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Summer 2015 Search and Rescue (SAR) response posture trial analysis

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Abstract

It has been suggested that the Search and Rescue (SAR) services provided by the Royal Canadian Air Force (RCAF) could be improved by rescheduling the squadrons' shifts. The air SAR squadrons are on 2-hour Response Posture (RP2) except 40 hours in a week. The 40-hour period is divided into five 8-hour shifts in which the squadrons are on 30-minute Response Posture (RP30). The legacy schedule starts each RP30 shift at 08:00 local time on weekdays. Since 2013, some SAR squadrons started rescheduling the RP30 shifts in the summer during the SAR response posture trials.

In summer 2015, all five SAR squadrons used different RP30 schedules in the 115-day trial to improve the air SAR service by increasing the chance of a squadron being on RP30 at the time of tasking. This report examines the effectiveness of the approach. The report also derives a set of RP30 schedules that have the daily RP30 shift starts at 08:00 on three weekdays and starts at a different time on weekend. These inhomogeneous schedules improve over the legacy RP30 schedule.

Significance to defence and security

Canadian Joint Operations Command (CJOC) SAR tasked the CJOC Operational Research and Analysis (OR&A) team to assess the effectiveness of the SAR response posture trial in summer 2015. The task also included finding the optimal RP30 schedules with respect to the historical data between 2008 and 2015.

When a SAR incident was reported, the RCAF SAR squadrons, out of other SAR responders, could be asked to provide assistance. Each RCAF SAR mission is a response to an air SAR task. Air SAR tasks that were triggered by Category (CAT) 1 and 2 incidents between 2008 and 2015 were used to derive the optimal schedules for summer 2016.

The summer 2015 SAR response posture trial was successful. The trial schedules aligned with 44% of CAT 1 and 2 air SAR tasks on average in the five SAR squadrons, in contrast to 28% by using the legacy schedule. The increase agreed with expectation.

This study showed that shorter standby time at the time of tasking a SAR aircraft could improve the outcome of most missions by saving more lives on average. The analysis also found that the optimal schedules between 2008 and 2015 could increase the RP30 alignment from 26–33% to 36–41% with the air SAR tasks of CAT 1 and 2 incidents. When the concerns of the SAR squadrons were considered, the schedules were revised. A new set of "inhomogeneous" RP30 schedules was proposed; these schedules aligned with 33–38% of CAT 1 and 2 air SAR tasks in the five SAR squadrons. The optimal schedules for two squadrons and the inhomogeneous schedules for another two squadrons were approved and used in the 2016 summer period.

Résumé

Il a été suggéré qu'il serait possible d'améliorer les services de recherche et de sauvetage (SAR) offerts par l'Aviation royale canadienne (ARC) en réorganisant les quarts de travail des escadrons. Les escadrons aériens SAR maintiennent une posture d'intervention de 2 heures (PI 2 h), à l'exception de 40 heures par semaine. Cette période de 40 heures est divisée en 5 quarts de travail de 8 heures au cours desquels les escadrons maintiennent une posture d'intervention de 30 minutes (PI 30). Selon les anciennes grilles d'horaires, chaque quart en PI 30 commence à 8 h, heure locale, en semaine. Depuis 2013, certains escadrons SAR ont modifié les grilles de PI 30 en été, pendant les essais sur la posture d'intervention SAR.

Dans le cadre de l'essai de 115 jours mené au cours de l'été 2015, les cinq escadrons SAR ont varié leurs grilles de PI 30 afin d'augmenter les chances que l'un d'eux soit en PI 30 au moment d'une affectation et d'améliorer ainsi les services SAR aériens. Le présent rapport examine l'efficacité de cette approche et décrit un ensemble de grilles dont le quart de travail en PI 30 commence à 8 h, trois jours de la semaine, et à une heure différente la fin de semaine. Ces grilles d'horaire non homogènes constituent une amélioration par rapport aux anciennes grilles de PI 30.

Importance pour la défense et la sécurité

La SAR du Commandement des opérations interarmées du Canada (COIC) a chargé l'équipe d'analyse et de recherche opérationnelle (ARO) du COIC d'évaluer l'efficacité de l'essai sur la posture d'intervention SAR à l'été 2015. La tâche consistait également à trouver des grilles d'horaires permettant d'optimiser la PI 30 par rapport aux données historiques de 2008 à 2015.

Lors du signalement d'un incident SAR, les escadrons SAR de l'ARC, parmi les autres intervenants SAR, pouvaient être appelés à intervenir. Chaque mission SAR de l'ARC était liée à une intervention aérienne. Ces tâches SAR découlant d'incidents de catégorie 1 et 2 survenus de 2008 à 2015 ont été utilisées pour établir des grilles optimales pour l'été 2016.

L'essai sur la posture d'intervention SAR effectué au cours de l'été 2015 s'est bien déroulé. Les grilles d'essai correspondaient en moyenne à 44 p. 100 des tâches SAR aériennes de catégorie 1 et 2 dans les cinq escadrons SAR, comparativement à 28 p. 100 avec les anciennes grilles. L'augmentation est conforme aux attentes.

Cette étude a montré qu'un temps d'attente plus court au moment de l'affectation d'un aéronef SAR permettrait de sauver plus de vie et d'améliorer les résultats de la plupart des missions. L'analyse a également révélé que les grilles de la PI 30 couvrent de 26 à 33 p. 100 des tâches SAR aériennes liées à des incidents de catégories 1 et 2; en apportant des modifications aux grilles de 2008 à 2015, il serait possible d'augmenter ce nombre pour qu'il atteigne de 36 à 41 p. 100. Lorsque les préoccupations des escadrons SAR ont été prises en compte, les grilles ont été révisées. Un nouvel ensemble de grilles « non homogènes » de la PI 30 a été proposé; ces grilles correspondaient de 33 à 38 p. 100 des tâches SAR aériennes de CAT 1 et 2 dans les cinq escadrons SAR. Les grilles optimales de deux escadrons et les grilles non homogènes de deux autres escadrons ont été approuvées et utilisées pendant la période estivale 2016.

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1 Introduction

1.1 Background

Given the vast geographical extent of the country, the Canadian Search and Rescue (SAR) strategy relies on a whole-of-government approach in addition to the contributions from the provincial (territorial) governments, municipalities, and several voluntary organizations. The Department of National Defence (DND) is not the only department involved; the Department of Fisheries and Oceans (Canadian Coast Guard (CCG)) and the Department of the Environment (Parks Canada) are the other ones. However, the Canadian Armed Forces (CAF) have the provision of all aeronautical SAR efforts and have the responsibilities of coordinating the federal aeronautical and maritime SAR response [1]. The Royal Canadian Air Force (RCAF) is the primary responder of aeronautical SAR incidents, i.e., incidents that involve an aircraft. Other incidents such as maritime incidents (involving a vessel or medical evacuation from a vessel) or humanitarian incidents (e.g., lost hikers) are primarily responded by the other agencies such as the local police forces but the RCAF may also respond to these incidents. When they are tasked by one of the Joint Rescue Coordination Centres (JRCCs) in Victoria, Trenton or Halifax, the RCAF's SAR squadrons respond regardless of incident type.

The Canadian SAR effort is coordinated by the JRCCs. The country is divided into three Search and Rescue Regions (SRRs): Victoria SRR, Trenton SRR, and Halifax SRR. Each SRR, as shown in Figure 1, has many Search and Rescue Units (SRUs) as air, maritime and ground responders. Canada has five air SAR squadrons. Since 2006, these squadrons operate the following types of aircraft:

Table 1: A list of primary SAR squadrons and aircraft.

Squadron (SQN)	Wing	Canadian Forces Base (CFB)	Province	SRR	Rotary Wing	Fixed Wing
442 SQN	19 Wing	CFB Comox	British Columbia	Victoria	CH-149 Cormorant	CC-115 Buffalo
435 SQN	17 Wing	CFB Winnipeg	Manitoba	Trenton		CC-130 Hercules
424 SQN	8 Wing	CFB Trenton	Ontario		CH-146 Griffon	CC-130 Hercules
103 SQN	9 Wing	CFB Gander	Newfoundland and Labrador	Halifax	CH-149 Cormorant	
413 SQN	14 Wing	CFB Greenwood	Nova Scotia		CH-149 Cormorant	CC-130 Hercules

It is noteworthy that CH-113 Labrador helicopters were the primary SAR rotary aircraft until they were fully retired in 2004 [2]. Because of a serviceability problem [3], the Cormorant helicopters at 424 SQN were replaced by the Griffon helicopters since 2005 [4]. Hence, Table 1 summarizes the air SAR bases and aircraft after 2005 (and current as of 2016).

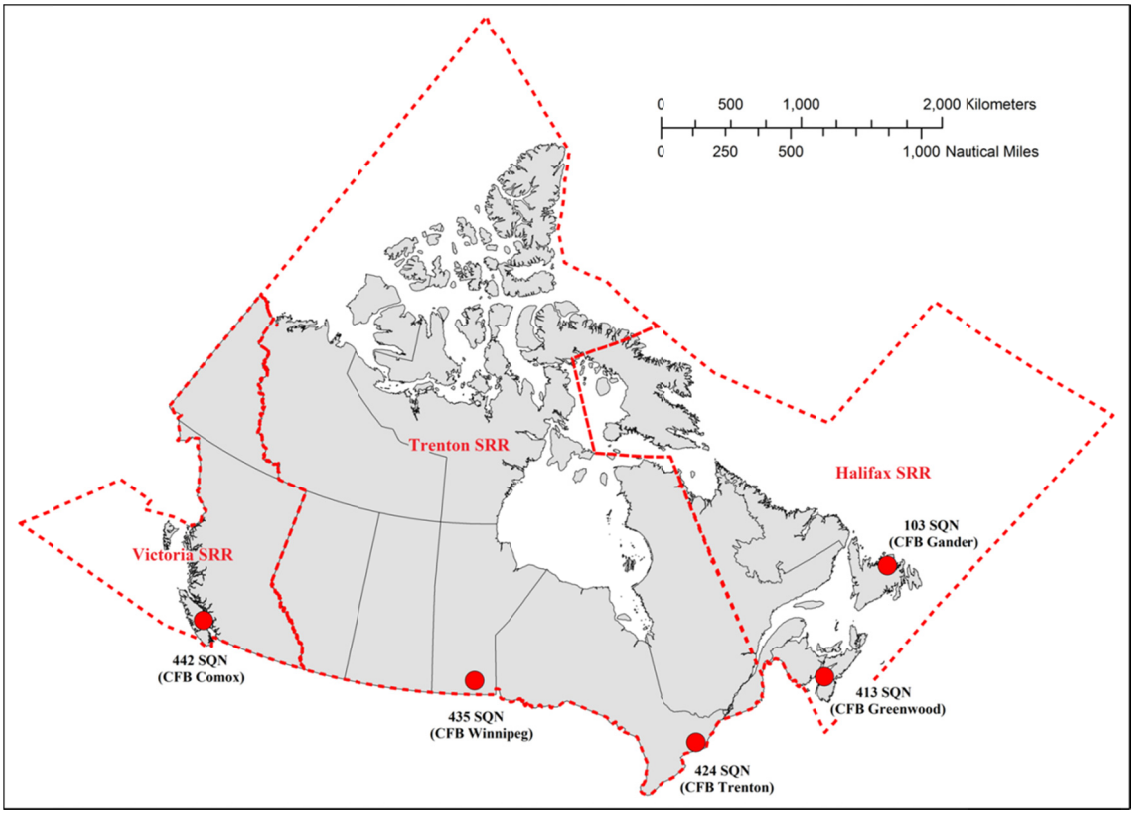

Figure 1: The three SRRs and the five SAR air bases.

The RCAF provides two levels of SAR service. Upon being tasked, a SAR aircraft and its crew members have at most either 30 minutes or two hours for preparation before take-off. The two levels are referred to as 30-minute Response Posture (RP30) and 2-hour Response Posture (RP2). In the RP30 case, the aircrews are on base and the aircraft is ready to start the engine.[1] During the RP2 period, the aircrews may not be on the base and the aircraft may require pre-flight checks. It is clear that RP30 is resource-intensive to maintain. The RCAF currently agrees to provide RP30 SAR service for 40 hours per week for each type of aircraft in each SAR squadron. The aircraft and their crew members are on RP2 for the rest of the time (for the other 128 hours every week.)

The weekly RP30 hours are divided into five 8-hour shifts from Monday to Friday. The shift starts at 08:00 (local time) for all squadrons; it is similar to the normal office hour. It has been realized that the 40-hour RP30 schedule does not align well with the times at the highest incident occurrence [5], [6]. That means incidents tend to occur at certain time of a week but the RP30 schedule does not optimally coincide with the occurrence. The problem has even been mentioned in the Auditor General Report [7]. Observations show that there are more SAR incidents on Saturdays and Sundays than the other days of the week. Figure 2 shows the number of incidents in all SRRs between January 1, 2008 and

[1] The time between starting the aircraft engine and take-off is counted towards the response posture time. If the runway has been used by another aircraft or the weather condition is not suitable for take-off, the waiting time of the crew members sitting in the cabin counts against the response posture.

November 5, 2015[2] (2,866 days) by the days of the week. The diagram agrees with the aforementioned observation. It was proposed that by redistributing the 40-hour shifts of RP30, the SAR resources could be more effectively used with little extra cost incurred. An example of a redistributed schedule would be Thursday to Monday between 09:30 and 17:30. This example of 8-hour per day for five consecutive days is practical but other ways of distributing the 40 hours were explored in [8]. Although the weekly, and possibly daily, total time remains the same, shifting the schedule from the normal office hour could have impact on personal life of the crew (both air and ground.) In addition to the possible impact on morale, the aircraft support also requires some adjustment; possibly a change in maintenance contracts in some cases.

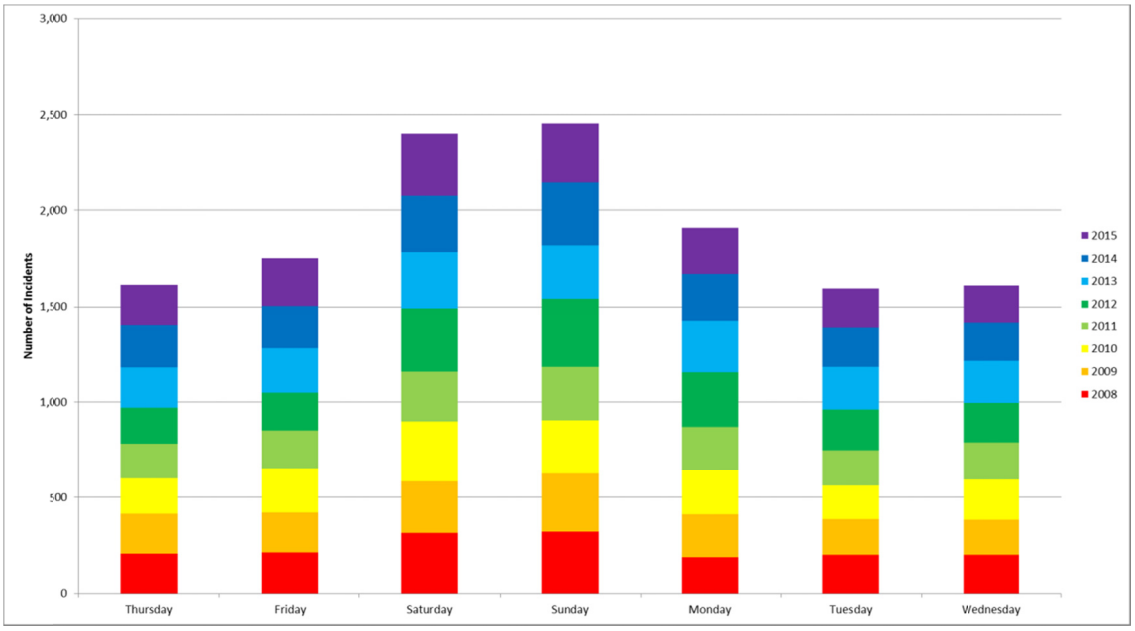

Figure 2: Distribution of incidents from Thursday to Wednesday between 2008 and November 5, 2015 (2,866 consecutive days).

