off the planned route of flight for the missing aircraft, but with increases of 10 percent to each turning point that still left the search areas very large for long flights.[11] The 1956 search area changes limited the size for smaller searches, but for missing aircraft with long flight paths and many turning points, the areas were still massive. The downsizing of the search areas through procedural changes was marginal.

The evolution of search procedures was on the right path, but the only known research to improve SAR procedures, a 1949 report, focused only on the probability of detection of search objects by aircrews.[12] The report made searches more effective, but did nothing to limit the resource requirements. It would not be until 1974 when detailed research reports were produced to use statistics to refine search areas to an area based on sound historical experience.[13] This strongly suggests that the changes to search procedures demonstrated in 1948 and 1956 were the professional opinion of RCC personnel, without much statistical support that could have further reduced the search areas. Later search procedures outline the historical odds of aircraft crashes residing in the given search area, which is not present in any of these procedures. Given the large increase in flying hours that was seen in this era, it is very surprising that academic research was not conducted earlier to limit the large search areas based on the data provided by known crash locations.

Similarly, there exists no known research to make marine searches in the 1950s more effective. The RCN had not increased its assistance to the RCAF SAR system, and in fact it sold off the six ageing RCAF high-speed rescue vessels in 1956-57, declaring them surplus to naval requirements.[14] The lack of apparent effort in the maritime rescue domain is perhaps surprising as 38 percent of the SAR workload in 1955, almost triple the number of aircraft

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[9] DHH, 181.004 (D27), "RCAF Programme of Activities, 1956-1957" (although it actually covers 1954-55).
[10] DHH, 89/288, CAP 342, *RCAF Flying Control and Search and Rescue Orders*, 1948, paras 160 and 163.
[11] DHH, 81/224, CAP 342, *Orders for Aircraft Control and Services for the RCAF*, April 1956.
[12] Mowbray, Lessons Forgotten? ..., p39.
[13] Mowbray, Lessons Forgotten? ..., p98.
[14] DHH 74/438, Former RCAF Air/Sea Rescue Launches.

crashes prosecuted by RCCs, was for maritime SAR operations.[15] Maritime rescue activity provided by RCAF aircraft was a significant source of aircraft hours.

The number of aircraft hours flown on marine SAR was very likely a result of RCC inexperience in the maritime domain. As an air force agency, the RCC had little knowledge of the sea with which to limit the search areas for missing vessels. Throughout the Second World War, integration with the RCN staff accounted for effective search procedures for enemy submarines, but the RCCs no longer maintained a daily interaction with RCN personnel with which to maintain that level of effective planning.[16]

The importance of maritime knowledge in search planning over water cannot be overstressed because of complicated movements of search objects in water based on tides, wind, and the amount of freeboard of an object drifting in the water.[17] Without this knowledge, a search coordinator had to bound the area in the widest possible manner, potentially leading to very large search areas.[18] An obvious way of providing expertise in marine SAR was to employ maritime experts in the RCCs. However, evidence suggests that maritime personnel in RCCs were not hired until 1959, leaving the RCCs with large search areas until that time.[19]

The large search areas for both aviation and maritime search missions were one part of the increase of aircraft hours for SAR, and the increase in activity led to a surprising reversal of RCAF policy towards American SAR forces in Newfoundland by 1955. No longer was it discouraged to utilize American resources, in fact, the public in Atlantic Canada was informed that the RCC relied on American SAR forces as primary resources for SAR operations in Canada.[20] A reliance on American resources meant they could be the first organization called to respond to routine rescue responses in the new Province of Newfoundland, rather than Canadian rescue resources. An RCC and permanent aircraft resources had been assigned to Torbay, Newfoundland, in 1954, but these resources were officially supplemented by American SAR facilities in the Newfoundland cities of Stephenville, Harmon, Argentia, and Goose Bay in Labrador.[21] The RCAF was willing to use any available resources to offset the huge increase in SAR demand, even at the risk of sovereignty concerns.

A factor that perhaps limited the sovereignty concerns for the RCAF was the inclusion of SAR in North Atlantic Treaty Organization (NATO) policy. It is difficult to outline how much impact NATO had on SAR policy in Canada because the documents remain classified, but there were meetings throughout the 1950s for coordination.[22] Therefore, the RCAF had to expect a continued role in at least aviation SAR to meet American expectations, if not those of

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[15] DHH 79/631, RCAF SAR Operations 1947-1970, DIS Files 1-14, SAR Ops 1955, File 9, 15 February 1956, "RCAF Press Release No. 8634."

[16] Douglas, *National Air Force…*, p548.

[17] National Defence and Fisheries and Oceans Canada, *CAMSAR II,* Appendix C.

[18] Canada now uses a computer program called Canadian Search and Rescue Planning (CANSARP) to model the search area based on actual measurements of wind and water currents, reducing what is otherwise complicated manual calculations to limit search areas.

[19] LAC, RG24-E-1-c, Vol. 18,114, SAR Operations – Marine and Aircraft Cases, File 976-4, Letter to W/C Showler from DoT, 13 July 1960, "Report from Marine Coordinators." This source suggests that maritime coordinators may have been employed in at least one RCC as early as 1954: Mowbray, Lessons Forgotten? ..., p30, but this statement comes from another secondary source and is not corroborated by primary sources, nor JRCC Halifax history.

[20] DHH 73/1194, *SAR in Atlantic Area*, April 1955, p2.

[21] DHH 73/1194, *SAR in Atlantic Area*, p2; and Smith, Seek and Save, p48; and DHH, 79/631 RCAF SASR Operations 1947-1970, DIS Files 1-14, SAR Ops 1954, File 8, 28 July 1954, "RCAF Press Release No. 8395."

[22] LAC, RG24-E-1-c, Vols. 32,687 contain UK, US, and Canada military discussions of SAR that are classified. Vols. 41,591 and 32,651 contains NATO SAR documents, all classified. Vol. 18,118 contains Canadian-American information on SAR for the Distant Early Warning Line, again, classified.

any NATO country flying aircraft in Canada. NATO SAR policy required nations to use existing resources to help out allied aircraft in the vicinity, so it must not have been a large stretch for American SAR forces to assist with Canadian civilian rescue requirements as American SAR forces were already poised to rescue any American, NATO, or RCAF aircrew passing by that needed assistance.[23]

In summary, the increase of SAR missions and the lack of effective search area policy resulted in a significant, and likely unwelcome, increase in the amount of aircraft hours for SAR activity provided by the RCAF. The RCAF was attempting to find help from any quarter even though they were not taking steps to help themselves by containing searches, and the air force was forced to rob aircraft from other mission requirements to assist in the SAR mandate.[24] In fact, between 1956 and 1958, the use of other RCAF aircraft for SAR missions was so prevalent that aircraft assigned to primary SAR duties accounted for only half of the hours flown on SAR missions.[25] It is not clear how much of an impact SAR missions by non-SAR air force aircraft were having on overall RCAF operations, but the growth of aircraft SAR requirements had to be contained. Something had to change.

Inconsistency in 1958

The RCAF explored options for change in 1958, and one positive change was the standardization of SAR operations across the country. The most important of the changes was the aircraft launch times. The time required to launch SAR aircraft varied from air station to air station across the country, from stations able to launch on 30-minutes notice at all times, to a station that had routinely required two hours to become airborne.[26] The 1958 version of the CAP 342 document, outlining SAR orders, called for SAR aircraft "to be maintained on a thirty minute standby basis during normal working hours and are to be on a one hour standby basis during off-duty hours and holidays."[27] This standard, however, raised concerns from commanders across the country.

In Winnipeg, Manitoba, the concern was that 111 Communications and Rescue Flight did not have the personnel to meet a one-hour launch after normal working hours; indeed, the Flight suggested either an increase in personnel establishment or a reduction from a one-hour launch, after hours, to a two-hour launch.[28] In Torbay, Newfoundland, the rescue aircraft of 107 Rescue Unit maintained a continuous 30-minute standby posture, but commanders were concerned about the implications of the launch times when tasked with non-SAR commitments.[29] In Vancouver, BC, there was deep concern that slower aircraft launch times for 121 Communications and Rescue Flight did "not meet the requirement" for marine rescue due

[23] LAC, RG24-E-1-c, Vol. 18,113, SAR – Policy, File 976-0, Vol. 8, minutes prepared by G/C N.S. Anderson, 20 September 1954, "Minutes of a Meeting between RCN/RCAF Personnel of Maritime Headquarters." This is the only document found that contained details about Canadian SAR policy integration with NATO.

[24] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, 976-2, Letter to CAS from AOC TC G/C Z.L. Leigh, 9 October 1959, "SAR Aircraft – 111KU Winnipeg, Utilization on Other than SAR Missions."

[25] LAC, RG24-E-1-c, Vol. 18,114... 10 February 1959, "DoT – RCAF Meeting on SAR Operations in Canada."

[26] This statement is based on comments within multiple reports from RCCs across the country that discussed the normality of aircraft launch times varying from 30 minutes to two hours.

[27] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, File 976-1 Vol. 5, Memorandum to COps from A/DTRO W/C J.G. Showler, 28 May 1958, "SAR – Standby Policy."

[28] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, File 976-1 Vol. 5, Letter to AOC TC from A/Group Cdr, W/C J.L. Berven, 1 April 1958, "SAR – Standby Basis."

[29] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, File 976-1 Vol. 5, Letter to CAS from A/AOC MAC, G/C J.H. Roberts, 14 July 1958, "SAR – Standby Commitment."

to approximately "50,000 pleasure craft in the area."[30] The concerns were a wide-ranging mix that required operational research to determine the source of the problems.[31]

AFHQ followed up with an in-depth report on how many personnel were actually needed to perform the SAR mandate with the new launch times. It was discovered that the rescue units across the country were badly undermanned and to resolve the issue AFHQ would need to establish 100 new positions for SAR or add another hour to the launch time regulation to match the existing personnel establishment.[32] The units had been launching aircraft as quickly as possible, but at unsustainable demands of the aircrew.[33] In line with the existing 1950 policy to minimize resources for SAR, CAS chose to reduce the SAR launch times, after hours and on holidays, to two hours.[34] The CAS decision eliminated the need to expand the SAR organization.

The rationale used by the CAS for limiting the launch times of SAR aircraft, thereby avoiding personnel increases, deserves to be quoted at length for its relevance to RCAF policy.

> It will be noted that the protection of Air Traffic is the only RCAF SAR responsibility calling for the establishment and maintenance of primary facilities at Rescue Units. It is on the basis of the air requirement that unit equipment is scaled and personnel establishments determined. The responsibility with respect to Marine Cases is primarily one of coordination. It follows from the considerations noted above that the state of readiness maintained at Rescue Units is dictated by the air situation. The protection afforded to Marine Craft is, in a sense, a by-product of this arrangement.[35]

The CAS policy quotation above is critical to any discussion on 1950s rescue because it shows that the stresses created by ever-increasing aircraft hours flown on SAR operations in the 1950s had finally resulted in strict SAR policy by AFHQ. The quotation also makes it clear that a division between aviation and maritime SAR had developed. The RCAF had assumed full responsibility for aviation rescue, but maritime rescue was still not a priority and could not become so while the RCAF sought to limit growth in the SAR organization.

One explanation for a division between air and marine SAR is that maritime SAR in the RCAF had expanded beyond the intended limits set by Cabinet. Mission creep, used to describe a phenomenon where military forces allow actual resources and effort to exceed the original mission intent, had developed within the maritime SAR mandate of the RCAF.[36] From a practitioner's perspective, mission creep was completely understandable as there was a job to be done that was saving many lives. From a headquarters perspective, the SAR mandate was one of many commitments that had to be put in balance. AFHQ remained adamant that the RCAF was not to be turned into a coast guard, so if SAR was to be kept from expanding, there had to

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[30] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, File 976-1 Vol. 5, Letter to CAS from 5 AD Vancouver, W/C F.W. Hillock, 11 June 1958, "SAR – Standby Commitment."

[31] Trenton did not have the same manning issues as they provided SAR training for all units, meaning there was extra personnel that could assist with rescue standby when not engaged in training duties.

[32] LAC, RG24-E-1-c, Vol. 18,114 ... 28 May 1958, "SAR – Standby Policy."

[33] LAC, RG24-E-1-c, Vol. 18,114 ... 1 April 1958, "SAR – Standby Basis."

[34] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, File 976-1 Vol. 5, Letter to MAC, TC, TAC, and ADC from CAS, signed by W/C J.G. Showler, 11 June 1958, "SAR – Standby Commitment."

[35] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, File 976-2, Letter to 5 AD from CAS, signed by W/C J.G. Showler, 24 June 1958, "SAR – Standby Commitment."

[36] A useful definition of mission creep can be found on the wikipedia website.

be a reduction in the hours flown by RCAF aircraft on maritime rescue missions. A line in the water, so to speak, was drawn, and the RCAF would not allow the maritime mandate to expand further within its organization.

One aspect of the CAS policy quote above, on the amount of time needed to launch aircraft for aviation emergencies, needs clarification. RCCs launched aircraft when they had reason to believe that a distress existed.[37] For maritime distresses, a radio call would be received that would make it immediately clear that rescue was required. In the case of aircraft, however, the lack of communication was usually the first indication of distress. Once an aircraft was overdue at destination, the RCC could start the aircraft launching process while concurrently obtaining all the information needed to assign a search area, meaning the 30-minute launch window was often not needed to still respond in a timely manner for aviation emergencies. Therefore, the change from a 30-minute launch time to a two-hour launch time had less repercussion on aviation rescues as might appear. Without question, however, service to maritime rescue was reduced.

Along with standardized launch times, the location of rescue resources had to be considered. As helicopters had proven immensely useful in rescue work, a study was conducted in 1958 to determine where these limited resources should be stationed. The study concluded that helicopters were required for rescue work from the stations in Vancouver, Winnipeg, Trenton, and Greenwood.[38] However, the study was focused only on providing SAR resources for the domestic rescues and did not take into account the need to rescue aircrew from crashed RCAF jet aircraft. There were fighter operations in provinces without SAR helicopters, which meant that crashes could predictably occur at long distances from existing SAR stations.