It has been observed that the number of incidents increases between May and September [5]. The spike of incidents in summer is depicted in Figure 3. In 2013, the Trenton SRR experimented with new RP30 schedules between May 18th and September 30th.[3] 435 SQN was on RP30 between 10:00 and 18:00 from Friday to Tuesday. The Hercules of 424 SQN was on RP30 between 12:00 and 20:00 from Wednesday until Sunday, and the Griffon was on 30-minute standby between 12:00 and 20:00 from Friday to Tuesday. In this way, there was at least one SAR aircraft on 30-minute standby between 12:00 and 18:00, seven days a week in the summer time for the Trenton SRR. The RP30 coverage period was expanded with fewer aircraft at the same time. The trial showed that while on RP30, the two SAR squadrons provided assistance to more incidents than the expected number of incidents if the legacy RP30 schedule would have been used [8]. In 2014, there was another trial but it was expanded to include the Victoria and Trenton SRRs for the summer period between May 15th and September 29th.[4] Each of the three

[2] SAR data were available to the author until this date. Although it is incomplete for the year 2015, the missing data are unlikely to alter the conclusion.
[3] May 18, 2013 is the Saturday before the Victoria Day long weekend; September 30th is a Monday.
[4] May 15, 2014 is the Thursday before the Victoria Day long weekend; September 29th is a Monday.

participating SAR squadrons adapted to a new RP30 schedule. 442 SQN in CFB Comox was on RP30 between 11:00 and 19:00 from Monday to Friday for the Cormorant and Buffalo aircraft. 435 SQN in CFB Winnipeg was on RP30 from 10:00 for eight hours on weekdays. The third squadron, 424 SQN, in CFB Trenton was on RP30 between 11:00 and 19:00 from Thursday to Monday for the Hercules and Griffon fleets. Although synchronizing two fleets in the same squadron using a single RP30 schedule would not expand the RP30 coverage period, the practice is less confusing to the squadrons and easier to manage. Once again, the 2014 trial results showed that the new schedules better posed the SAR air assets to react to incidents [9]. However, no evidence showed that the improved schedules yielded more rescues in either trial.

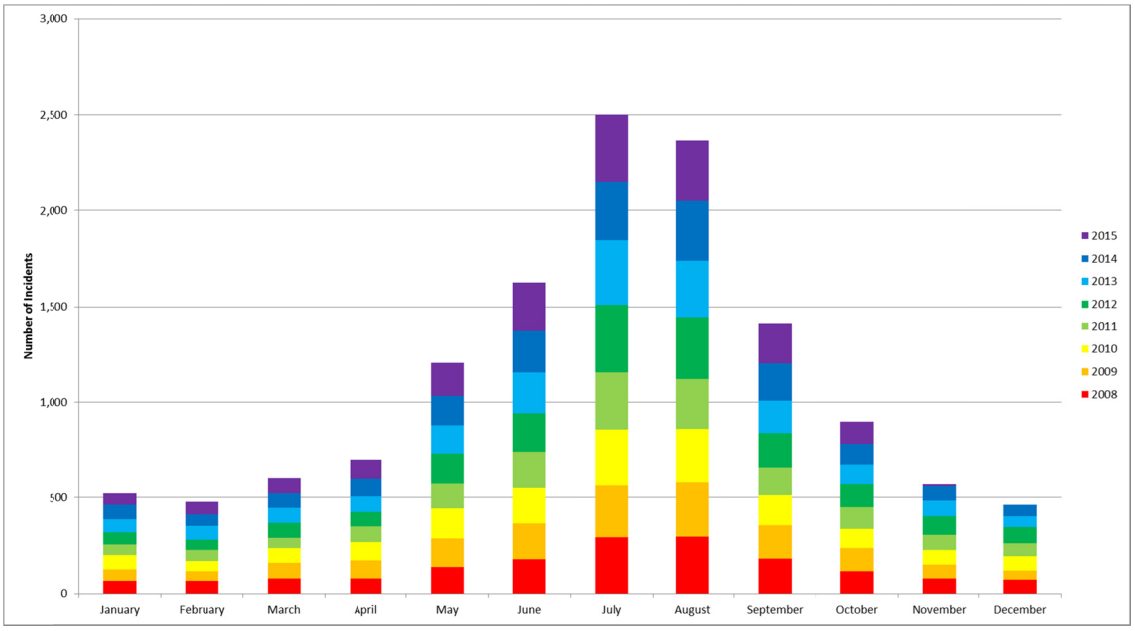

Figure 3: Distribution of incidents by month in the 2,866 consecutive days.

1.2 Aim

The 2015 summer SAR response posture trial is the last of a series of three. It began on the Victoria Day Saturday (May 16, 2015) until the Labor Day Monday (September 7, 2015). All five SAR squadrons in the three SRRs participated and each SAR squadron used the same RP30 schedule for all its fleets. The aim of this Scientific Report is twofold: First, it analyzed the trial performance with respect to the Category (CAT) 1 and 2 incidents.[5] Second, the study also examined the pattern of air SAR tasks from 2008 until early November 2015. The analysis provided recommendations to decision makers, who determined whether or not the SAR squadrons would be on different RP30 schedules in summer 2016. This document also provided a detailed description of the source data, which were useful but incomplete in many ways.

[5] CAT 1 and 2 incidents involve people in distress and potentially distress, respectively. The other two major categories are CAT 3 (situation resolved in uncertainty phase) and CAT 4 (false alarm or hoax). CAT 5 incidents were reported to a JRCC but took place outside the three Canadian SRRs.

1.3 Scope

This study utilized the historical air SAR tasks as the basic dataset for modelling the SAR squadrons' mission response. In the previous studies ([8] and [9]), historical SAR incidents were used instead. The client agreed on the change and the reasons for the change will be discussed in Section 2.3.

Using the air SAR task data is a small improvement but the study is still limited by not considering the decision process of tasking an air SRU by a JRCC. Since the response posture of the SRU is one of many decision factors, the air SAR task data contains some historical response posture information to some extent. How would a different response posture schedule change the air SAR tasks? A better understanding of the tasking decision would improve the search of a better RP30 schedule.

1.4 Outline

Chapter 2 will review the summer 2015 response posture trial. Section 2.1 explains the RP30 schedules used by each squadron in the trial. The second and third sections will compare the incidents and the induced air tasks in the 115-day trial period. Section 2.4 will outline what may be expected from the trial given the trial RP30 schedules and the occurred incidents in 2015. In Section 2.5, the results of how the squadrons implemented the schedules will be discussed. The last section will discuss how mission outcome could be affected by the response posture at the time when a task was assigned to a SAR squadron.

In Chapter 3, the optimal RP30 schedules for all SAR squadrons will be examined. The chapter will also explore other RP30 schedules that improve over the legacy RP30 schedule. Section 3.1 generalizes the 8-hour × 5-day schedules to pave way for further discussion. In Section 3.2, the optimal RP30 schedules will be presented along with the performance of the other possible schedules. These schedules can be visually compared by using some charts. In the last section, a sensitivity analysis will be discussed when perturbations in sample data exist.

Chapter 4 presents new work that considers the air SAR service from a different perspective. After the optimal RP30 schedules were presented to Canadian Joint Operations Command (CJOC) SAR, they were adjusted to accommodate some concerns that were raised by the SAR squadrons. In Section 4.1, a new rule on the 8-hour × 5-day schedules will be introduced. Section 4.2 examines the performance of a set of schedules that addressed the squadrons' concerns.

Chapter 5 will conclude the report and summarize recommendations. In Annex A, all air SAR tasks that were affected by the 2015 trial schedules (with respect to the legacy schedule) are listed for reference. Annex B will explain the SAR data in detail because this study used a different data source than the ones used in the last two trial analyses.

2 Summer 2015 SAR response posture trial

The summer SAR response posture trial is a part of a multi-year series of trials that started in 2013. The first one started on the Victoria Day Saturday on May 18th and lasted 136 days. Both 435 SQN and 424 SQN in the Trenton SRR participated and showed some positive results. The second trial began on Thursday, May 15, 2014 and lasted 138 days until the end of September. In this trial, 442 SQN in the Victoria SRR joined the two SAR squadrons in the Trenton SRR; all three squadrons showed some improvement in SAR response by using new RP30 schedules. The 2015 trial started on the Victoria Day Saturday, May 16th until the Labor Day Monday, September 7th. It spanned 115 days and involved all SAR squadrons across the country. This chapter will discuss the trial in detail and explain the analysis methodology and results.

2.1 Trial schedule

In the 2015 trial, all SAR squadrons utilized the RP30 schedules (Table 2) that are different from the legacy schedule. Each type of aircraft was on 30-minute standby for eight hours every day for five consecutive days. They were on 2-hour standby at all other times. For practical purposes, 103 SQN at Gander, Newfoundland and Labrador was on RP30 at the same moment as 413 SQN, given the Newfoundland time zone is half an hour ahead of the Atlantic Standard Time.

Table 2: The proposed RP30 schedules (local time) for the summer 2015 trial. All SAR squadrons were on RP2 at other times.

	Victoria SRR		**Trenton SRR**			**Halifax SRR**		
	442 SQN		**435 SQN**	**424 SQN**		**103 SQN**	**413 SQN**	
	CH-149	**CC-115**	**CC-130**	**CC-130**	**CH-146**	**CH-149**	**CC-130**	**CH-149**
Monday	12:00–20:00	12:00–20:00	10:00–18:00	11:00–19:00	11:00–19:00	11:30–19:30	11:00–19:00	11:00–19:00
Tuesday	12:00–20:00	12:00–20:00	10:00–18:00	11:00–19:00	11:00–19:00	11:30–19:30	11:00–19:00	11:00–19:00
Wednesday			10:00–18:00					
Thursday			10:00–18:00					
Friday	12:00–20:00	12:00–20:00	10:00–18:00	11:00–19:00	11:00–19:00	11:30–19:30	11:00–19:00	11:00–19:00
Saturday	12:00–20:00	12:00–20:00		11:00–19:00	11:00–19:00	11:30–19:30	11:00–19:00	11:00–19:00
Sunday	12:00–20:00	12:00–20:00		11:00–19:00	11:00–19:00	11:30–19:30	11:00–19:00	11:00–19:00

It is understood that no squadron could precisely follow the schedules. For example, JRCC Victoria could issue a SAR task to 442 SQN at 11:50 a.m. on Monday and the CH-149 was scheduled to be on RP2 at that time according to Table 2. However, it is possible that the aircraft and its crew were ready for the task and it was actually on RP30 at 11:50. In this sense, the start and end times are always fuzzy. The data, presumably correct, shows that the time fuzziness could be as much as a few

hours in some cases.[6] Hence, this study made a distinction between the observed response posture and the scheduled response posture.

2.2 Incidents in summer 2015

The 2015 trial was slightly different than the last two trials; one difference is the length of the trial period. The last two trials ran until the end of September but the last day of the 2015 trial was the Labor Day Monday. The shorter period made result comparison with other years simple.

The latest trial lasted 115 days from the Victoria Day Saturday. It is important to ensure that 2015 is not a year of outliers in terms of incident occurrence. Table 3 shows the number of CAT 1 and 2 incidents in the three SRRs from 2008 through 2015. In the eight years under consideration, the time period is always 115 days starting from the Victoria Day Saturday of that year. (However, the last day is not always the Labor Day Monday; it could be a week after the holiday Monday.) The table shows that 2015 had more CAT 1 and 2 incidents than the average. Only the Trenton and Halifax SRRs had a normal level of incidents in the 115-day period (within one standard deviation from average.)

Table 3: CAT 1 and CAT 2 SAR incidents in the summers 2008–2015 (115 days × 8 years).

Time Period under Consideration			**Number of CAT 1 and 2 Incidents**			
Start Date	**End Date**	**# Days**	**Victoria**	**Trenton**	**Halifax**	**All SRRs**
2008/05/17	2008/09/08	115	420	277	203	900
2009/05/16	2009/09/07	115	408	290	174	872
2010/05/22	2010/09/13	115	383	344	181	908
2011/05/21	2011/09/12	115	326	371	179	876
2012/05/19	2012/09/10	115	476	393	178	1,047
2013/05/18	2013/09/09	115	420	384	168	972
2014/05/17	2014/09/08	115	447	361	168	976
2015/05/16	2015/09/07	115	513	392	190	1,095
		Median	420.0	366.0	178.5	940.0
		Average	424.1	351.5	180.1	955.8
		Standard Deviation	57.0	45.2	11.7	82.1

Table 3 shows that there were more CAT 1 and 2 incidents in 2015 than the average in all SRRs. The Victoria SRR had the most such incidents in the eight summers although it is the smallest SRR. Table 4 compares the three SRRs in different ways during the same time period. The Halifax SRR had the least number of such incidents in the table but it required the most RCAF SAR assistance. The table illustrates a different SAR picture than Table 3 when the number of air SAR tasks is considered. It shows that not every incident triggered the same number of air SAR tasks in all SRRs. The incident occurrence

[6] For example, in incident S2015-00530, the SMMS database shows that CH-149915 of 103 SQN was tasked at 10:49(Z) on Monday, August 31st. The database shows that it was on RP30 at tasked time (8:19 a.m. local time) but the squadron would not be on RP30 until 11:30 a.m. according to its schedule. Not only the recorded response posture is incorrect by a few hours but the tasked squadron is wrong on the database. According to the SAR Mission Report, the tasked squadron was 413 SQN.

distribution is a good guidance for SAR service demand from a strategic perspective. However, it is too generic for a specific type of SRU, which is usually specialized in certain types of incidents. From the perspective of the air SRUs, the tasking frequency of SAR aircraft is more relevant than the generic incident occurrence frequency.

Table 4: Comparison of the three SRRs in size, the number of incidents and the number of air tasks.