A separate study was completed, concurrently, to determine the rescue needs of the fighter aircraft community. The study concluded that 35 new helicopters should be purchased that would form a base rescue capability at locations where the RCAF flew jet aircraft.[39] The intriguing nature of this proposal is that these helicopters were separated from the SAR system, recommended as a stand-alone capability at each station.[40] This sounds suspiciously like a return to 1939, when stations were responsible for their own rescue requirements. However, one can see the logic. In 1958, there was a rescue system in place in Canada, unlike 1939, and the civilian rescue requirements were met through the SAR system provided by the RCAF. Therefore, the RCAF needed to ensure that military aircrew received adequate rescue coverage and if that meant a separation in rescue systems, then organization costs would not increase because the base rescue services could be controlled by existing station processes.[41]

Where the logic fails is in the personnel establishment. It is not known how many personnel would have been required to provide manning for 35 helicopters, but it was fact that

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[37] DHH, 81/224, CAP 342, *Orders for Aircraft Control and Services for the RCAF*, April 1956, p7 and 17. This document outlines the procedures that the RCC took between investigation, launching aircraft, and assigning searches. This document is the source for the entire following paragraph.

[38] LAC, RG24-E-1-c, Vol. 18,128, File No. 978-7-3, SAR – Crash Rescue Assistance by Others, SAR – Techniques and Procedures – Crash Rescue - Helicopters, Memorandum to VCAS from COps, AC M Lipton, 11 August 1958, "SAR Helicopters - Location."

[39] LAC, RG24-E-1-c, Vol. 18,128, File No. 978-7-3, SAR – Crash Rescue Assistance by Others, SAR – Techniques and Procedures – Crash Rescue - Helicopters, 7 May 1958, "Report for Base Rescue – Ambulance Helicopters."

[40] LAC, RG24-E-1-c, Vol. 18,128, File No. 978-7-3, SAR – Crash Rescue Assistance by Others, SAR – Techniques and Procedures – Crash Rescue - Helicopters, 18 June 1958, "Extract from the Minutes of the 22/58 Air Council Meeting."

[41] LAC, RG24-E-1-c, Vol. 18,128 ... 18 June 1958, "Extract from the Minutes of the 22/58 Air Council Meeting."

947 personnel were manning 44 SAR aircraft across the country.[42] One can reasonably conclude that 35 new helicopters would require more than the 100 personnel identified to establish a 30-minute posture that, arguably, could have been augmented to achieve an acceptable rescue service for jet aircrew. Rather than augmenting the civilian SAR system any further, the air force focus was on the separation of military and domestic rescue systems.

This separation was certainly not planned with any ill intent; it was a simple way to solve a growing problem. The Base Flight concept actually started in 1954, with Cold Lake acquiring a Beechcraft expeditor for a communications link with Edmonton, both locations in Alberta.[43] It appears that the Base Flight concept spread and a rescue role was added circa 1957 if a helicopter was based at the station.[44]

It should be noted that the RCAF did not purchase the 35 helicopters in the proposed timeframe of 1959-1961. An Internet search of various sources reveals that single or multiple helicopters, when available at the applicable fighter station, would be used to function as a Rescue Flight in the late 1950s and throughout the 1960s. It was not until the Iroquois helicopter was brought into service in 1968 that the role was formalized with one aircraft type to set a common standard.[45] Just for the curious, there are three base rescue units remaining today in Goose Bay in Labrador, Bagotville in Quebec, and Cold Lake in Alberta.[46] The importance of the base rescue helicopters was that the RCAF proceeded with a separation between military and domestic rescue systems. One can only assume that this project was pursued so that there were RCAF rescue aircraft that could not be hijacked by civilian domestic rescue needs.

Both the discussion surrounding base rescue helicopters and the decision to allow slower aircraft launch times displays the conundrum of rescue for the RCAF. Since the beginning of the Second World War, the lack of a domestic rescue system in Canada meant that the RCAF was left with providing for its own needs as well as those of the civilian aviation and maritime communities. The maritime rescue effort, however, was clearly being sidelined by AFHQ and help was needed to ensure that Canadians at sea received adequate rescue support. In an effort to enlist help from the only other government department likely to be sympathetic enough to provide resources, the RCAF requested a meeting with DoT officials.

Change begins in 1959

Air Commodore Lipton, the Chief of RCAF Operations, called a meeting with DoT in 1959 to discuss the "possible passing of this [SAR] role to the DoT from the RCAF."[47] The RCAF wanted to know if "there was some part of the search and rescue operation which could be taken over by the Department of Transport, and to determine what would be involved if the

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[42] LAC, RG24-E-1-c, Vol. 18,114 ... 10 February 1959, "DoT – RCAF Meeting on SAR Operations in Canada."

[43] Royal Canadian Air Force, "Wings and Squadrons," *417 Combat Support*http://www.rcaf-arc.forces.gc.ca/en/4-wing/417-squadron.page (accessed 13 April 2016).

[44] LAC, RG24-E-1-c, Vol. 18,128, File No. 978-7-3, SAR – Crash Rescue Assistance by Others, SAR – Techniques and Procedures – Crash Rescue - Helicopters, 18 June 1958, "Air Council Minutes."

[45] National Air Force Museum of Canada, "Bell Iroquois, CH-118," *Exhibits* http://airforcemuseum.ca/en/aircraft-2/iroquois (accessed 13 April 2016).

[46] Royal Canadian Air Force, "Wings and Squadrons," *444 Combat Support Squadron*, and *417 Combat Support Squadron* http://www.rcaf-arc.forces.gc.ca/en/4-wing/417-squadron.page http://www.rcaf-arc.forces.gc.ca/en/5-wing/444-squadron.page (accessed 21 January 2016). 439 Squadron in Bagotville has the same mission although it is not clear on the website.

[47] LAC, RG24-E-1-c, Vol. 18,114, SAR – Policy, File 976-1 Vol. 5, SAR Policy, DoT and RCAF Meeting headed by A/V/M de Niverville, the Director of Air Services for the RCAF, and R.W Godwin, the Assistant Director General of Air Services, for DoT, 10 February 1959, "SAR Operations in Canada."

[DoT] were called upon to take over the whole search and rescue responsibility."[48] The meeting was likely the culmination of air force strategy to get rid of the SAR role, which had taken on a new level of meaning with the massive expansion of SAR activity in the years since the plan's inception in 1950. Unfortunately, there are aspects of this meeting that are unclear. First, what was the DoT motivation for agreeing to discuss a transfer of SAR responsibility? Second, what other options were on the bargaining table? Unfortunately, not enough documentation was found to answer these relevant questions.

In the documentation that has been found, DoT argued that it would take several years to expand its organization enough to take on the responsibility, and that the RCAF was already set up for SAR purposes.[49] Therefore, the minutes suggest that DoT would not take on the SAR role, but it had agreed to some responsibility in the area of marine rescue.[50] One can imagine that the RCAF would have taken any agreement of shared responsibility as success in order to reduce the growth of SAR operations by the RCAF alone. Arguably, success was no longer measured by getting rid of the SAR role, but by reducing air force growth in domestic rescue.

The meeting did not immediately resolve any of the RCAF concerns, but it appears to have planted seeds of change. It is difficult to piece together the exact chain of events and how the decisions were made, but DoT and RCAF actions in 1959 and beyond suffices to show the significant progress that was made after the meeting. The changes were significant.

In what must have been a very welcome change for the RCCs, experienced mariners were hired by DoT in 1959 to provide one marine coordinator for Vancouver, Trenton, and Halifax: the three RCCs with significant maritime responsibilities.[51] These coordinators were administered by DoT, but operationally, they reported to the RCAF officer in command of the RCC. The relationship worked because the DoT maritime coordinators were given the authority to run searches over water using their expertise, and they had the ability to obtain aircraft support from their air force colleague working in the same workspace.[52]

In addition to the personnel solution, multiple SAR vessels had been ordered by DoT in 1958 to provide an expanded surface vessel rescue fleet on both coasts. Additionally, in 1960, SAR cutters were ordered to augment rescue resources on both coasts and on the Great Lakes.[53] These cutters would operate from locations where there was a known high incidence of maritime rescue needs, to fill in the gaps formed by government vessels that were repositioning daily for their daily missions requirements.[54]

To clarify, each government organization tasked their ships according to their own mandate, which may not have matched the commercial fishing or recreational rescue requirements as the government vessels moved from one of its departmental assignments to another.[55] Therefore, government vessels in the 1950s were by no means guaranteed to be anywhere near where they were needed most for rescues. The new SAR patrol cutters would operate from shore locations, where a rescue requirement had been identified, thus resolving many of the concerns of the existing system for maritime rescue.[56]

[48] LAC, RG24-E-1-c, Vol. 18,114... 10 February 1959, "DoT – RCAF Meeting on SAR Operations in Canada."
[49] LAC, RG24-E-1-c, Vol. 18,114... 10 February 1959, "DoT – RCAF Meeting on SAR Operations in Canada."
[50] LAC, RG24-E-1-c, Vol. 18,114... 10 February 1959, "DoT – RCAF Meeting on SAR Operations in Canada."
[51] LAC, RG24-E-1-c, Vol. 18,114... 13 July 1960, "Report from Marine Coordinators."
[52] This statement is based on the author's eight years of experience working in RCCs.
[53] LAC, RG12, Vol 8906-81, "SAR Vessel for British Columbia 1957-1965;" and LAC, RG12, Vol 8906-78, "SAR Vessel for East Coast 1957-1964;" and LAC, RG12, Vol 8906-109, Proposed Patrol Cutter for SAR 1960-1967.
[54] LAC, RG24-D-1-c, Vol. 8164 ... 30 March 1949, "Interdepartmental Committee on Search and Rescue."
[55] LAC, RG24-D-1-c, Vol. 8164 ... 30 March 1949, "Interdepartmental Committee on Search and Rescue."
[56] Appleton, *Usque Ad Mare...*, section on Shore Based Lifeboats.

Aviation rescue resources were long overdue for replacement and consolidation. At the beginning of 1950, there had been five RCCs and nine air stations operating a total of 34 aircraft and helicopters, and six high-speed rescue vessels at two marine stations.[57] At the end of the 1950s, there were four RCCs, five air stations operating a total of 25 aircraft and helicopters, and no rescue vessels capable of any distance from the stations to which they belonged.[58] In order to maximize the capability of the few resources assigned to SAR, the 1959 RCAF acquisition plan included the purchase of SA-16B Albatross amphibious aircraft and CH-113 Labrador helicopters that were to be used solely for SAR purposes.[59] These aircraft had much improved range and overall capabilities, meaning that the decrease of rescue aircraft at the number of air stations did not bring about a linear reduction of capability as one might assume.

There was more good news for the RCAF in 1959. Although humanitarian missions had increased in number since the early 1950s, a 1961 report identified that the procedures between the RCAF and the RCMP were largely effective and there had been a gradual reduction in demand in the late 1950s.[60] The report included insightful observations that humanitarian missions provided a great deal of public goodwill, and that cost recovery was not worth the hassle it would require due to the fact that the Provinces that used the system the most were the least capable of paying back the federal government. The report concluded that the process developed with Provincial authorities needed to be followed scrupulously to avoid abuse of the system, so the report recommended that the "current [humanitarian] policy remain in effect." Humanitarian missions ceased to be an area of growth for the RCAF and AFHQ was able to scrutinize other aspects of domestic SAR in more detail.

Detail was provided by a further review of SAR policy in 1960. The Air Council had requested a review of the SAR organization, and one of the options considered in the review had been to split the SAR service into military and civilian organizations with a view to, potentially, handing off the civilian part to the DoT.[61] The expectation of a potential hand-off is odd considering the outcome of the meeting with DoT the year before, but the conclusion of this report identified that the RCAF could save little resources if it provided just the military SAR service. The RCAF, if it did not have to provide for domestic SAR, would be able to eliminate one RCC and 14 aircraft from the SAR role, but "it would be very expensive indeed for some other agency of government to duplicate facilities which the RCAF already has at its disposal to deal with SAR incidents." The report goes on to identify that "there is no doubt that the RCAF would continue to receive requests for assistance on cases involving civilian interests. Such requests could hardly be ignored when RCAF resources are available and lives are at stake."

The two reports identified above show a remarkable clarity by the RCAF leadership on its long-term role with the SAR mandate. The air force had refined procedures with the RCMP to control growth in humanitarian missions and it understood that it was not cost effective for

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[57] DHH, 79/631, RCAF SAR Operations 1947-1970, DIS Files 1-14, SAR Ops 1940, File 3, circa early 1950, "RCAF Press Release No.7615."

[58] E.D. Bryson and N.D. Bray, "An Evaluation of the Future RCAF Search and Rescue Requirement," *Department of National Defence, Chief of Operational Requirements, DRDC CORA* (Ottawa: February 1964), page N/A.

[59] DHH, 181.004 (D23), RCAF Programme of Activities, 1963-1968 with Amendments, page numbers N/A; and LAC, RG24-E-1-c, Vol. 18,149, STOL Transport/SAR 1959-1961, 24 November 1959, "Standard of Preparation – Vertol 107 Model II-1 Helicopter;" and 24 July 1959, "Operational Characteristics for a Short Range, STOL, Transport/SAR Aircraft."

[60] LAC, RG24-E-1-c, Vol. 18,117, ... 23 October 1961, "A Paper on the Prevalence of Mercy Flights 1953-1961." This document is the source for the rest of this paragraph.