	Geographical Area (in million km^2)	**Number of Incidents** (CAT 1 and 2, 115d × 8y)	**Number of Air Tasks** (CAT 1 and 2, 115d × 8y)
Victoria SRR	2.1 (11.7%)	3,393 (44.4%)	494 (28.4%)
Trenton SRR	10.5 (58.3%)	2,812 (36.8%)	537 (30.9%)
Halifax SRR	5.4 (30.0%)	1,441 (18.8%)	709 (40.7%)
Total	18.1 (100.0%)	7,646 (100.0%)	1,740 (100.0%)

2.3 Air SAR tasks in summer 2015

Recall that the CAF are responsible for providing SAR service to the aeronautical incidents and only responsible for coordinating federal aeronautical and maritime SAR response. It implies that the air SAR squadrons, which are the only dedicated SAR responders in the CAF, are not the first responders to the maritime and humanitarian incidents in principle. Other SRUs such as CCG or local police forces are tasked for those incidents before the SAR squadrons are tasked. It is not a surprise that each aeronautical incident triggers more air SAR tasks than the maritime and humanitarian incidents on average. Table 5 shows that in 2008–2015, each CAT 1 and 2 aeronautical incident triggered 0.38 air SAR tasks while the other two types of incidents triggered 0.24–0.26 tasks per incident. It is clear that not all incidents have the same probability of triggering air SAR tasks. However, the maritime and humanitarian incidents outnumbered the aeronautical incidents, which only accounted for 11% of total incidents (or 16% of air SAR tasks.) Although the nationwide percentages of incidents for the three types are similar to the nationwide air task percentages (the percentages in boldface), the percentage difference in the regional cases is noticeable. For example, the maritime incidents in the Victoria SRR account for 26.8% of all CAT 1 and 2 incidents but the air SAR tasks for the maritime incidents are 14.6% of all tasks in the nation. The table also shows that Victoria SRR had 6,447 incidents over the 2,866-day period; this is 48% of all incidents nationwide. Almost half of all air SAR resources would have been diverted to 442 SQN if only incident occurrence was used to guide the planning of resources. In addition, Table 5 only illustrates the problem in terms of incident quantity; the time delay has not been discussed. The SAR squadrons usually play a supporting role in the maritime and humanitarian incidents. They could be tasked hours after the other SRUs had responded to the incidents. The incident occurrence time is not strongly associated with the task time in these cases. It leads to a conclusion that incident occurrence does not necessarily reflect how the SAR squadrons are required. It is inappropriate to plan the air SAR resources for the purposes of evaluating response posture solely using incident occurrence.

Table 6 is analogous to Table 3 but it counts the air SAR tasks during the same period from 2008 until 2015 (115 days × 8). Since each task was assigned to a particular fleet of a SAR squadron, the table listed the counts by aircraft type in each squadron rather than by SRR. Although the summer period of 2015 had more CAT 1 and 2 incidents than average, Table 6 showed that all SAR fleets received the average level of tasks in 2015. (The 2015 task level for all fleets was within one standard deviation from the average

between 2008 and 2015.) Hence, the 2015 trial period had a normal level of tasks compared with the other years.

Table 5: Number of CAT 1 and CAT 2 SAR incidents and their air tasks between 01/01/2008 and 11/05/2015 (2,866 days).

	Incident Type	Number of Incidents	Number of Air Tasks	Tasking Rate (tasks per incident)
Victoria SRR	Aeronautical	485 (3.6%)	201 (5.6%)	0.41
	Maritime	3,568 (26.8%)	524 (14.6%)	0.15
	Humanitarian	2,394 (18.0%)	308 (8.6%)	0.13
Trenton SRR	Aeronautical	849 (6.4%)	266 (7.4%)	0.31
	Maritime	2,222 (16.7%)	394 (11.0%)	0.18
	Humanitarian	1,086 (8.1%)	332 (9.3%)	0.31
Halifax SRR	Aeronautical	187 (1.4%)	116 (3.2%)	0.62
	Maritime	1,877 (14.1%)	1,102 (30.7%)	0.59
	Humanitarian	665 (5.0%)	345 (9.6%)	0.52
Nationwide	Aeronautical	1,521 (**11.4%**)	583 (**16.2%**)	0.38
	Maritime	7,667 (**57.5%**)	2,020 (**56.3%**)	0.26
	Humanitarian	4,145 (**31.1%**)	985 (**27.5%**)	0.24
	Overall	13,333 (100.0%)	3,588 (100.0%)	0.27

Table 6: Tasks of CAT 1 and CAT 2 SAR incidents in summers 2008–2015 (115 days × 8).

Time Period		Number of Tasks triggered by CAT 1 and 2 Incidents							
Start Date	End Date	Victoria SRR		Trenton SRR			Halifax SRR		
		442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149
2008/05/17	2008/09/08	50	18	6	22	43	33	26	30
2009/05/16	2009/09/07	47	21	12	19	28	34	25	28
2010/05/22	2010/09/13	27	25	14	23	34	34	30	26
2011/05/21	2011/09/12	35	13	14	27	28	29	20	23
2012/05/19	2012/09/10	42	28	9	24	24	39	26	29
2013/05/18	2013/09/09	47	17	15	29	40	25	18	33
2014/05/17	2014/09/08	44	23	15	23	24	31	30	41
2015/05/16	2015/09/07	40	17	10	22	32	35	28	36
Median		43.0	19.5	13.0	23.0	30.0	33.5	26.0	29.5
Average		41.5	20.3	11.9	23.6	31.6	32.5	25.4	30.8
Standard Deviation		7.5	4.9	3.3	3.1	7.0	4.2	4.4	5.8

When the air SAR tasks triggered by CAT 1 and 2 incidents were counted as shown in Figure 4, the summer months remained to be a high-demand period. Comparing with Figure 3 in which incidents of all categories were considered, Figure 4 showed the gradual rise and fall of the air SAR tasks in the summer season.

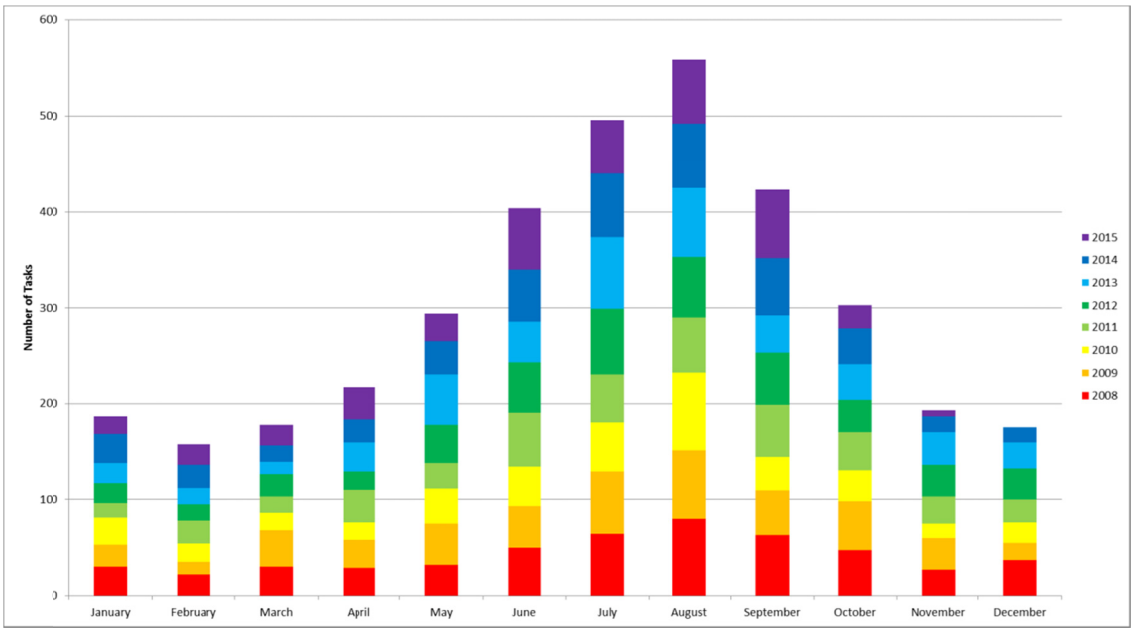

Figure 4: Distribution of air SAR tasks (triggered by CAT 1 and 2 incidents) by month between 2008 and November 5, 2015 (2,866 consecutive days).

2.4 Effectiveness of the proposed and legacy RP30 schedules

The summer 2015 trial provided an opportunity to test the proposed RP30 schedules (Table 2) using real tasks on all SAR squadrons. During the trial period, there were 220 identifiable tasks assigned to the SAR squadrons. If the legacy RP30 schedule was used, the responding squadrons of 56 tasks would have been on RP30. (Hence, the responding squadrons of the other 164 tasks would have been on RP2.) If the proposed RP30 schedules were precisely followed, the responding squadrons of 94 tasks would have been on RP30. Table 7 summarizes the number of tasks using the two sets of schedules. There were 33 tasks that the squadrons were on RP30 by both sets of schedules. Similarly, there were 103 tasks that the squadrons were on 2-hour standby regardless of the schedules. However, there were 61 tasks that the squadrons were on RP30 by the proposed schedules but on RP2 by the legacy schedules. That is to say, the proposed schedules potentially yielded some improvement on 61 tasks. Conversely, 23 tasks saw the responding squadrons on RP2 (by the proposed schedules) instead of on RP30 (by the legacy schedule.) Hence, the overall expected *task gain* [9] of using the proposed RP30 schedules is 38 tasks over the 115-day period in 2015. The improved and degraded tasks (61 and 23, respectively) of using the proposed RP30 schedules can be found in Table A.1 in Annex A.

Table 7: The number of tasks that would be received on either RP30 or RP2 shift according to the legacy or the proposed schedules in the 2015 trial.

		By the Proposed Response Posture															
		Crew on RP30								Crew on RP2							
By the Legacy RP	Crew on RP30	33								23							
		442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149	442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149
		3	4	3	3	8	6	4	2	5	2	1	0	0	4	5	6
	Crew on RP2	61								103							
		442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149	442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149
		12	3	2	8	10	8	8	10	20	8	4	11	14	17	11	18

Table 7 also contains the number of tasks for the individual aircraft in each squadron. It shows that CH-149 and CC-115 in 442 SQN had 22 tasks of which the aircraft were on RP30 by the proposed schedule (3 + 4 + 12 + 3 = 22.) Similarly, at the time of tasking, the squadron was on RP2 for 35 times (5 + 2 + 20 + 8). Hence, the proposed RP30 coverage percentage for 442 SQN is 39% (22 ÷ (22 + 35).) A similar calculation can apply to the legacy schedules for each aircraft or individual squadrons. The result will be presented at the end of the next section.

2.5 Observed trial performance

Recall that the RP30 schedules in Table 2 were proposed for the 2015 trial. It is difficult to precisely implement them for the eight SAR fleets over the 115 days. It is important to ensure that the implementation meets the expectation, which was discussed in the previous section. In the last section, 220 real tasks were considered during the trial period but eight of them did not have any information on the squadrons' observed response posture in the database. As a result, only 212 tasks were used in the following assessment.

Table 8 shows the number of tasks when the responding squadrons were actually on RP30 or RP2 (95 and 117, respectively.) It also shows the number of tasks if the responding squadrons used the legacy schedules. (In 53 tasks, the responding squadrons would have been on RP30, and 159 tasks would have seen the squadrons on RP2 by the legacy schedule.) As a result, the task gain is 42 tasks out of the 212 tasks under consideration. The implementation of the proposed RP30 schedules meets the expected performance.

Table 7 and Table 8 showed how the fleet might react if different RP30 schedules were used in the 2015 trial. A summary is given in Table 9, which reports the results by squadron for simplicity. The Halifax SRR is listed in the table upon client request. The table provides the task gain and the RP30 coverage percentage over the 115-day summer period. Since task gain, by definition, is an effectiveness comparison with using the legacy RP30 schedules, Table 9 does not have a task gain column for the legacy schedule. The table shows that the proposed RP30 schedules improve over the legacy schedule by

10.0% (435 SQN) to 33.3% (424 SQN) in terms of the RP30 coverage percentage. It is noteworthy that 435 SQN had a high RP30 coverage percentage by using the legacy schedules but it is the only squadron that did not have much improvement in the 115-day trial. The reason is that either the squadron has little room for response improvement (unlikely) or it receives SAR tasks differently from the other SAR squadrons. Unlike the other four squadrons, 435 SQN supports air-to-air refuelling of fighter aircraft for operational and training activities at home and abroad. Hence, JRCC Trenton does not task it like the others, and it likely affects the outcome of the trial.

Table 8: The number of tasks on CAT 1 and 2 incidents that would be received on either RP30 or RP2 shift according to the legacy or the observed schedules in the 2015 trial.

		By the Observed Response Posture															
		Crew on RP30								Crew on RP2							
By the Legacy RP	Crew on RP30	34								19							
		442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149	442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149
		4	3	2	3	8	6	6	2	3	2	2	0	0	3	3	6
	Crew on RP2	61								98							
		442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149	442 SQN CH-149	442 SQN CC-115	435 SQN CC-130	424 SQN CC-130	424 SQN CH-146	103 SQN CH-149	413 SQN CC-130	413 SQN CH-149
		14	3	2	11	8	7	7	9	18	8	4	8	15	17	11	17

Table 9: Task gain and RP30 schedule coverage percentage in the summer 2015 trial.

Squadron / SRR	**Task Gain**		**RP30 Coverage Percentage**		
	Proposed RP	**Observed RP**	**Legacy RP**	**Proposed RP**	**Observed RP**
442 SQN	8	12	24.6%	38.6%	43.6%
435 SQN	1	0	40.0%	50.0%	40.0%
424 SQN	18	19	20.4%	53.7%	56.6%
103 SQN	4	4	28.6%	40.0%	39.4%
413 SQN	7	7	26.6%	37.5%	39.3%
Halifax SRR	11	11	27.3%	38.4%	39.4%

2.6 Impact on SAR outcome

In the last two sections, the trial RP30 schedules were shown to improve the air SAR response by shortening the average standby time of some tasks. It is believed that the air assistance will arrive at the scene earlier if the standby time is shortened. This is the motivation behind revising the RP30 schedules. In the report [6], at least seven cases were identified where lives were likely saved because the air SRUs were on RP30, or lives were likely lost because the responding air SRUs were on RP2. However, the correlation between short standby time and the number of saved lives was not strongly established.

Due to the complexity of SAR missions in general, it is difficult to measure the effectiveness of changing RP30 schedules on saving lives at the end. For example, consider an incident that triggered two air SAR tasks. If the first task failed to find the survivors while the second task found and rescued all People On Board (POB), it would not be straightforward to determine whether or not the first task was a failure. In order to avoid the confusion of multi-tasked incidents and to reduce the complexity, this section focuses on the conditions as follows:

- Consider only the incidents that triggered exactly one air SAR task (there are 4,096 1-task incidents of CAT 1 to 5 in the three SRRs between January 1, 2008 and November 5, 2015).
- Each incident involved at least one POB. (2,216 1-task incidents have consistent POB count of at least one POB).
- The observed response posture of the tasked squadrons was either RP30 or RP2. (The air SRUs were actually either on RP30 or RP2 in 1,754 incidents out of the 2,216).
- A successful mission is considered to be one that saved or assisted all POB.