[61] LAC, RG24-E-1-c, Vol. 18,117, SAR – Operations, File 976-100, 4 October 1961, "Supporting Data for Air Council Meeting: Review of the SAR Organization." This document is the source for the rest of this paragraph.

anyone else to provide civil aviation rescue. In addition to this clarity, the RCAF had also realized that there was a wartime role for SAR forces, adding to the insightful changes that were occurring during and after 1959. The RCN brought the issue forward by requesting RCAF consideration to assigning SAR forces over the Atlantic to the RCN.[62] The CAS, Air Marshal Hugh Campbell, informed the RCN that he was opposed to breaking up the command and control structure of the SAR organization because the SAR responsibility extended all over the country and commonality was critical for other government departments to work with the system.[63] However, subsequent discussion determined that the command and control could change during wartime, recognizing that the RCN would be the lead agency in oceanic areas.[64]

The discussion surrounding a wartime role for SAR forces was important because it showed that military authorities were finally awake to one of the basic reasons that SAR was created in the first place: to recover aircrew downed at sea. One aspect of the wartime plans should be kept in mind, that Canada only envisaged SAR forces used for the rescue of personnel from Canadian waters and territory. Both the RAF and USAF had well-developed military roles for SAR forces that could and would be deployed overseas to provide rescue in wartime scenarios.[65] Canada would continue to focus on SAR only as a domestic service, although the inclusion of wartime command and control was a positive step forward for an integrated place for SAR forces within the RCAF.
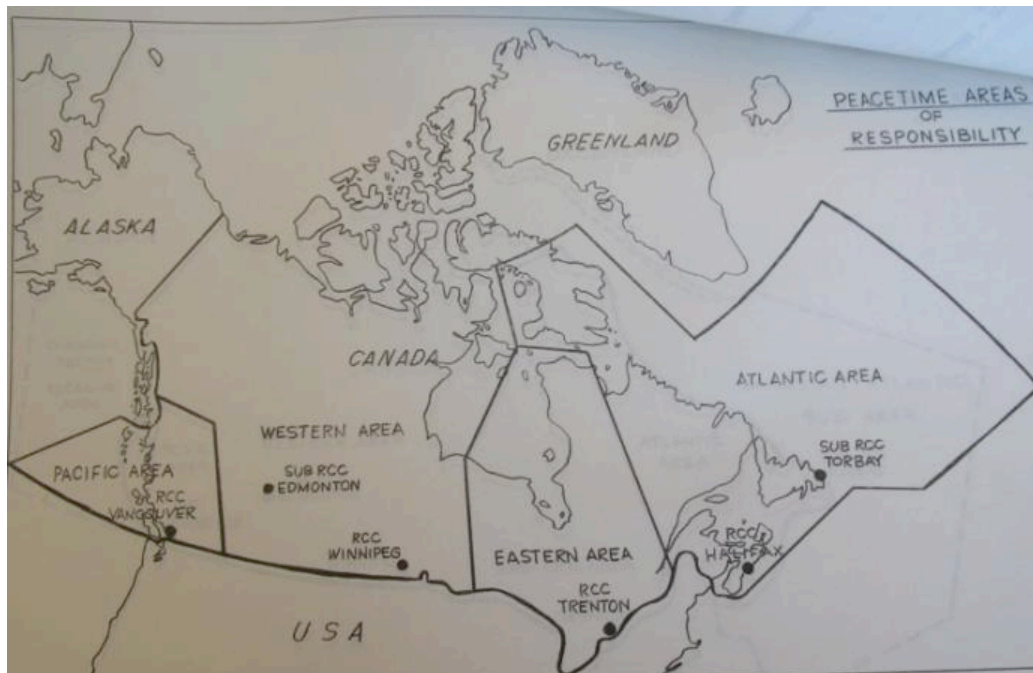

Figure 13. The RCAF's SAR Resources in 1961

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[62] LAC, RG24-E-1-c, Vol. 18,117, SAR – Operations, File 976-100, Memo to CAS from CNS, 25 April 1960, "Responsibility for SAR."

LAC, RG24-E-1-c, Vol. 18,117, SAR – Operations, File 976-100, Memo to CNS from CAS, 27 June 1960, "Responsibility for SAR."

[64] LAC, RG24-E-1-c, Vol. 18,113, SAR – Policy, File 976-0, Vol. 8, 16 March 1961, "Report to the Chiefs of Staff Committee by the Joint Planning Committee on SAR."

[65] Galdorisi and Phillips, *Leave No Man Behind*..., p213; and Sutherland and Canwell, *RAF Air Sea Rescue*..., p145.

By 1961, the changes to roles and resources for SAR within the RCAF had stabilized. While there would be minor changes in the decades afterwards, for the most part, six RCCs and five rescue stations had become the standard. As depicted in Figure 13 above, there were four rescue regions and each RCC had one co-located rescue unit expect for Edmonton, which had no in-house resources at hand.[66] The air force SAR organization of only five rescue stations was more than adequate given that the range and capabilities of the rescue aircraft and helicopters had been much improved with the new aircraft purchases.

The final significant change to SAR organization in Canada was the formation of the Canadian Coast Guard (CCG) in 1962. This organization provided all components of the maritime rescue system, although the RCAF retained command and control of the overall SAR organization. The Coast Guard relieved the RCAF of the need to coordinate the maritime missions, and reduced the need for rescue aircraft.[67] More than the reduction of RCAF aircraft hours on SAR missions, the eventual increase of marine rescue vessels in Atlantic Canada appears to have relieved the American forces from their involvement in domestic rescue.[68]

Despite the fact that most new DoT rescue vessels did not enter service in the 1950s, there were still enough additional new resources from both DoT and the RCMP available for rescues that it is reasonable to assume that there is a correlation with the hours reduced for military aircraft on SAR missions by the end of 1959.[69] Hours on maritime SAR missions conducted by RCAF aircraft as a percentage of overall effort dropped from a high of 38 percent in 1955 to 9.5 percent in 1961.[70] The SAR system in the late 1950s required less aircraft hours than previous years, at just under 8,000 hours per year, as a result of the reduction in maritime missions along with other improvements from the 1958 standardization efforts.[71]

The dramatic change from the challenged SAR system of 1958 to the relatively rosy situation in the early 1960s, with new and welcome assistance from DoT, changed the outlook of the RCAF on the SAR mission. Bearing in mind all of the changes between 1959 and 1961, and that the RCAF leadership likely knew about the upcoming formation of the CCG, the Air Council held a review of the SAR organization on 4 October 1961. The Air Council agreed "that both civil and military SAR requirements in Canada and the seaward approaches should continue to be met by a single SAR organization; that the RCAF SAR organization is to be retained at its present level of establishment to meet Canadian SAR requirements."[72] The 1950s' crescendo of challenges for the SAR community was overcome and the RCAF has been able to manage the SAR system effectively ever since.

Summary of the 1950s Evolution of SAR

The challenges to the RCAF in the mid 1950s resulted from increasing numbers of rescue missions and the lack of other government departmental assistance in the maritime role. The lack of assistance in maritime rescue resulted in RCAF reliance on American assistance in

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[66] LAC, RG24-E-1-c, Vol. 18,117 ... 4 October 1961, "Supporting Data for Air Council Meeting..."

[67] Appleton, *Usque Ad Mare*..., section on Shore Based Lifeboats.

[68] LAC, RG24-D-10 Vol. 11,608, RCNAS Shearwater – Ops and Plans – SAR 1955-60. In this file are multiple reports from RCC Torbay that shows a significant reduction in American resources assigned to SAR missions in the late 1950s.

[69] The Para Rescue Association of Canada, *That Others May Live*..., p74. Standardization and improved technology were also considerable factors in the reduction of hours for SAR aircraft.

[70] LAC, RG24-E-1-c, Vol. 18,117 ... 4 October 1961, "Supporting Data for Air Council Meeting..."

[71] LAC, RG24-E-1-c, Vol. 18,114 ... 10 February 1959, "DoT – RCAF Meeting on SAR Operations in Canada."