Given the first three conditions, there were 1,754 incidents (CAT 1 to 5) between 2008 and early November, 2015 for consideration. For the sake of discussion, these incidents were called "simple incidents." The last condition makes a clear distinction between successful missions and unsuccessful ones. By identifying the simple incidents based on their state of mission outcome and the response posture, they could be divided into four groups as shown in Table 10. The data showed that the SAR aircraft on RP30 had a success rate of 87.1% but those on RP2 only had 83.7% chance of mission success. Although the two percentages are close, the p-value of the two-way table is 0.045 using χ^2 statistics; they are not statistically equal [10], [11]. In other words, the SAR squadrons on RP30 at tasked time have a slightly higher chance of mission success in the case of simple incidents. Although the same conclusion cannot be drawn to the non-simple incidents, simple incidents make up 75% of all CAT 1 to 5 incidents that required air SAR service between 2008 and 2015. There is a strong probability that short response posture at task time increases the chance of saving lives. A previous study estimated that 45-minutes earlier in response could save 2.4% more POB [6].

Table 10: Relationship between mission outcome and response posture of simple incidents took place between 2008 and November 5, 2015.

		Response Posture at Tasked Time		
		30-min	2-hour	Overall
Mission Outcome	Successful	882 (87.1%)	620 (83.7%)	1,502 (85.6%)
	Unsuccessful	131 (12.9%)	121 (16.3%)	252 (14.4%)
	Total	1,013 (100%)	741 (100%)	1,754 (100%)

It is not surprising to have a small difference in mission success rate between RP30 and RP2. The potential 90-minute time reduction could be a small amount compared with the other times during a SAR mission. For example, poor weather condition, long transit time or extensive area search could add hours to the mission before the aircraft reaches the victims. The time difference between the two levels of response posture becomes less important under those conditions. Nevertheless, a short response posture is always welcomed from the service user perspective.

The conclusion of a higher mission success rate of RP30 applies to all categories of incidents in a whole year; not just CAT 1 and 2 incidents in the summer season. A similar analysis could apply to this subset of simple incidents but the result would suffer a problem. Given the small expected difference between the two RPs in the mission outcome, an analysis will require a lot of incidents to have the statistical power to draw a conclusion. By using only CAT 1 and 2 simple incidents, the data between 2008 and 2015 are not statistically conclusive enough to make the claim. A similar problem will arise if the simple incidents of a particular SRR are considered.

3 Optimal RP30 schedules

The summer response posture trials showed that rescheduling the RP30 shifts could improve the primary air SAR response. The schedules in the trials were carefully selected by considering the incident occurrence but these schedules were not the only possible ones. There are many other ways to alter the schedules but the best schedules, in terms of the best response, might not be practical to individual squadrons. This chapter will look at other schedules and provide the full options space to decision makers for future selection.

3.1 40-hour RP30 weekly schedules

This study assumes that all squadrons will be on RP30 for only 40 hours every week. This is the current capacity; the legacy and trial schedules (in 2013–2015) are also bounded by this capacity. These schedules also provide eight hours of RP30 service daily at the same time for five consecutive days (8-hour × 5-day) on a weekly basis. These restrictions form the basis of a generic weekly schedule, which is illustrated in Figure 5. The diagram shows five 8-hr RP30 periods (in pink) separated by four 16-hr time intervals. The first RP30 period starts T_0 hours after the beginning of the week. Since there are 168 hours in a week, there are (64–T_0) hours of RP2 after the last RP30 period and before the schedule restarts for the next weekly cycle. If Day 1 of the week is Monday, T_0 will be 8 for the legacy RP30 schedule.

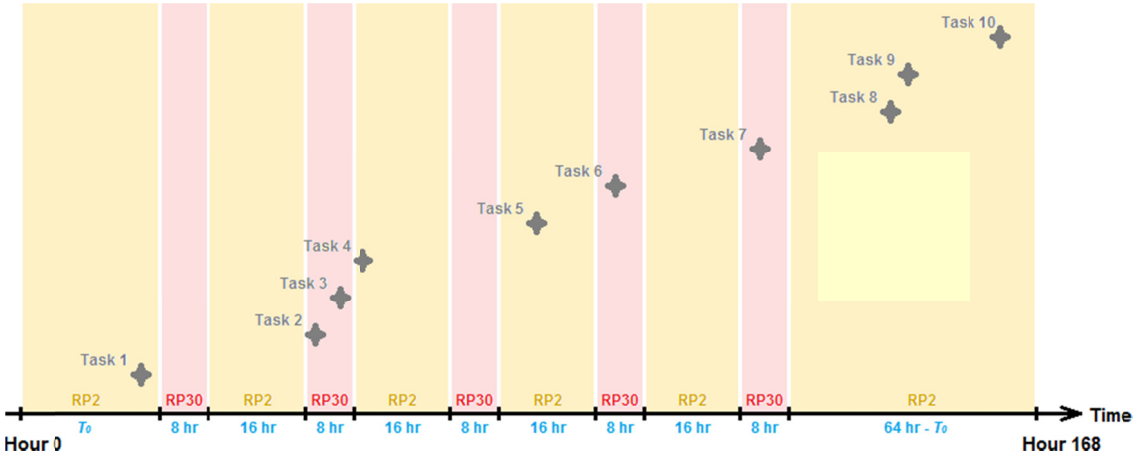

Figure 5: Generic weekly RP30 schedule of 8-hour × 5-day RP30 periods.

Figure 5 illustrates an example in which there were ten tasks in the week. It shows that four tasks (Tasks 2, 3, 6 and 7) came in at a time when the squadron was on RP30. If the value of T_0 increases, the vertical colour bands will be shifted to the right. (The position of the ten tasks will remain unchanged.) In this way, the number of tasks in the pink bands will be changed accordingly. Hence, a different value of T_0 gives different task gain with respect to the legacy RP30 schedule. In this study, T_0 is treated as an integer between 0 and 167 for simplicity. Hence, all squadrons start RP30 at the beginning of the hour. Table 11 listed the 168 RP30 schedules, in which Day 1 is assumed to be Monday without loss of generality. (The legacy schedule is highlighted in yellow.)

Table 11: A list of 8-hour × 5-day weekly RP30 schedules in one-hour interval.

Start Hour	First RP30 Period	Second RP30 Period	Third RP30 Period	Fourth RP30 Period	Fifth RP30 Period
0	00:00 (Monday) | 08:00 (Monday)	00:00 (Tuesday) | 08:00 (Tuesday)	00:00 (Wednesday) | 08:00 (Wednesday)	00:00 (Thursday) | 08:00 (Thursday)	00:00 (Friday) | 08:00 (Friday)
1	01:00 (Monday) | 09:00 (Monday)	01:00 (Tuesday) | 09:00 (Tuesday)	01:00 (Wednesday) | 09:00 (Wednesday)	01:00 (Thursday) | 09:00 (Thursday)	01:00 (Friday) | 09:00 (Friday)
⋮	⋮	⋮	⋮	⋮	⋮
8	08:00 (Monday) | 16:00 (Monday)	08:00 (Tuesday) | 16:00 (Tuesday)	08:00 (Wednesday) | 16:00 (Wednesday)	08:00 (Thursday) | 16:00 (Thursday)	08:00 (Friday) | 16:00 (Friday)
⋮	⋮	⋮	⋮	⋮	⋮
23	23:00 (Monday) | 07:00 (Tuesday)	23:00 (Tuesday) | 07:00 (Wednesday)	23:00 (Wednesday) | 07:00 (Thursday)	23:00 (Thursday) | 07:00 (Friday)	23:00 (Friday) | 07:00 (Saturday)
24	00:00 (Tuesday) | 08:00 (Tuesday)	00:00 (Wednesday) | 08:00 (Wednesday)	00:00 (Thursday) | 08:00 (Thursday)	00:00 (Friday) | 08:00 (Friday)	00:00 (Saturday) | 08:00 (Saturday)
25	01:00 (Tuesday) | 09:00 (Tuesday)	01:00 (Wednesday) | 09:00 (Wednesday)	01:00 (Thursday) | 09:00 (Thursday)	01:00 (Friday) | 09:00 (Friday)	01:00 (Saturday) | 09:00 (Saturday)
⋮	⋮	⋮	⋮	⋮	⋮
32	08:00 (Tuesday) | 16:00 (Tuesday)	08:00 (Wednesday) | 16:00 (Wednesday)	08:00 (Thursday) | 16:00 (Thursday)	08:00 (Friday) | 16:00 (Friday)	08:00 (Saturday) | 16:00 (Saturday)
⋮	⋮	⋮	⋮	⋮	⋮
56	08:00 (Wednesday) | 16:00 (Wednesday)	08:00 (Thursday) | 16:00 (Thursday)	08:00 (Friday) | 16:00 (Friday)	08:00 (Saturday) | 16:00 (Saturday)	08:00 (Sunday) | 16:00 (Sunday)
⋮	⋮	⋮	⋮	⋮	⋮
104	08:00 (Friday) | 16:00 (Friday)	08:00 (Saturday) | 16:00 (Saturday)	08:00 (Sunday) | 16:00 (Sunday)	08:00 (Monday) | 16:00 (Monday)	08:00 (Tuesday) | 16:00 (Tuesday)
⋮	⋮	⋮	⋮	⋮	⋮
167	23:00 (Sunday) | 07:00 (Monday)	23:00 (Monday) | 07:00 (Tuesday)	23:00 (Tuesday) | 07:00 (Wednesday)	23:00 (Wednesday) | 07:00 (Thursday)	23:00 (Thursday) | 07:00 (Friday)

In the example illustrated in Figure 5, it was assumed that the time of the ten SAR tasks would not change while the parametric time T_0 for the RP30 schedule varied. This assumption is unrealistic because the tasking decision at a JRCC is affected by the readiness of a SRU. (Response posture is only one of the factors in the decision process.) It was observed that the SAR squadrons are tasked more frequently when they are on RP30. As a result, changing the response posture schedules will alter the occurrence of the air SAR tasks. This study did not take the tasking decision process into account because such an investigation requires an understanding of the decision process and the response posture of the other SRUs. Hence, the assumption was made with an understanding of CJOC SAR.

3.2 Summer task gain between 2008 and 2015

The 920-day period considered in Table 6 spans between 2008 and 2015. The total number of air SAR tasks triggered by either CAT 1 or CAT 2 incidents was counted for each fleet. The table summarized the counts by fleet for each year but it could be tabulated differently. Table 12 shows the counts of the Cormorant fleet of 442 SQN for each 40-hour time block. For example, there were 28 tasks assigned to the Cormorant fleet between 00:00 and 08:00 (local time of the CFB Comox) on Thursday to Monday during the 920-day period. Similarly, the SAR aircraft was tasked 101 times during the legacy RP30 schedule period (the yellow cell in the table.) As a result, the task gain of a weekly 8-hour × 5-day schedule that starts on Thursday at 00:00 (T_0 = 72 hr) equals to -73 (28 - 101).

Table 12 shows the number of tasks during the 168 40-hour periods for the Cormorant fleet in 442 SQN. If all counts in the table are subtracted by 101, the result will be a table of task gain with respect to the legacy RP30 schedule. Table 13 is an example for 442 SQN. Since the task gain always compared with the task counts at 08:00–16:00 on Monday to Friday, the value of this period in the table is always zero. Table 13 to Table 18 show the task gain distribution of the five SAR squadrons and the Halifax SRR. In these tables, some values are negative and some are positive. The negative ones indicate that the corresponding RP30 schedules yield fewer tasks than using the legacy RP30 schedule. As a result, the table cells with negative task gain have red background while the positive ones are in green. The table cells with zero task gain are always in grey. The maximum task gain values in each table are in yellow for convenience. In this report, the schedules that yield the maximum task gain are the optimal RP30 schedules with respect to the historical SAR tasks between 2008 and 2015. Although they were derived using historical data, they have the best chance to yield the most tasks in the 5 × 8-hour weekly period in the future.

Recall that Table 9 summarizes the 2015 trial results; it shows the task gain of using the proposed RP30 schedules given in Table 2. Consider 103 SQN as an example. It gained four tasks in the 115-day trial using the trial schedule (11:30–19:30, Friday to Tuesday) with respect to the legacy one. In Table 16, the task gain of using the same trial schedule is between zero and five (four to be exact) during the 920-day period. It is not eight times more than the task gain over the 115-day period! This is counterintuitive but it actually happens to all squadrons. The reason is that the task gain fluctuates from year to year. Table 19 shows the task gain of using the 2015 trial schedule on the air SAR tasks triggered by CAT 1 and 2 incidents in the years between 2008 and 2015. There were about 200 tasks for all squadrons each summer and 103 SQN received 25 (2013) to 39 (2012) tasks. The 115-day task gain varies randomly from -7 to 4 between 2008 and 2015 due to the random nature of the incidents. The multi-year task gain charts in Table 13 to Table 18 are statistically more reliable than the single year result given in Table 9 that summarized the trial results of only one year.

Table 12: Number of CAT 1 and 2 tasks in 8-hour × 5-day periods between 2008 and 2015 for the 442 SQN's CH-149.

Time Period	Thursday to Monday	Friday to Tuesday	Saturday to Wednesday	Sunday to Thursday	Monday to Friday	Tuesday to Saturday	Wednesday to Sunday
00:00 - 08:00	28	27	29	28	25	25	28
01:00 - 09:00	31	31	33	29	25	26	30
02:00 - 10:00	35	35	37	35	31	32	35
03:00 - 11:00	50	47	44	44	43	42	45
04:00 - 12:00	63	61	60	64	61	59	62
05:00 - 13:00	76	70	67	72	70	74	76
06:00 - 14:00	96	94	86	89	84	84	92
07:00 - 15:00	106	106	97	94	92	93	102
08:00 - 16:00	121	119	110	104	101	107	118
09:00 - 17:00	126	125	119	116	111	116	122
10:00 - 18:00	130	133	132	124	117	123	126
11:00 - 19:00	122	128	131	122	111	116	120
12:00 - 20:00	114	120	120	107	97	101	106
13:00 - 21:00	114	122	126	112	99	100	107
14:00 - 22:00	107	111	122	107	93	101	104
15:00 - 23:00	112	111	123	113	94	101	106
16:00 - 24:00	102	105	111	102	88	90	92
17:00 - 01:00	93	94	97	90	79	81	86
18:00 - 02:00	85	80	80	78	66	68	78
19:00 - 03:00	79	74	73	70	61	65	73
20:00 - 04:00	74	68	68	63	57	65	70
21:00 - 05:00	62	58	54	49	45	51	56
22:00 - 06:00	48	45	38	37	38	40	44
23:00 - 07:00	33	34	28	24	29	31	31

Table 13: Anticipated task gain distribution of using the 168 standard schedules for 442 SQN.

Time Period	Thursday to Monday	Friday to Tuesday	Saturday to Wednesday	Sunday to Thursday	Monday to Friday	Tuesday to Saturday	Wednesday to Sunday
00:00 - 08:00	-115	-120	-114	-115	-122	-122	-115
01:00 - 09:00	-113	-115	-109	-113	-121	-122	-115
02:00 - 10:00	-107	-107	-101	-106	-113	-112	-107
03:00 - 11:00	-81	-86	-87	-89	-92	-95	-88
04:00 - 12:00	-62	-67	-65	-59	-63	-69	-63
05:00 - 13:00	-44	-54	-55	-47	-53	-51	-44
06:00 - 14:00	-14	-18	-27	-23	-27	-29	-20
07:00 - 15:00	1	-4	-15	-16	-14	-15	-5
08:00 - 16:00	16	14	1	-4	0	1	9
09:00 - 17:00	24	23	14	11	14	14	17
10:00 - 18:00	29	30	28	21	19	21	24
11:00 - 19:00	12	19	22	14	6	9	10
12:00 - 20:00	1	9	6	-9	-15	-14	-11
13:00 - 21:00	-1	11	10	-6	-10	-14	-13
14:00 - 22:00	-12	-8	2	-15	-24	-18	-18
15:00 - 23:00	-7	-9	2	-9	-24	-18	-18
16:00 - 24:00	-20	-22	-17	-27	-38	-32	-32
17:00 - 01:00	-32	-37	-36	-44	-51	-43	-40
18:00 - 02:00	-45	-55	-56	-58	-66	-60	-53
19:00 - 03:00	-53	-63	-66	-69	-72	-65	-60
20:00 - 04:00	-61	-71	-73	-78	-79	-66	-65
21:00 - 05:00	-76	-84	-89	-94	-95	-84	-81
22:00 - 06:00	-96	-101	-110	-110	-107	-101	-98
23:00 - 07:00	-115	-112	-120	-127	-120	-114	-115

Table 14: Anticipated task gain distribution of using the 168 standard schedules for 435 SQN.

Time Period	Thursday to Monday	Friday to Tuesday	Saturday to Wednesday	Sunday to Thursday	Monday to Friday	Tuesday to Saturday	Wednesday to Sunday
00:00 - 08:00	-10	-9	-11	-12	-14	-10	-9
01:00 - 09:00	-14	-13	-16	-17	-15	-12	-13
02:00 - 10:00	-14	-14	-16	-16	-15	-15	-15
03:00 - 11:00	-10	-10	-13	-14	-14	-15	-14
04:00 - 12:00	-6	-6	-10	-11	-11	-11	-10
05:00 - 13:00	-3	-3	-8	-8	-6	-6	-6
06:00 - 14:00	-3	-3	-8	-8	-4	-4	-5
07:00 - 15:00	1	0	-6	-7	-2	0	-1
08:00 - 16:00	6	4	-3	-4	0	3	4
09:00 - 17:00	5	4	-2	-3	0	3	3
10:00 - 18:00	12	9	2	-1	3	10	10
11:00 - 19:00	8	7	0	-3	4	11	8
12:00 - 20:00	5	4	-2	-5	1	7	5
13:00 - 21:00	6	8	2	-2	0	5	6
14:00 - 22:00	10	9	3	1	2	7	8
15:00 - 23:00	8	6	0	0	1	1	4
16:00 - 24:00	6	3	-1	1	3	1	2
17:00 - 01:00	11	7	3	2	5	5	7
18:00 - 02:00	5	2	-2	0	3	0	2
19:00 - 03:00	4	0	-2	0	1	0	2
20:00 - 04:00	3	-1	-3	-1	1	0	1
21:00 - 05:00	-2	-8	-9	-7	-2	-3	-4
22:00 - 06:00	-6	-10	-10	-10	-6	-6	-7
23:00 - 07:00	-6	-10	-10	-10	-6	-6	-7

Table 15: Anticipated task gain distribution of using the 168 standard schedules for 424 SQN.

Time Period	Thursday to Monday	Friday to Tuesday	Saturday to Wednesday	Sunday to Thursday	Monday to Friday	Tuesday to Saturday	Wednesday to Sunday
00:00 - 08:00	-48	-48	-53	-55	-63	-72	-58
01:00 - 09:00	-56	-54	-58	-62	-69	-74	-64
02:00 - 10:00	-66	-60	-65	-69	-74	-78	-70
03:00 - 11:00	-57	-54	-64	-63	-69	-75	-65
04:00 - 12:00	-50	-52	-66	-65	-68	-69	-57
05:00 - 13:00	-31	-32	-48	-47	-49	-52	-38
06:00 - 14:00	-8	-8	-25	-32	-35	-32	-17
07:00 - 15:00	3	5	-11	-21	-24	-19	-5
08:00 - 16:00	28	32	10	-1	0	5	19
09:00 - 17:00	35	43	23	12	10	15	25
10:00 - 18:00	47	53	38	24	18	32	41
11:00 - 19:00	42	57	51	28	20	40	40
12:00 - 20:00	49	65	59	34	29	52	50
13:00 - 21:00	41	54	55	28	21	47	42
14:00 - 22:00	25	38	35	17	17	38	28
15:00 - 23:00	27	34	33	19	20	39	31
16:00 - 24:00	9	16	18	4	2	19	10
17:00 - 01:00	9	10	9	-4	-4	16	12
18:00 - 02:00	5	2	1	-9	-10	6	8
19:00 - 03:00	1	-8	-15	-17	-15	-4	1
20:00 - 04:00	-11	-17	-20	-23	-29	-23	-14
21:00 - 05:00	-22	-27	-35	-36	-41	-33	-23
22:00 - 06:00	-29	-35	-37	-42	-53	-43	-28
23:00 - 07:00	-40	-45	-50	-56	-66	-57	-43

Table 16: Anticipated task gain distribution of using the 168 standard schedules for 103 SQN.

Time Period	Thursday to Monday	Friday to Tuesday	Saturday to Wednesday	Sunday to Thursday	Monday to Friday	Tuesday to Saturday	Wednesday to Sunday
00:00 - 08:00	-37	-40	-41	-46	-49	-39	-39
01:00 - 09:00	-36	-38	-41	-44	-44	-36	-37
02:00 - 10:00	-45	-48	-50	-50	-48	-42	-43
03:00 - 11:00	-45	-46	-47	-47	-44	-39	-43
04:00 - 12:00	-37	-40	-40	-39	-36	-33	-36
05:00 - 13:00	-25	-31	-28	-21	-18	-16	-22
06:00 - 14:00	-17	-17	-12	-7	-3	3	-13
07:00 - 15:00	-12	-11	-8	-6	-5	1	-10
08:00 - 16:00	-8	-6	-1	1	0	3	-5
09:00 - 17:00	-6	-6	3	6	0	3	-1
10:00 - 18:00	-1	1	12	10	3	9	5
11:00 - 19:00	1	0	9	7	-1	6	7
12:00 - 20:00	6	5	13	12	1	12	15
13:00 - 21:00	6	8	14	4	-10	7	15
14:00 - 22:00	1	-2	3	-5	-17	-5	9
15:00 - 23:00	0	0	4	-2	-9	-1	7
16:00 - 24:00	-4	-3	-4	-10	-12	-1	3
17:00 - 01:00	-6	-5	-10	-17	-16	-5	-2
18:00 - 02:00	-3	-4	-11	-16	-13	-4	0
19:00 - 03:00	-5	-6	-12	-16	-11	-4	-2
20:00 - 04:00	-19	-17	-23	-30	-20	-15	-17
21:00 - 05:00	-31	-30	-36	-39	-27	-27	-31
22:00 - 06:00	-32	-34	-42	-46	-35	-34	-33
23:00 - 07:00	-38	-40	-46	-50	-39	-37	-36

Table 17: Anticipated task gain distribution of using the 168 standard schedules for 413 SQN.

Time Period	Thursday to Monday	Friday to Tuesday	Saturday to Wednesday	Sunday to Thursday	Monday to Friday	Tuesday to Saturday	Wednesday to Sunday
00:00 - 08:00	-76	-66	-65	-75	-78	-69	-74
01:00 - 09:00	-71	-64	-64	-74	-80	-71	-69
02:00 - 10:00	-61	-61	-67	-74	-70	-59	-61
03:00 - 11:00	-57	-56	-63	-63	-60	-54	-55
04:00 - 12:00	-47	-45	-49	-50	-48	-44	-45
05:00 - 13:00	-26	-21	-27	-29	-28	-27	-30
06:00 - 14:00	-20	-13	-20	-18	-19	-20	-23
07:00 - 15:00	-5	-2	-7	3	2	-7	-7
08:00 - 16:00	5	6	8	8	0	-2	7
09:00 - 17:00	16	21	29	30	18	20	23
10:00 - 18:00	16	26	37	33	16	17	22
11:00 - 19:00	17	25	35	27	11	13	19
12:00 - 20:00	18	26	33	30	14	17	19
13:00 - 21:00	22	24	25	25	14	17	25
14:00 - 22:00	25	23	25	24	12	11	22
15:00 - 23:00	13	15	17	11	0	4	12
16:00 - 24:00	5	7	-1	-1	-2	-2	1
17:00 - 01:00	-8	-13	-22	-21	-20	-26	-18
18:00 - 02:00	-16	-18	-27	-30	-28	-31	-28
19:00 - 03:00	-20	-22	-35	-35	-28	-34	-29
20:00 - 04:00	-30	-34	-48	-52	-42	-47	-40
21:00 - 05:00	-55	-55	-61	-70	-62	-63	-62
22:00 - 06:00	-62	-60	-71	-78	-67	-66	-69
23:00 - 07:00	-64	-64	-81	-86	-71	-72	-75

Table 18: Anticipated task gain distribution of using the 168 standard schedules for Halifax SRR.

Time Period	Thursday to Monday	Friday to Tuesday	Saturday to Wednesday	Sunday to Thursday	Monday to Friday	Tuesday to Saturday	Wednesday to Sunday
00:00 - 08:00	-113	-106	-106	-121	-127	-108	-113
01:00 - 09:00	-107	-102	-105	-118	-124	-107	-106
02:00 - 10:00	-106	-109	-117	-124	-118	-101	-104
03:00 - 11:00	-102	-102	-110	-110	-104	-93	-98
04:00 - 12:00	-84	-85	-89	-89	-84	-77	-81
05:00 - 13:00	-51	-52	-55	-50	-46	-43	-52
06:00 - 14:00	-37	-30	-32	-25	-22	-17	-36
07:00 - 15:00	-17	-13	-15	-3	-3	-6	-17
08:00 - 16:00	-3	0	7	9	0	1	2
09:00 - 17:00	10	15	32	36	18	23	22
10:00 - 18:00	15	27	49	43	19	26	27
11:00 - 19:00	18	25	44	34	10	19	26
12:00 - 20:00	24	31	46	42	15	29	34
13:00 - 21:00	28	32	39	29	4	24	40
14:00 - 22:00	26	21	28	19	-5	6	31
15:00 - 23:00	13	15	21	9	-9	3	19
16:00 - 24:00	1	4	-5	-11	-14	-3	4
17:00 - 01:00	-14	-18	-32	-38	-36	-31	-20
18:00 - 02:00	-19	-22	-38	-46	-41	-35	-28
19:00 - 03:00	-25	-28	-47	-51	-39	-38	-31
20:00 - 04:00	-49	-51	-71	-82	-62	-62	-57
21:00 - 05:00	-86	-85	-97	-109	-89	-90	-93
22:00 - 06:00	-94	-94	-113	-124	-102	-100	-102
23:00 - 07:00	-102	-104	-127	-136	-110	-109	-111

Table 19: Anticipated task gain distribution by year for 103 SQN using the 2015 trial schedule.

103 SQN CH-149							
Proposed Schedule: 11:30 - 19:30, Friday/Saturday/Sunday/Monday/Tuesday							
Year	Number of Days	Number of Tasks in All SRRs	Number of Tasks in the SQN	Proposed Schedule is Better Than Legacy Schedule	Proposed Schedule is the Same as Legacy Schedule	Legacy Schedule is Better Than Proposed Schedule	Task Gain
2008	115	228	33	4	23	6	-2
2009	115	214	34	7	24	3	4
2010	115	213	34	9	18	7	2
2011	115	189	29	7	15	7	0
2012	115	221	39	8	24	7	1
2013	115	224	25	6	15	4	2
2014	115	231	31	4	16	11	-7
2015	115	220	35	8	23	4	4

The 2015 trial RP30 schedule for 103 SQN used in Table 19 does not belong to the group in Table 16, which lists the 8-hour × 5-day schedules beginning at the start of a hour. Table 20 shows the annual task gain using another 8-hour × 5-day schedule that begins at 12:30 p.m. Task gain fluctuation is also clear in this example.

Table 20: Anticipated task gain distribution by year for 103 SQN using a RP30 schedule from 12:30 to 20:30, Wednesday through Sunday.

103 SQN CH-149							
Proposed Schedule: 12:30 - 20:30, Wednesday/Thursday/Friday/Saturday/Sunday							
Year	Number of Days	Number of Tasks in All SRRs	Number of Tasks in the SQN	Proposed Schedule is Better Than Legacy Schedule	Proposed Schedule is the Same as Legacy Schedule	Legacy Schedule is Better Than Proposed Schedule	Task Gain
2008	115	228	33	5	19	9	-4
2009	115	214	34	12	16	6	6
2010	115	213	34	9	21	4	5
2011	115	189	29	11	11	7	4
2012	115	221	39	12	22	5	7
2013	115	224	25	7	12	6	1
2014	115	231	31	5	16	10	-5
2015	115	220	35	13	12	10	3

The maximum task gain values in Table 13 to Table 18 are in yellow. These values indicate the schedules that yield the most tasks for the squadron and the Halifax SRR. The optimal schedules are summarized in Table 21.

Table 21: Anticipated optimal RP30 schedules based on the 920-day sample period.

SQN/SRR	Optimal RP30 Schedule	RP30 Coverage Percentage (by task)	
		Optimal Schedule	**Legacy Schedule**
442 SQN	10:00–18:00, Friday/Saturday/Sunday/Monday/Tuesday	39.3%	33.2%
435 SQN	10:00–18:00, Thursday/Friday/Saturday/Sunday/Monday	38.9%	26.3%
424 SQN	12:00–20:00, Friday/Saturday/Sunday/Monday/Tuesday	41.0%	26.2%
103 SQN[‡]	12:00–20:00, Wednesday/Thursday/Friday/Saturday/Sunday 13:00–21:00, Wednesday/Thursday/Friday/Saturday/Sunday	35.8%	30.0%
413 SQN	10:00–18:00, Saturday/Sunday/Monday/Tuesday/Wednesday	37.0%	28.7%
Halifax SRR	10:00–18:00, Saturday/Sunday/Monday/Tuesday/Wednesday	36.1%	29.2%

[‡] The optimal RP30 schedules in Table 16 are 12:00–20:00 and 13:00–21:00 from Wednesday to Sunday with a task gain of 15 (35.8% RP30 coverage percentage). However, if the period 12:30–20:30 is allowed, Table 20 shows that the 920-day period anticipates a higher task gain of 17 (36.5% RP30 coverage percentage).