[72] LAC, RG24-E-1-c, Vol. 18,117 ... 4 October 1961, "Air Council Meeting: Review of the SAR Organization."

Newfoundland and Labrador, which was an uncomfortable risk to Canadian sovereignty. It was clear that more rescue resources were required and the question had become: who would provide them? The RCAF, as argued, was not interested in providing maritime vessels.

As keen as the RCAF was to eliminate its role in SAR, the RCAF leadership must also have known it would remain integrated in SAR operations through international allied pressure. Without even considering ICAO, allied integration in rescue matters for NATO flying meant the RCAF would always be a part of Canadian SAR. A key finding in this chapter is that the RCAF was bound to maintain some aspect of the SAR organization for its own aviators and NATO allies flying over Canada, and this realization meant that it was unrealistic to expect that the RCAF could eliminate its role in SAR entirely. The RCAF was forced to rethink its resistance to the rescue role to meet international allied obligations.

From a cost perspective, the challenges of the 1950s were considerable. Large search areas and a lack of dedicated maritime rescue resources from other government departments meant that the RCAF had to use non-SAR military aircraft to supplement its SAR organization. In order to rescue its own fighter aircrew and prevent the SAR organization from expanding, the RCAF added base rescue helicopters. Standards were lowered so that the RCAF did not have to add 100 more personnel to the SAR service. One can conclude that cost concerns kept the RCAF from expanding the SAR organization.

The RCAF's 1959 meeting with DoT may not have met the initial RCAF aims of eliminating the expensive SAR role, but in the long run it did achieve an effective transfer of the maritime SAR commitment to the CCG, which was formed in 1962. In a critical change to the SAR organization, the Coast Guard reduced the SAR responsibilities for the RCAF and made remaining commitments manageable. A detailed examination of SAR organization realities, based on assistance from DoT, resulted in the Air Council understanding that the RCAF was the right organization to lead SAR in Canada. Changes made in 1959 and afterwards demonstrated that the Canadian solution to SAR requirements in Canada was effective, provided that the RCAF managed an organization that included maritime vessels and support from other government departments. The changes that were made in 1959 and later resulted in an end to the resistance the RCAF had consistently shown towards the SAR mandate since 1944, when post-war rescue planning had begun.

National Standards	**Aviation**. Required by ICAO, ordered by the government, and maintained by the RCAF	**Maritime**. Required by IMO, ordered by the government, and maintained by the CCG
Available Resources	**Aircraft**. RCAF resources at five locations across the country was sufficient due to the increased helicopter and aircraft capabilities	**Vessels**. DoT vessels were in construction and rescue stations were created as the CCG was formed in 1962
Formalized Policy (aviation and maritime only)	**Military rescues**. Required by NATO, and provided by the RCAF but supported by all branches of the military	**Civilian rescues**. Required by ICAO/IMO, and provided by the RCAF and CCG under RCAF leadership

Figure 14. The RCAF's SAR System in 1962

This chapter demonstrated that key components of today's SAR system were put in place by 1962, as depicted in Figure 14 above. A national system for aviation and maritime

rescue had been standardized across the country. Effective RCAF resources were planned for purchase in the early 1960s and the CCG provided a long-overdue maritime rescue capability that had been missing since the air force had given up the high-speed rescue vessels. Finally, the SAR system in Canada was formalized for both military and civilian rescue missions. The differences that exist between the SAR organization of the early 1960s and the SAR organization today are minor, so we now have a detailed understanding of the formation of Canada's SAR system.

Chapter 7: Conclusion

The SAR organization of the early 1960s is remarkably similar to the organization of today. Key components of the SAR system were developed gradually starting in 1942, and the final pieces were put in place quite late in the period of this study, as demonstrated by the development of national rescue standards in 1958 and the 1962 formation of the Canadian Coast Guard. It must be recalled, however, that the RCAF's creation of a rescue system had to start from scratch after 1939, which helps explain why it took so long to develop an effective aviation and maritime SAR system in Canada to support civilian and military rescue requirements. As discussed, the key components of the Canadian rescue system did not follow a linear process, but developed in fits and starts until 1959, dependent on actions of other government departments. All things considered, twenty years taken to develop the basics of today's effective system does not seem as long when one measures the progress from zero national rescue capability to a fully standardized system functional in all parts of Canada.

The aim of this study was to identify, one, why the RCAF acquired operational responsibility for the aviation and maritime SAR system in Canada, and two, to show how the RCAF developed the system into a close approximation of the one that exists today. Contrary to the existing presumption that the RCAF volunteered for the rescue service after the RCMP proposal was turned down by government, this study has demonstrated that the RCAF was reluctant to develop air and sea rescue systems until after 1958, even though it was known as early as 1940 that ASR was an important wartime requirement. This study has fundamentally challenged existing theories of SAR system development and clarified why a SAR system is important to Canada. Perhaps more importantly, this study has provided additional historical knowledge of a long and challenged path that rescue developments in Canada took on the road to the current effective system.

Wartime experiences led to the overarching allied requirement for rescue systems to ensure aircrew were returned to the fight whenever possible. The RCAF initiated rescue system development due to the proven importance of aircrew rescue during combat operations, as well as the 1942 perception that Canada could become a theatre of intense air combat operations. After the war, SAR became the means to meet Canadian national and international post-war transportation safety requirements for trade and travel that helped spark the post-war economic boom. SAR developments internationally were critical to the overall growth of aviation and maritime transportation in Canada, which underlines the importance of research in the interconnected areas of military and civilian rescue development.

This study offered new knowledge with which to judge the development of Canadian rescue systems, and offered a different explanation for the rationale behind the decision to allocate aviation and maritime SAR responsibilities to the RCAF. Of equal importance, this study has partially closed a gap in current literature between the initial formation of an ASR system in 1942, including the decision to assign maritime rescue to the RCAF in 1950, and to the formation of the Canadian Coast Guard in 1962. In conclusion, the three themes woven throughout this study will be reexamined, and the role of the RCAF will be scrutinized, for some final insights into overall rescue system developments in Canada.

A Summary of Themes

  The themes woven through Canadian government and RCAF decision-making during the development of both wartime and peacetime rescue systems were: one, international pressure to develop rescue systems, two, a national requirement to develop and maintain sovereignty, and three, government preference to conduct SAR at the lowest cost. These themes were important to this study by demonstrating the forces aligned against the RCAF's insistence on limiting rescue system development within its organization due to the civilian nature of aviation and maritime SAR. Additionally, the themes provided a framework for analyzing developments within the specific timelines of each chapter, and they will be useful here to provide closing analysis of the pressures that created and complicated rescue system development in Canada. In each of these themes there exists a significant finding that will assist in bringing clarity to the RCAF's tumultuous rescue system history.

  The key finding of this study is that rescue systems supported national sovereignty. Both the German and British air forces demonstrated that air combat could only be maintained effectively in a long war by recovering as many aircrew personnel from the sea as was possible. It was demonstrated that Canada agreed with the basic principle that a rescue system was essential to support combat operations within territorial areas. Following that principle, the RCAF loosely recreated the RAF's ASR example with a system for Canada's oceanic areas as German U-boat and Japanese submarines approached Canadian shores. The trigger for rescue system development in Canada had been the threat of invasion, and the system created was ready to support Canadian sovereignty during the Second World War. In short, the threat of air combat near Canada was the primary driver to create an RCAF ASR system in 1942.