3.3 Sensitivity analysis

The current study tries to find a set of optimal RP30 schedules that allow the squadrons to be tasked as many times as possible during the 30-minute standby hours. Historical data between 2008 and 2015 were used to predict the optimal RP30 schedules, which could be used in the future. It is reasonable to expect that the future tasking occurrence will not be the same as the historical occurrence but also expect that the deviation will not be large. In this section, the tasking occurrence deviation will be modelled in three ways using two incident characteristics. A good RP30 schedule not only aligns with a large number of air tasks but also provides positive task gain under different tasking conditions.

3.3.1 Incident classification

The current study focused on the CAT 1 and 2 incidents, which are important incidents by definition [6]. In fact, the SAR Mission Management System (SMMS) database provides two classification fields for determining an incident's category. This study, similar to the last two summer posture trial analyses, used the final classification to identify the important incidents because it is more accurate to characterize an incident than the maximum classification. However, the final classification is not always certain at the time of tasking a squadron.

Since the data quality of incident classification is good in the database, it is useful in examining the RP30 coverage percentage of the air SAR tasks triggered by CAT 1 to 3 incidents. If using the optimal RP30 schedules in Table 21 on the three categories does not degrade the overall response with respect to using the legacy schedule, the optimal schedules are insensitive to slight changes in incident classification. Similarly, the tasking occurrence deviation can be modelled by replacing the final classification by the maximum classification of each incident. If the optimal RP30 schedules are also insensitive to using the maximum classification of the CAT 1 and 2 incidents, they are likely insensitive to future incident fluctuation.

3.3.2 Simulated tasks using CAT 1 and 2 incidents

The analyses of the trials in 2013 and 2014 used CAT 1 and 2 incidents to determine the optimal RP30 schedules. The method relied on the knowledge of SRR in order to decide which squadron would be tasked.

In this study, the SMMS database provides the incident alert time and incident SRR as input to a simulation; an algorithm was developed to randomly select a squadron and its aircraft based on a historical account of tasking probability. The probability, as shown in Table 22, is simply the percentage of tasks for each aircraft in the 3,588 known air tasks between 2008 and 2015. In this way, all CAT 1 and 2 incidents with known SRR in the database[7] could be used in the simulations. In addition, the simulation could utilize realistic time (alerted time) and generate a wide variety of task cases. (In fact, the time between alerted time and tasked time was also modelled in the simulation using the SMMS data.) Over 1,300,000 incidents were simulated in this work.

Table 22: Tasking probability of each SAR aircraft type for CAT 1 and 2 incidents between 2008 and 2015 (2,866 days).

SRR	Aircraft	Number of Real Tasks	Tasking Percentage
Victoria	442 SQN CH-149	708	19.7%
	442 SQN CC-115	325	9.1%
Trenton	435 SQN CC-130	201	5.6%
	424 SQN CC-130	331	9.2%
	424 SQN CH-146	460	12.8%
Halifax	103 SQN CH-149	603	16.8%
	413 SQN CC-130	439	12.2%
	413 SQN CH-149	521	14.5%
	Total	3,588	100.0%

3.3.3 Results of the sensitivity analysis

Figure 6 to Figure 11 show the results of the sensitivity analysis of the five squadrons and the Halifax SRR. Each figure contains four tables of RP30 coverage percentage. The upper left tables in the six figures show the percentages using the real tasks of the CAT 1 and 2 incidents in the eight summers. They are similar to those tables in Table 13 to Table 18 (values are presented in RP30 coverage percentage instead of task gain). These tables act as references for convenient comparison. The upper right tables are generated using the tasks of CAT 1 to 3 incidents; the lower left tables capture the RP30 coverage percentages of the tasks from the incidents with the maximum incident classification of CAT 1 and 2. Finally, the lower right tables show the results of the simulated tasks of the CAT 1 and 2 incidents.

[7] The data availability of the field *Alerted Time* in the database is 100%. Hence, the data field *Incident SRR* is the only limiting factor in the simulations.

In Figure 6 to Figure 11, the highest percentages in the upper left tables (in yellow font) are found in the cells corresponded to the optimal RP30 schedules depicted in Table 21. As before, the green-grey-red colour code is used to identify positive, neutral and negative RP30 coverage percentage with respect to using the legacy RP30 schedule in each table. For example, 10:00–18:00 from Friday to Tuesday is the optimal RP30 schedule for 442 SQN; this is highlighted in the upper left table of Figure 6 by the largest RP30 coverage percentage (39.3% in yellow.) The diagram shows that the same schedule (the boxed cell of the 11th row, the second column of each coloured matrix) yields 38.2%, 39.9% and 34.8% of RP30 coverage in the upper right, lower left and lower right tables, respectively. In other words, the optimal schedule for 442 SQN yields 34.8% of RP30 coverage of the simulated tasks of CAT 1 and 2 incidents in the eight summer periods. It is important to note that 34.8% is not the highest percentage in the lower right table of Figure 6 but the corresponding cell (the boxed cell) is in the green region. Although the schedule 10:00–18:00 from Friday to Tuesday does not give the most RP30 coverage in the case of using the simulated tasks, it still outperforms the legacy schedule that yields 26.1% RP30 coverage in the lower right table. The optimal schedule produces better results than the legacy schedule even when the SAR tasks deviate from those triggered by the real CAT 1 and 2 incidents. The optimal schedule is insensitive to some deviation in task occurrence. In Figure 6 to Figure 11, the optimal schedules always reside in the green area in all tables; they are insensitive to deviation in tasking occurrence.

Real CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 442 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	9.9%	8.9%	10.1%	9.9%	8.5%	8.5%	9.9%
01:00 - 09:00	10.3%	9.9%	11.1%	10.3%	8.7%	8.5%	9.9%
02:00 - 10:00	11.5%	11.5%	12.8%	11.7%	10.3%	10.5%	11.5%
03:00 - 11:00	16.8%	15.8%	15.6%	15.2%	14.6%	14.0%	15.4%
04:00 - 12:00	20.6%	19.6%	20.0%	21.3%	20.4%	19.2%	20.4%
05:00 - 13:00	24.3%	22.3%	22.1%	23.7%	22.5%	22.9%	24.3%
06:00 - 14:00	30.4%	29.6%	27.7%	28.5%	27.7%	27.3%	29.1%
07:00 - 15:00	33.4%	32.4%	30.2%	30.0%	30.4%	30.2%	32.2%
08:00 - 16:00	36.4%	36.0%	33.4%	32.4%	33.2%	33.4%	35.0%
09:00 - 17:00	38.1%	37.9%	36.0%	35.4%	36.0%	36.0%	36.6%
10:00 - 18:00	39.1%	39.3%	38.9%	37.4%	37.0%	37.4%	38.1%
11:00 - 19:00	35.6%	37.0%	37.7%	36.0%	34.4%	35.0%	35.2%
12:00 - 20:00	33.4%	35.0%	34.4%	31.4%	30.2%	30.4%	31.0%
13:00 - 21:00	33.0%	35.4%	35.2%	32.0%	31.2%	30.4%	30.6%
14:00 - 22:00	30.8%	31.6%	33.6%	30.2%	28.3%	29.6%	29.6%
15:00 - 23:00	31.8%	31.4%	33.6%	31.4%	28.3%	29.6%	29.6%
16:00 - 24:00	29.1%	28.7%	29.8%	27.7%	25.5%	26.7%	26.7%
17:00 - 01:00	26.7%	25.7%	25.9%	24.3%	22.9%	24.5%	25.1%
18:00 - 02:00	24.1%	22.1%	21.9%	21.5%	19.8%	21.1%	22.5%
19:00 - 03:00	22.5%	20.4%	19.8%	19.2%	18.6%	20.0%	21.1%
20:00 - 04:00	20.9%	18.8%	18.4%	17.4%	17.2%	19.8%	20.0%
21:00 - 05:00	17.8%	16.2%	15.2%	14.2%	14.0%	16.2%	16.8%
22:00 - 06:00	13.8%	12.8%	10.9%	10.9%	11.5%	12.8%	13.4%
23:00 - 07:00	9.9%	10.5%	8.9%	7.5%	8.9%	10.1%	9.9%

Real CAT 1-3 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 442 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	9.7%	8.5%	10.2%	10.2%	9.0%	8.9%	9.9%
01:00 - 09:00	9.9%	9.7%	11.4%	10.4%	9.0%	8.9%	9.7%
02:00 - 10:00	11.4%	11.6%	12.6%	11.3%	10.4%	10.8%	11.3%
03:00 - 11:00	16.0%	15.2%	15.2%	14.5%	14.5%	14.3%	15.2%
04:00 - 12:00	20.0%	19.1%	19.3%	20.0%	20.1%	19.1%	19.8%
05:00 - 13:00	22.7%	21.5%	21.3%	22.7%	22.5%	22.5%	22.9%
06:00 - 14:00	28.8%	28.8%	27.3%	28.0%	28.0%	27.0%	27.5%
07:00 - 15:00	31.9%	31.7%	30.0%	29.9%	30.9%	29.9%	30.7%
08:00 - 16:00	34.6%	35.0%	33.3%	32.4%	33.4%	32.9%	33.8%
09:00 - 17:00	37.4%	37.2%	35.8%	36.0%	36.5%	35.3%	36.0%
10:00 - 18:00	38.2%	38.2%	38.2%	38.1%	37.2%	36.0%	36.9%
11:00 - 19:00	35.3%	36.2%	37.2%	37.0%	35.0%	34.0%	34.5%
12:00 - 20:00	33.3%	34.3%	34.3%	32.9%	31.1%	30.0%	31.1%
13:00 - 21:00	33.4%	34.5%	34.8%	33.4%	31.6%	29.7%	31.2%
14:00 - 22:00	31.1%	30.4%	32.6%	31.4%	28.8%	28.8%	30.2%
15:00 - 23:00	31.7%	30.2%	32.4%	32.4%	28.8%	28.8%	29.7%
16:00 - 24:00	29.7%	28.3%	29.5%	29.4%	26.6%	27.0%	27.5%
17:00 - 01:00	26.1%	24.9%	25.9%	25.6%	23.9%	24.9%	25.3%
18:00 - 02:00	23.4%	22.0%	22.7%	23.2%	21.5%	22.4%	22.7%
19:00 - 03:00	22.0%	20.8%	20.8%	20.8%	19.8%	20.6%	21.0%
20:00 - 04:00	20.1%	18.9%	19.5%	19.1%	18.3%	20.1%	19.6%
21:00 - 05:00	17.4%	16.7%	16.2%	15.7%	15.5%	17.1%	16.6%
22:00 - 06:00	13.5%	13.5%	12.3%	12.3%	12.8%	13.7%	13.3%
23:00 - 07:00	9.9%	11.1%	10.1%	8.7%	9.7%	10.9%	10.4%

Real (Maximum) CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 442 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	8.2%	7.3%	8.6%	8.5%	7.4%	7.3%	8.2%
01:00 - 09:00	8.5%	8.3%	9.4%	8.7%	7.7%	7.5%	8.2%
02:00 - 10:00	10.4%	10.7%	11.5%	10.6%	9.9%	10.0%	10.1%
03:00 - 11:00	15.0%	14.2%	14.0%	14.2%	14.0%	14.0%	14.5%
04:00 - 12:00	19.2%	19.2%	18.6%	19.4%	20.0%	19.6%	19.2%
05:00 - 13:00	22.7%	22.7%	21.7%	22.6%	23.0%	23.0%	22.6%
06:00 - 14:00	28.8%	29.9%	27.7%	28.3%	28.8%	27.7%	27.5%
07:00 - 15:00	32.0%	33.1%	31.0%	31.0%	32.3%	31.1%	31.1%
08:00 - 16:00	35.4%	36.8%	35.0%	34.9%	36.7%	35.0%	34.5%
09:00 - 17:00	38.5%	38.9%	37.4%	38.1%	39.5%	37.7%	37.1%
10:00 - 18:00	39.4%	39.9%	38.8%	38.8%	39.4%	38.1%	38.2%
11:00 - 19:00	36.8%	38.5%	38.5%	37.7%	37.6%	36.3%	36.0%
12:00 - 20:00	35.0%	35.5%	35.1%	34.2%	33.7%	32.5%	33.3%
13:00 - 21:00	33.9%	34.4%	34.2%	33.6%	33.3%	31.9%	32.6%
14:00 - 22:00	31.0%	30.2%	31.7%	31.4%	31.0%	31.0%	31.1%
15:00 - 23:00	31.0%	29.3%	30.8%	31.4%	29.9%	30.0%	30.1%
16:00 - 24:00	28.9%	27.6%	28.3%	28.7%	27.3%	27.7%	27.9%
17:00 - 01:00	25.1%	24.5%	25.1%	25.0%	24.3%	25.2%	25.1%
18:00 - 02:00	22.0%	21.2%	21.8%	22.7%	22.0%	22.4%	22.0%
19:00 - 03:00	20.2%	19.4%	19.4%	20.1%	19.6%	20.0%	19.9%
20:00 - 04:00	17.9%	17.5%	18.1%	18.2%	17.6%	18.5%	17.9%
21:00 - 05:00	15.4%	15.2%	15.6%	15.5%	15.1%	15.7%	15.2%
22:00 - 06:00	12.1%	12.3%	11.8%	11.8%	11.8%	12.0%	12.1%
23:00 - 07:00	9.0%	10.1%	9.8%	8.8%	9.0%	9.6%	9.6%

Simulated Tasks based on Actual Incidents

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 442 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	11.0%	10.8%	10.9%	10.5%	9.6%	9.9%	10.8%
01:00 - 09:00	11.0%	10.6%	10.7%	10.1%	9.2%	9.5%	10.5%
02:00 - 10:00	11.9%	11.5%	11.5%	10.8%	9.8%	10.0%	11.2%
03:00 - 11:00	14.0%	13.6%	13.3%	12.5%	11.5%	11.7%	13.0%
04:00 - 12:00	16.4%	15.8%	15.3%	14.6%	13.6%	14.0%	15.5%
05:00 - 13:00	19.5%	19.0%	18.2%	17.2%	16.3%	17.1%	18.9%
06:00 - 14:00	23.0%	22.6%	21.8%	20.6%	19.5%	20.3%	22.3%
07:00 - 15:00	27.0%	26.7%	25.6%	24.1%	23.0%	24.0%	26.1%
08:00 - 16:00	30.8%	30.4%	29.2%	27.6%	26.1%	27.6%	30.0%
09:00 - 17:00	33.3%	32.6%	31.9%	30.1%	28.4%	30.0%	32.7%
10:00 - 18:00	35.4%	34.8%	34.2%	32.2%	30.3%	32.2%	34.7%
11:00 - 19:00	36.2%	35.9%	35.6%	33.2%	31.1%	33.3%	35.8%
12:00 - 20:00	37.0%	36.7%	36.3%	33.5%	31.2%	33.5%	36.2%
13:00 - 21:00	37.4%	37.1%	36.6%	33.7%	31.4%	33.5%	36.2%
14:00 - 22:00	37.5%	37.0%	36.5%	33.5%	31.5%	33.8%	36.4%
15:00 - 23:00	36.2%	35.5%	35.2%	32.5%	30.4%	33.0%	35.4%
16:00 - 24:00	34.1%	33.7%	33.2%	30.4%	28.9%	31.4%	33.3%
17:00 - 01:00	31.7%	31.5%	30.8%	28.1%	27.0%	29.4%	30.9%
18:00 - 02:00	28.5%	28.3%	27.7%	25.4%	24.6%	26.7%	28.1%
19:00 - 03:00	25.7%	25.0%	24.5%	22.6%	22.1%	24.1%	25.4%
20:00 - 04:00	22.5%	22.2%	21.8%	20.0%	19.8%	21.6%	22.5%
21:00 - 05:00	19.0%	18.8%	18.5%	16.9%	17.0%	18.7%	19.0%
22:00 - 06:00	15.4%	15.2%	14.7%	13.6%	14.0%	15.3%	15.4%
23:00 - 07:00	12.5%	12.6%	12.0%	11.0%	11.5%	12.6%	12.7%

Figure 6: Results of the sensitivity analysis for 442 SQN.