  Less obvious than invasion, Canadian rescue systems during and after the war supported Canadian sovereignty by limiting American development of ASR bases in Canada. The 1944 addition of parachute rescue personnel into domestic rescue operations was demonstrated as an important step in limiting Americans from establishing an ASR presence in Northern Canada during the war. Unfortunately, as Canadian rescue system developments in the late 1940s were slow, and gaps were developed in early 1950s maritime rescue coverage, American forces in Newfoundland and Labrador became primary rescue resources by 1955.

  The reliance on American rescue services must have been embarrassing, and even an RCC and a rescue flight of aircraft and aircrew added to the air station of Torbay in 1954 were insufficient to meet the increasing number of rescue operations. The RCAF found itself in an awkward dependence on American SAR forces. The RCAF's lack of willingness to further expand rescue services in the 1950s lessened Canadian sovereignty in the new province of Newfoundland and Labrador, and was the low point of the SAR service in Canada. As developments after 1959 were mostly outside of the scope of this study and the Americans no longer have air bases in Newfoundland or Labrador, one can only assume that the greater capabilities of the SA-16B Albatross and CH-113 Labrador aircraft were the final rescue enablers to allow the American rescue forces to retreat from Canadian territory in the early 1960s. One can criticize the RCAF for not putting more effort into SAR earlier.

  The American presence in rescue operations in the 1950s leads to another key finding; that a rescue system, no matter which organization provides it, leads directly to greater control over foreign resources in one's territory. In Canada's case, the RCAF's robust response to missions such as Operation Brix in 1950 was critically important to Canadian national interests due to the potential nuclear weapon downed in Canada. Other missions demonstrated that a robust RCAF response to downed American aircraft resulted in the Americans ignoring their

own guidelines to coordinate searches for American aircraft. The close relationship between the RCAF and the USAF assisted in reducing an American rescue presence in Canada and limited the numbers of resources sent to participate over Canadian territory for specific rescue missions. One can reasonably conclude that a military role in SAR missions was necessary for integration with American forces, which makes one question the RCAF 1950 goal of being rid of SAR. Given the number and types of military missions in the 1950s, and the American expectation of RCAF involvement, the RCAF should have embraced the delivery of SAR earlier than it did.

The RCAF's close ties with American air forces were one result of the Canadian shift from a close orbit of Great Britain and Commonwealth policies, to an orbit of influence based on the United States. The physical proximity to the US, however, meant that expectations of Canadian organizations in areas like military aviation rescue were elevated. Given the evidence of USAF and RCAF interactions after the war, one can reasonably surmise that Canada needed a higher standard of SAR capabilities than Canada might otherwise have held because our American neighbours had robust expectations for rescue responses that applied to American military aircraft crashed in Canada. Again, the RCAF did not appear to recognize the benefits to involvement in the SAR service, especially in regards to Canada's relationship with the US.

Another key finding from this study was that rescue systems became an international requirement for aviation and maritime civil transportation safety between 1945 and 1948. In Canada, the international requirements for aviation and maritime rescue were problematic because Canada did not have a pre-existing domestic rescue organization that could form the basis of a domestic aviation and maritime SAR system. The very limited Canadian Life-Saving Service for domestic maritime rescue from before the war did not survive the transition to a wartime capability, and it was not rebuilt by the RCN after the war.

The lack of any effective Canadian domestic rescue system before the Second World War meant that the ASR system developed by the RCAF during the war was the only rescue capability in Canada that could meet growing international requirements after the war. The fact that the only rescue system used for civilian aviation and maritime emergencies at war's end was that of the RCAF, provided a solid, albeit unintended, argument against the robust RCMP proposal to provide a Canadian SAR service. Arguably, the international requirement for aviation and maritime rescue systems devolved to the RCAF in Canada because it was the only organization that had built a rescue system, and it had even included civilian rescue activities through and after the war.

International agreements did not specify that a national air force must provide the domestic response, but ICAO, the British, and the Americans all appeared to believe that a national air force was the most appropriate entity to lead post-war SAR response. The integration required between the military flying control organization, civilian air traffic services, and any SAR organization made the selection of an air force for a SAR service a cost effective option. However, the situation in Canada was complicated because Canada did not have a domestic service for the maritime component of rescue, as did both the British and Americans. Until the Department of Transport (DoT) provided sufficient personnel and vessels for the domestic maritime service, the RCAF was handicapped by a lack of expertise and resources to perform to developing international rescue expectations. The RCAF tried to focus its rescue system on combat missions only, but the various pressures from allies and international organizations made it a common expectation that air forces would lead post-war rescue organizations.

The final key finding, although an unsurprising one, was that cost concerns were critical to decisions relating to rescue system development in Canada. Examples of cost concerns

affecting rescue developments were: the unwillingness to expand the FCO and ASR in 1941, the American rescue vessels that were unsuccessfully considered for purchase in 1942, the lack of willingness of the government to support the $5.8 million RCMP SAR system proposal in 1946, and the RCAF's lack of willingness to provide any maritime rescue vessels after 1950. It is not clear what factors were at work to delay the assistance of DoT in rescue matters, but it is certainly possible that cost was a factor in DoT's 1959 decision not to replace the RCAF as the lead organization for SAR services. In general, Canada has historically taken a penny-pinching approach to government organizations, often including the military, and this study provided evidence that Canada was unwilling to expend funds on any rescue system deemed greater than the minimum required by international standards. Cost was a critical factor that overrode the RCAF's unwillingness to take on responsibility for domestic civilian rescue.

Contrarily, cost concerns did not necessarily deter Canadian rescue system development at first. In fact, those concerns appeared to drive cooperation among several government departments. Starting in 1944, the RCMP, RCN, and RCAF worked together to provide the best possible rescue service to the Canadian public given the circumstances. These agencies were very proactive in planning for a post-war rescue service that recognized the growing international and national requirements for SAR services. The RCAF even responded to DoT requests to provide a standing maritime rescue capability for civilians in the later years of the war. However, rescue development remained stunted and challenged until the DoT developed an appreciation for a civil organization within the domestic SAR mandate. It is highly likely that the long wait for DoT acceptance of rescue responsibility caused the RCAF to lower its expectation of the 1959 discussions to transfer SAR to DoT, and the RCAF subsequently accepted a shared role in SAR with relief.

The overdue acceptance of rescue responsibility by the DoT provides one last important finding of this study within the Canadian national context; resources and funding were difficult enough to obtain in the post-war environment that one organization alone could not reasonably be expected to develop the expertise and resources to support a national rescue system. Canadian military organizations are too small to maintain air, sea, and land capabilities within each branch of the military, as demonstrated by the RCAF's abandonment of maritime rescue vessel use outside of the immediate vicinity of air stations. The RCAF simply did not have the depth to meet all aspects of SAR expectations within existing means, nor did the RCN. The RCMP wished to develop such a robust capability, but the government refused to support massive expansion within the police service. One can conclude that it was unreasonable to expect the RCAF to coordinate aviation and maritime rescue operations for Canadian sovereignty, and international requirements after 1950, without expertise from other government departments. When the DoT accepted responsibility for the maritime SAR role, the RCAF reluctance to retain the SAR mandate was completely overcome by the fact that it would no longer be solely responsible for failure in life and death rescue situations.