Real CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 435 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	15.8%	16.8%	14.7%	13.7%	11.6%	15.8%	16.8%
01:00 - 09:00	11.6%	12.6%	9.5%	8.4%	10.5%	13.7%	12.6%
02:00 - 10:00	11.6%	11.6%	9.5%	9.5%	10.5%	10.5%	10.5%
03:00 - 11:00	15.8%	15.8%	12.6%	11.6%	11.6%	10.5%	11.6%
04:00 - 12:00	20.0%	20.0%	15.8%	14.7%	14.7%	14.7%	15.8%
05:00 - 13:00	23.2%	23.2%	17.9%	17.9%	20.0%	20.0%	20.0%
06:00 - 14:00	23.2%	23.2%	17.9%	17.9%	22.1%	22.1%	21.1%
07:00 - 15:00	27.4%	26.3%	20.0%	18.9%	24.2%	26.3%	25.3%
08:00 - 16:00	32.6%	30.5%	23.2%	22.1%	26.3%	29.5%	30.5%
09:00 - 17:00	31.6%	30.5%	24.2%	23.2%	26.3%	29.5%	29.5%
10:00 - 18:00	38.9%	35.8%	28.4%	25.3%	29.5%	36.8%	36.8%
11:00 - 19:00	34.7%	33.7%	26.3%	23.2%	30.5%	37.9%	34.7%
12:00 - 20:00	31.6%	30.5%	24.2%	21.1%	27.4%	33.7%	31.6%
13:00 - 21:00	32.6%	34.7%	28.4%	24.2%	26.3%	31.6%	32.6%
14:00 - 22:00	36.8%	35.8%	29.5%	27.4%	28.4%	33.7%	34.7%
15:00 - 23:00	34.7%	32.6%	26.3%	26.3%	27.4%	27.4%	30.5%
16:00 - 24:00	32.6%	29.5%	25.3%	27.4%	29.5%	27.4%	28.4%
17:00 - 01:00	37.9%	33.7%	29.5%	28.4%	31.6%	31.6%	33.7%
18:00 - 02:00	31.6%	28.4%	24.2%	26.3%	29.5%	26.3%	28.4%
19:00 - 03:00	30.5%	26.3%	24.2%	26.3%	27.4%	26.3%	28.4%
20:00 - 04:00	29.5%	25.3%	23.2%	25.3%	27.4%	26.3%	27.4%
21:00 - 05:00	24.2%	17.9%	16.8%	18.9%	24.2%	23.2%	22.1%
22:00 - 06:00	20.0%	15.8%	15.8%	15.8%	20.0%	20.0%	18.9%
23:00 - 07:00	20.0%	15.8%	15.8%	15.8%	20.0%	20.0%	18.9%

Real CAT 1-3 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 435 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	18.3%	19.8%	19.8%	19.0%	15.9%	16.7%	17.5%
01:00 - 09:00	12.7%	14.3%	13.5%	12.7%	13.5%	15.1%	13.5%
02:00 - 10:00	10.3%	11.1%	11.1%	11.9%	12.7%	11.9%	10.3%
03:00 - 11:00	13.5%	14.3%	13.5%	13.5%	13.5%	11.9%	11.1%
04:00 - 12:00	19.0%	20.6%	19.8%	18.3%	16.7%	15.9%	16.7%
05:00 - 13:00	21.4%	23.0%	21.4%	20.6%	20.6%	19.8%	19.8%
06:00 - 14:00	23.8%	23.0%	19.8%	19.0%	21.4%	21.4%	22.2%
07:00 - 15:00	28.6%	26.2%	22.2%	20.6%	23.8%	26.2%	27.0%
08:00 - 16:00	31.7%	28.6%	23.8%	22.2%	24.6%	28.6%	31.0%
09:00 - 17:00	31.0%	28.6%	24.6%	23.0%	24.6%	28.6%	30.2%
10:00 - 18:00	37.3%	33.3%	28.6%	25.4%	27.8%	34.1%	35.7%
11:00 - 19:00	34.1%	31.7%	27.0%	23.8%	28.6%	34.9%	34.1%
12:00 - 20:00	29.4%	27.0%	22.2%	19.0%	24.6%	31.0%	29.4%
13:00 - 21:00	30.2%	31.7%	27.0%	23.0%	25.4%	31.0%	30.2%
14:00 - 22:00	31.7%	31.7%	27.8%	26.2%	27.0%	31.7%	30.2%
15:00 - 23:00	28.6%	28.6%	23.8%	23.8%	24.6%	24.6%	24.6%
16:00 - 24:00	27.8%	27.8%	23.8%	25.4%	27.8%	26.2%	23.8%
17:00 - 01:00	34.1%	33.3%	29.4%	27.8%	29.4%	30.2%	30.2%
18:00 - 02:00	31.0%	31.0%	26.2%	26.2%	27.8%	27.8%	28.6%
19:00 - 03:00	30.2%	29.4%	26.2%	26.2%	26.2%	27.8%	28.6%
20:00 - 04:00	28.6%	27.8%	25.4%	26.2%	27.0%	27.8%	27.8%
21:00 - 05:00	24.6%	20.6%	19.0%	19.8%	23.0%	23.8%	23.8%
22:00 - 06:00	22.2%	20.6%	19.8%	18.3%	20.6%	20.6%	20.6%
23:00 - 07:00	22.2%	21.4%	20.6%	19.0%	21.4%	21.4%	20.6%

Real (Maximum) CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 435 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	12.4%	13.3%	13.3%	12.4%	10.3%	10.7%	11.2%
01:00 - 09:00	9.0%	10.7%	10.3%	9.0%	9.0%	9.9%	8.6%
02:00 - 10:00	9.4%	10.3%	10.7%	9.4%	9.0%	9.0%	8.6%
03:00 - 11:00	12.9%	13.7%	13.7%	12.0%	11.6%	11.2%	10.7%
04:00 - 12:00	18.5%	19.7%	18.9%	17.2%	17.2%	15.9%	15.0%
05:00 - 13:00	23.2%	23.6%	21.5%	21.9%	24.0%	21.0%	19.3%
06:00 - 14:00	26.6%	24.5%	21.5%	23.2%	27.0%	24.0%	22.7%
07:00 - 15:00	28.8%	27.0%	23.6%	24.9%	30.0%	28.8%	25.8%
08:00 - 16:00	32.6%	30.5%	26.2%	26.6%	33.0%	33.9%	31.8%
09:00 - 17:00	36.1%	33.9%	30.0%	30.9%	35.6%	35.2%	34.3%
10:00 - 18:00	41.2%	37.8%	32.2%	33.5%	39.1%	39.1%	39.1%
11:00 - 19:00	39.1%	36.1%	30.9%	32.2%	38.6%	38.6%	37.8%
12:00 - 20:00	35.6%	33.0%	27.9%	27.5%	34.3%	36.1%	35.2%
13:00 - 21:00	33.0%	33.9%	29.6%	27.0%	31.3%	34.3%	33.9%
14:00 - 22:00	33.5%	35.2%	32.2%	29.6%	32.6%	36.5%	34.3%
15:00 - 23:00	32.2%	32.2%	28.8%	27.0%	29.6%	31.3%	31.3%
16:00 - 24:00	30.0%	30.0%	27.5%	27.5%	29.2%	29.2%	28.3%
17:00 - 01:00	29.6%	29.2%	27.0%	24.9%	27.5%	30.0%	29.2%
18:00 - 02:00	24.9%	25.3%	23.6%	22.3%	24.5%	26.2%	24.9%
19:00 - 03:00	23.2%	23.6%	21.9%	21.0%	22.7%	24.9%	23.6%
20:00 - 04:00	20.6%	20.6%	20.2%	20.2%	21.5%	23.2%	21.9%
21:00 - 05:00	18.0%	15.9%	15.5%	15.9%	18.5%	19.7%	18.9%
22:00 - 06:00	15.0%	13.7%	12.9%	12.0%	14.2%	14.2%	14.6%
23:00 - 07:00	15.0%	14.6%	13.7%	12.4%	14.2%	14.2%	14.6%

Simulated Tasks based on Actual Incidents

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 435 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	7.6%	7.5%	6.9%	6.3%	5.4%	5.7%	7.0%
01:00 - 09:00	7.6%	7.6%	6.8%	6.0%	5.1%	5.3%	6.8%
02:00 - 10:00	8.6%	8.6%	7.9%	6.8%	5.6%	6.1%	7.8%
03:00 - 11:00	11.0%	10.8%	10.2%	8.8%	7.3%	8.0%	10.1%
04:00 - 12:00	14.7%	14.5%	13.6%	11.8%	9.7%	10.4%	13.4%
05:00 - 13:00	18.8%	18.5%	17.0%	14.6%	12.1%	13.5%	17.4%
06:00 - 14:00	24.4%	24.6%	22.7%	18.9%	15.9%	18.2%	22.8%
07:00 - 15:00	30.9%	31.0%	29.2%	24.8%	20.0%	23.0%	29.1%
08:00 - 16:00	37.0%	37.1%	35.5%	30.0%	23.6%	27.8%	35.2%
09:00 - 17:00	41.8%	42.3%	40.9%	34.1%	27.1%	32.4%	40.3%
10:00 - 18:00	46.3%	46.7%	45.1%	37.5%	30.1%	36.3%	44.7%
11:00 - 19:00	48.9%	49.4%	47.9%	39.6%	31.8%	38.8%	47.7%
12:00 - 20:00	49.1%	49.6%	48.5%	39.8%	32.3%	39.5%	48.1%
13:00 - 21:00	48.5%	49.2%	48.5%	40.0%	32.7%	39.7%	47.7%
14:00 - 22:00	45.9%	46.0%	45.5%	37.9%	30.9%	37.8%	45.4%
15:00 - 23:00	41.2%	41.4%	40.6%	33.5%	28.2%	34.7%	41.0%
16:00 - 24:00	35.7%	36.0%	35.2%	28.9%	25.1%	30.8%	35.8%
17:00 - 01:00	30.8%	30.7%	30.1%	24.8%	21.9%	26.7%	30.9%
18:00 - 02:00	25.4%	25.1%	24.7%	20.5%	18.3%	22.2%	25.6%
19:00 - 03:00	20.3%	19.9%	19.6%	16.6%	15.0%	18.0%	20.5%
20:00 - 04:00	16.5%	15.9%	15.3%	13.1%	12.2%	15.0%	16.8%
21:00 - 05:00	13.0%	12.4%	11.7%	10.1%	9.5%	11.8%	13.3%
22:00 - 06:00	9.9%	9.4%	9.1%	7.9%	7.5%	9.2%	10.2%
23:00 - 07:00	8.1%	7.6%	7.3%	6.2%	6.3%	7.6%	8.3%

Figure 7: Results of the sensitivity analysis for 435 SQN.

Real CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 424 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	15.4%	15.4%	14.3%	13.8%	12.0%	10.0%	13.1%
01:00 - 09:00	13.6%	14.0%	13.1%	12.2%	10.6%	9.5%	11.8%
02:00 - 10:00	11.3%	12.7%	11.5%	10.6%	9.5%	8.6%	10.4%
03:00 - 11:00	13.3%	14.0%	11.8%	12.0%	10.6%	9.3%	11.5%
04:00 - 12:00	14.9%	14.5%	11.3%	11.5%	10.9%	10.6%	13.3%
05:00 - 13:00	19.2%	19.0%	15.4%	15.6%	15.2%	14.5%	17.6%
06:00 - 14:00	24.4%	24.4%	20.6%	19.0%	18.3%	19.0%	22.4%
07:00 - 15:00	26.9%	27.4%	23.8%	21.5%	20.8%	21.9%	25.1%
08:00 - 16:00	32.6%	33.5%	28.5%	26.0%	26.2%	27.4%	30.5%
09:00 - 17:00	34.2%	36.0%	31.4%	29.0%	28.5%	29.6%	31.9%
10:00 - 18:00	36.9%	38.2%	34.8%	31.7%	30.3%	33.5%	35.5%
11:00 - 19:00	35.7%	39.1%	37.8%	32.6%	30.8%	35.3%	35.3%
12:00 - 20:00	37.3%	41.0%	39.6%	33.9%	32.8%	38.0%	37.6%
13:00 - 21:00	35.5%	38.5%	38.7%	32.6%	31.0%	36.9%	35.7%
14:00 - 22:00	31.9%	34.8%	34.2%	30.1%	30.1%	34.8%	32.6%
15:00 - 23:00	32.4%	33.9%	33.7%	30.5%	30.8%	35.1%	33.3%
16:00 - 24:00	28.3%	29.9%	30.3%	27.1%	26.7%	30.5%	28.5%
17:00 - 01:00	28.3%	28.5%	28.3%	25.3%	25.3%	29.9%	29.0%
18:00 - 02:00	27.4%	26.7%	26.5%	24.2%	24.0%	27.6%	28.1%
19:00 - 03:00	26.5%	24.4%	22.9%	22.4%	22.9%	25.3%	26.5%
20:00 - 04:00	23.8%	22.4%	21.7%	21.0%	19.7%	21.0%	23.1%
21:00 - 05:00	21.3%	20.1%	18.3%	18.1%	17.0%	18.8%	21.0%
22:00 - 06:00	19.7%	18.3%	17.9%	16.7%	14.3%	16.5%	19.9%
23:00 - 07:00	17.2%	16.1%	14.9%	13.6%	11.3%	13.3%	16.5%