Insight into the RCAF

This study demonstrated that after the 1947 decision to assign aviation SAR to the RCAF, the air force was left to coordinate a national rescue service with only limited assistance from other government departments until 1959. As the lead agency for Canada's rescue organizations since 1942, evidence from between 1942 and 1959 offer two insights into the RCAF. First, the RCAF proved very reluctant to adapt to post-war government direction to maintain "non-military" roles and serve the Canadian public in a rescue capacity during times of

peace. Second, and all things considered, the RCAF proved quite adept at maintaining a minimally sized, and yet very effective rescue system, for many years and with little help from other government departments.

The Canadian government made it clear in 1945 that it expected the RCAF to maintain roles the air force considered "non-military" as part of government direction to better serve the Canadian public in the post-war era. However, the RCAF developed its own policy in 1950 to be rid of "non-military" roles as soon as practicable. Indeed, it has been hypothesized in this study that the RCAF went even further and packaged the aviation and maritime SAR capability into one organization in order to hand off all aspects of the rescue system at a later date. This raises one final question; why was the RCAF reluctant to rescue? The answer is less clear than why it ceased to be reluctant after 1959, but we can come to a reasonable conclusion.

First, there was never any doubt that the rescue mandate for civilian domestic requirements was one of the roles that the RCAF wanted to be rid of, as the RCAF did not see a combat connection with that mandate. The RCAF had other priorities with limited funds that the SAR service, at nearly $2 million a year to run, could be perceived to take away funding from missions the air force thought was more important. Essentially, the RCAF's actions to be rid of SAR, contrary to government direction, provides evidence that military organizations can be incredibly resistant to government-ordered change. It is likely that the RCAF policies were based on the recent and intense normative experiences of rescue during the war when the RCAF developed a rescue service solely for its own military requirements. It is even possible that the war experience fundamentally intensified the way the RCAF officer corps viewed its military role in Canada. Regardless, the RCAF did not view rescue activities for non-military personnel to be desirable for a military organization.

Second, the RCAF's actions to minimize the SAR mandate, its reluctance to rescue, was in many ways an understandable response to the incremental increases in rescue responsibility that the RCAF was required to accommodate between 1942 and 1950 without any financial support. Civilian and domestic rescue responsibilities replaced the original military rescue requirement without any clear government direction on a desired systemic end-state of SAR in Canada. Even though the RCMP proposal for SAR was better, and the RCAF did not have the maritime resources to conduct the maritime rescue mandate effectively, the government proved unwilling to look past the RCAF's strengths and weaknesses and assign rescue to both the RCAF and another organization with the necessary maritime rescue expertise. As understandable as the RCAF response was to a government decision that left maritime rescue in a precarious state, it is still clear that the RCAF put up stiff resistance against the SAR role.

Despite the RCAF's resistance against a mandate the RCAF felt was a civil responsibility, the RCAF did prove equal to the task. As evidence, the small number of RCAF aircraft assigned to the SAR role did not limit the response to rescue missions, whether the mission was military or civilian. The RCAF owned up to its responsibilities and allowed the SAR mission to use many other RCAF aircraft as needed by the RCCs to save lives. Indeed, the RCAF offered to pay for SAR out of its own budget when it could have supported an ICAO discussion that would have resulted in the United States paying a fine for American aircraft crashes in Canada that required RCAF responses for rescue. The actions described above are but two amongst a great number of actions that the RCAF took to ensure that basic national SAR objectives were met throughout the 1950s.

Ultimately, the RCAF conducted detailed studies of SAR, and how Canadian rescue would best be served, and in 1961 the RCAF determined that it was indeed the right

organization to lead SAR in Canada. This determination was backed up with new aircraft specifically for domestic rescue services, in order to keep the number of rescue stations at five across the nation, and the RCAF included wartime planning to complete the development of the SAR service as it is recognized today. Even though the DoT was required to make the overall system effective, it was RCAF actions that initiated that essential change. The RCAF went to great pains to ensure that the domestic SAR system was always in capable hands.

Concluding Thoughts

This study has implications for the study of civil-military relations and bureaucratic politics in Canada. It appears that the Canadian government sought to demonstrate the RCAF's peacetime utility and make the most efficient use of resources to meet international obligations, despite the RCAF's determination to limit SAR efforts to military purposes only. The air force largely ignored the government's priority for SAR in order to maximize money and personnel for other missions it deemed of higher importance. The RCAF took a gamble by accepting the maritime SAR mandate in the hopes it could hand over all of SAR later, and clearly, the air force lost. By accepting the aviation role in SAR due to Department of Transportation assistance in maritime rescue, the RCAF managed to find balance between the governments' and its own priorities. The findings presented above fit well within some of the most accepted political science models, like Graham Allison's *Essence of Decision* (1971) on bureaucratic politics.

Further use of the political models and the information in this study can shed light on the current role of the RCAF in the SAR mandate. It certainly appears that Canadian allies view SAR as both a domestic civilian role and an important military role, domestic and deployed. Although the RCAF has largely neglected the military role by using all of its scarce rescue resources domestically as ordered by government, further research may demonstrate that there is a bigger role for the RCAF's SAR organization within NATO and coalitions. The neglected importance of combat SAR may be part of the rationale for the RCAF to fight and keep the SAR mandate, and if not, maybe it should be.

It is hoped that this study provided the background necessary for further research into SAR developments in Canada. One area of further research that should be considered is the formation of the Canadian Coast Guard. The limited secondary sources on that subject made it difficult to completely understand the events of 1959, and why the DoT became involved in the SAR service. One cannot fully understand the RCAF's role in rescue without understanding the Coast Guard's formation, as the two are inextricably linked.

Another area of potential further research is the difference in domestic development of Canada in contrast to combat rescue development of our closest allies. In particular, military requirements for rescue activities in times of war were well proven during the Second World War and suggest that the RCAF's very rigid interpretation of rescue services to Canadian territory was arbitrary and limiting. By 1943, the wartime requirement for rescue services was already being replaced in Canada by a domestic service, and the RCAF never appeared to understand that RCAF aircraft could be a part of a deployed allied rescue system. The description above of the RCAF's views of rescue planning for wartime is still evident today. Further research into combat rescue history may offer insight into potential future changes to the RCAF's SAR service that that could make the personnel and resources assigned to SAR more compatible with key coalition allies.

No matter which direction the SAR organization in Canada takes in the future, there should be a great deal of pride taken in the accomplishments of the RCAF along the rough and rocky road of SAR development in the 1940s and 1950s. The massive number of rescues that were conducted, and the huge amount of hours that the RCAF allocated to save Canadian lives in the 1950s, did not deter the RCAF from performing difficult missions while the DoT dithered from its responsibilities in the life-saving SAR service. Despite a demonstrated reluctance to rescue, the RCAF developed an organization that did the job successfully until 1959 and subsequently worked with DoT to build a SAR system internationally renown for excellence.

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