Real CAT 1-3 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 424 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	14.6%	15.3%	14.4%	13.7%	11.8%	10.0%	12.5%
01:00 - 09:00	12.6%	13.0%	12.5%	11.6%	9.6%	8.8%	10.9%
02:00 - 10:00	10.7%	11.9%	11.1%	10.0%	8.6%	7.7%	9.3%
03:00 - 11:00	12.8%	13.9%	11.6%	11.6%	10.2%	8.9%	10.9%
04:00 - 12:00	13.3%	13.3%	10.5%	10.7%	10.2%	9.8%	11.9%
05:00 - 13:00	17.2%	17.0%	13.9%	14.2%	13.7%	13.3%	16.0%
06:00 - 14:00	22.1%	21.9%	18.6%	17.9%	17.0%	17.4%	20.2%
07:00 - 15:00	24.7%	24.7%	21.9%	21.1%	20.4%	20.9%	23.3%
08:00 - 16:00	30.5%	30.7%	26.8%	25.3%	25.1%	26.0%	28.6%
09:00 - 17:00	32.3%	33.3%	30.0%	28.2%	27.7%	28.4%	30.5%
10:00 - 18:00	35.1%	35.8%	33.2%	30.9%	29.6%	31.9%	34.2%
11:00 - 19:00	34.0%	36.1%	35.8%	31.9%	29.6%	32.8%	33.9%
12:00 - 20:00	36.5%	38.4%	37.7%	33.7%	31.9%	36.0%	36.7%
13:00 - 21:00	36.0%	37.7%	38.2%	33.3%	31.6%	36.1%	36.1%
14:00 - 22:00	33.7%	36.0%	35.6%	31.6%	31.6%	35.3%	34.0%
15:00 - 23:00	34.7%	36.1%	35.6%	32.1%	32.1%	35.8%	34.7%
16:00 - 24:00	30.5%	32.1%	32.1%	29.3%	28.9%	31.8%	30.2%
17:00 - 01:00	31.1%	31.4%	30.7%	28.2%	27.9%	31.1%	30.2%
18:00 - 02:00	29.6%	29.5%	29.1%	27.0%	26.5%	29.3%	28.9%
19:00 - 03:00	28.6%	27.2%	25.3%	24.7%	25.4%	27.4%	27.4%
20:00 - 04:00	26.1%	25.6%	24.4%	23.2%	22.5%	23.3%	24.2%
21:00 - 05:00	22.8%	22.5%	20.4%	19.6%	18.9%	20.2%	21.2%
22:00 - 06:00	20.2%	19.3%	18.4%	17.4%	15.3%	17.2%	19.5%
23:00 - 07:00	16.8%	16.1%	14.9%	13.5%	11.6%	13.2%	15.6%

Real (Maximum) CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 424 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	12.1%	12.6%	12.4%	11.6%	9.4%	8.3%	10.6%
01:00 - 09:00	10.9%	11.2%	11.2%	10.3%	8.8%	8.0%	9.6%
02:00 - 10:00	10.1%	11.2%	11.2%	10.0%	8.4%	7.6%	9.0%
03:00 - 11:00	13.0%	13.8%	13.0%	12.6%	11.3%	10.5%	11.8%
04:00 - 12:00	14.1%	14.0%	12.5%	12.4%	12.3%	12.2%	13.5%
05:00 - 13:00	18.1%	18.1%	16.3%	16.0%	15.5%	15.6%	17.4%
06:00 - 14:00	22.7%	22.3%	20.4%	20.1%	19.8%	20.2%	22.0%
07:00 - 15:00	25.8%	25.0%	23.3%	23.3%	23.6%	23.6%	25.4%
08:00 - 16:00	31.1%	30.2%	27.8%	27.1%	27.9%	28.6%	30.8%
09:00 - 17:00	34.5%	33.4%	30.8%	30.0%	30.8%	32.4%	34.6%
10:00 - 18:00	36.5%	34.9%	32.7%	31.6%	32.1%	34.7%	37.0%
11:00 - 19:00	36.3%	35.3%	34.8%	32.4%	32.0%	35.1%	37.1%
12:00 - 20:00	37.5%	36.8%	36.2%	33.4%	32.7%	36.3%	38.1%
13:00 - 21:00	36.4%	35.4%	35.8%	32.5%	32.4%	36.5%	38.0%
14:00 - 22:00	34.9%	34.5%	34.4%	31.2%	31.6%	35.2%	36.2%
15:00 - 23:00	35.7%	35.5%	35.0%	31.4%	31.3%	35.6%	36.5%
16:00 - 24:00	31.9%	32.5%	32.4%	29.3%	28.8%	32.0%	32.1%
17:00 - 01:00	29.9%	30.6%	30.4%	27.0%	26.2%	29.3%	29.6%
18:00 - 02:00	28.2%	28.9%	28.8%	25.8%	24.9%	27.8%	28.1%
19:00 - 03:00	25.6%	25.9%	24.5%	22.4%	22.4%	24.7%	25.0%
20:00 - 04:00	23.6%	24.4%	23.3%	21.0%	20.4%	22.0%	22.8%
21:00 - 05:00	20.8%	21.5%	19.6%	18.1%	17.3%	18.7%	19.5%
22:00 - 06:00	17.7%	18.2%	16.9%	14.9%	13.7%	15.7%	16.9%
23:00 - 07:00	14.1%	14.6%	13.3%	11.2%	10.2%	12.0%	13.1%

Simulated Tasks based on Actual Incidents

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 424 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	8.0%	8.0%	7.7%	7.3%	6.2%	5.9%	7.3%
01:00 - 09:00	7.2%	7.3%	6.8%	6.3%	5.2%	5.2%	6.7%
02:00 - 10:00	7.2%	7.3%	6.8%	6.1%	5.0%	5.2%	6.6%
03:00 - 11:00	8.3%	8.4%	8.0%	7.1%	5.5%	6.2%	7.9%
04:00 - 12:00	10.8%	10.7%	10.3%	9.0%	7.2%	8.0%	10.1%
05:00 - 13:00	14.3%	14.4%	13.8%	12.1%	9.6%	10.2%	13.2%
06:00 - 14:00	18.8%	18.9%	17.8%	15.3%	12.4%	13.9%	17.7%
07:00 - 15:00	24.3%	24.7%	23.4%	19.6%	16.0%	18.6%	23.1%
08:00 - 16:00	30.4%	30.7%	29.7%	24.9%	20.1%	23.7%	29.3%
09:00 - 17:00	36.5%	36.9%	36.1%	30.0%	23.7%	28.5%	35.2%
10:00 - 18:00	42.0%	42.4%	41.5%	34.2%	27.4%	33.2%	40.7%
11:00 - 19:00	46.6%	46.9%	45.8%	37.5%	30.2%	36.7%	45.0%
12:00 - 20:00	49.2%	49.7%	48.4%	39.5%	32.2%	39.5%	48.0%
13:00 - 21:00	49.7%	50.0%	49.1%	40.0%	32.8%	40.5%	48.7%
14:00 - 22:00	48.7%	49.0%	48.2%	39.5%	32.6%	39.7%	47.6%
15:00 - 23:00	45.9%	45.8%	44.9%	37.3%	31.1%	37.6%	45.0%
16:00 - 24:00	41.6%	41.6%	40.4%	33.4%	28.5%	34.5%	40.7%
17:00 - 01:00	36.2%	36.3%	34.9%	29.1%	25.6%	30.5%	35.6%
18:00 - 02:00	30.7%	30.6%	29.6%	24.8%	21.9%	26.3%	30.4%
19:00 - 03:00	25.1%	24.9%	24.1%	20.6%	18.5%	21.9%	24.9%
20:00 - 04:00	20.0%	19.8%	19.1%	16.4%	14.9%	17.5%	19.8%
21:00 - 05:00	16.1%	15.7%	14.8%	12.8%	12.0%	14.3%	16.0%
22:00 - 06:00	12.5%	12.2%	11.5%	10.1%	9.5%	11.4%	12.7%
23:00 - 07:00	9.8%	9.6%	9.2%	7.9%	7.4%	8.9%	9.9%

Figure 8: Results of the sensitivity analysis for 424 SQN.

Real CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 103 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	15.8%	14.6%	14.2%	12.3%	11.2%	15.0%	15.0%
01:00 - 09:00	16.2%	15.4%	14.2%	13.1%	13.1%	16.2%	15.8%
02:00 - 10:00	12.7%	11.5%	10.8%	10.8%	11.5%	13.8%	13.5%
03:00 - 11:00	12.7%	12.3%	11.9%	11.9%	13.1%	15.0%	13.5%
04:00 - 12:00	15.8%	14.6%	14.6%	15.0%	16.2%	17.3%	16.2%
05:00 - 13:00	20.4%	18.1%	19.2%	21.9%	23.1%	23.8%	21.5%
06:00 - 14:00	23.5%	23.5%	25.4%	27.3%	28.8%	31.2%	25.0%
07:00 - 15:00	25.4%	25.8%	26.9%	27.7%	28.1%	30.4%	26.2%
08:00 - 16:00	26.9%	27.7%	29.6%	30.4%	30.0%	31.2%	28.1%
09:00 - 17:00	27.7%	27.7%	31.2%	32.3%	30.0%	31.2%	29.6%
10:00 - 18:00	29.6%	30.4%	34.6%	33.8%	31.2%	33.5%	31.9%
11:00 - 19:00	30.4%	30.0%	33.5%	32.7%	29.6%	32.3%	32.7%
12:00 - 20:00	32.3%	31.9%	35.0%	34.6%	30.4%	34.6%	35.8%
13:00 - 21:00	32.3%	33.1%	35.4%	31.5%	26.2%	32.7%	35.8%
14:00 - 22:00	30.4%	29.2%	31.2%	28.1%	23.5%	28.1%	33.5%
15:00 - 23:00	30.0%	30.0%	31.5%	29.2%	26.5%	29.6%	32.7%
16:00 - 24:00	28.5%	28.8%	28.5%	26.2%	25.4%	29.6%	31.2%
17:00 - 01:00	27.7%	28.1%	26.2%	23.5%	23.8%	28.1%	29.2%
18:00 - 02:00	28.8%	28.5%	25.8%	23.8%	25.0%	28.5%	30.0%
19:00 - 03:00	28.1%	27.7%	25.4%	23.8%	25.8%	28.5%	29.2%
20:00 - 04:00	22.7%	23.5%	21.2%	18.5%	22.3%	24.2%	23.5%
21:00 - 05:00	18.1%	18.5%	16.2%	15.0%	19.6%	19.6%	18.1%
22:00 - 06:00	17.7%	16.9%	13.8%	12.3%	16.5%	16.9%	17.3%
23:00 - 07:00	15.4%	14.6%	12.3%	10.8%	15.0%	15.8%	16.2%

Real CAT 1-3 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 103 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	15.9%	15.6%	14.9%	13.1%	12.1%	14.5%	14.2%
01:00 - 09:00	16.3%	16.3%	14.9%	13.8%	13.8%	15.6%	14.9%
02:00 - 10:00	13.5%	12.8%	12.1%	12.5%	13.1%	14.2%	13.5%
03:00 - 11:00	13.5%	13.8%	13.8%	14.2%	15.2%	15.9%	13.8%
04:00 - 12:00	17.0%	16.3%	16.6%	17.0%	17.6%	18.0%	17.0%
05:00 - 13:00	21.1%	19.4%	20.8%	22.8%	23.9%	24.2%	21.8%
06:00 - 14:00	23.5%	23.9%	26.0%	27.3%	28.7%	30.8%	24.9%
07:00 - 15:00	26.0%	26.3%	27.3%	28.0%	28.7%	30.8%	26.6%
08:00 - 16:00	26.6%	27.0%	29.1%	29.8%	29.4%	30.8%	28.0%
09:00 - 17:00	28.0%	28.0%	31.5%	32.9%	30.4%	31.8%	30.1%
10:00 - 18:00	29.8%	30.4%	34.3%	33.9%	31.1%	33.6%	31.8%
11:00 - 19:00	30.8%	30.1%	32.9%	32.5%	29.4%	31.8%	32.2%
12:00 - 20:00	32.2%	31.5%	34.3%	34.6%	30.8%	33.9%	34.6%
13:00 - 21:00	31.8%	31.8%	33.9%	31.8%	27.0%	32.2%	34.6%
14:00 - 22:00	30.4%	28.4%	30.1%	29.1%	24.9%	28.4%	32.9%
15:00 - 23:00	30.1%	29.1%	30.8%	30.1%	27.3%	29.8%	32.2%
16:00 - 24:00	28.7%	28.0%	28.0%	27.3%	26.3%	29.8%	30.8%
17:00 - 01:00	27.3%	26.3%	24.9%	23.5%	23.9%	27.3%	28.4%
18:00 - 02:00	28.0%	26.6%	24.6%	23.5%	24.6%	27.3%	28.7%
19:00 - 03:00	27.0%	25.6%	23.9%	23.2%	24.9%	27.3%	28.0%
20:00 - 04:00	22.1%	21.8%	19.7%	18.0%	21.5%	23.2%	22.5%
21:00 - 05:00	18.3%	18.0%	15.9%	14.9%	18.7%	19.0%	18.0%
22:00 - 06:00	18.0%	17.0%	14.2%	12.5%	15.6%	16.3%	17.3%
23:00 - 07:00	15.2%	14.5%	12.5%	10.7%	13.8%	14.5%	15.6%

Real (Maximum) CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 103 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	15.4%	14.8%	14.0%	13.1%	12.0%	14.5%	14.5%
01:00 - 09:00	14.8%	14.8%	14.0%	13.4%	13.1%	15.1%	14.5%
02:00 - 10:00	12.0%	11.7%	11.4%	12.0%	12.3%	13.7%	12.5%
03:00 - 11:00	11.7%	12.3%	12.8%	13.4%	13.7%	14.8%	12.5%
04:00 - 12:00	15.1%	14.5%	15.4%	16.0%	16.0%	17.1%	15.7%
05:00 - 13:00	19.4%	17.1%	18.5%	20.8%	21.7%	23.1%	20.5%
06:00 - 14:00	22.8%	22.5%	25.1%	26.8%	27.6%	29.9%	24.8%
07:00 - 15:00	25.6%	25.4%	27.1%	28.2%	28.5%	30.5%	27.1%
08:00 - 16:00	27.1%	26.2%	28.2%	29.9%	29.6%	31.1%	28.8%
09:00 - 17:00	29.1%	27.1%	29.6%	32.5%	30.8%	32.2%	31.1%
10:00 - 18:00	31.3%	29.9%	33.0%	33.9%	31.6%	33.6%	33.0%
11:00 - 19:00	33.0%	30.5%	32.5%	33.3%	31.1%	32.5%	33.6%
12:00 - 20:00	34.8%	32.8%	34.5%	35.6%	32.8%	34.5%	35.9%
13:00 - 21:00	33.3%	32.5%	33.9%	32.8%	28.8%	31.9%	34.8%
14:00 - 22:00	31.3%	29.3%	29.9%	29.3%	26.2%	28.2%	32.2%
15:00 - 23:00	31.1%	29.9%	29.9%	29.6%	28.2%	29.3%	31.3%
16:00 - 24:00	29.9%	29.3%	27.9%	27.1%	27.1%	29.3%	30.2%
17:00 - 01:00	28.8%	28.2%	26.2%	24.2%	25.1%	27.4%	28.2%
18:00 - 02:00	28.8%	27.6%	25.4%	23.9%	25.6%	27.9%	28.8%
19:00 - 03:00	27.1%	26.2%	24.5%	23.1%	25.4%	27.9%	28.2%
20:00 - 04:00	21.9%	21.7%	19.9%	17.9%	21.7%	23.6%	22.8%
21:00 - 05:00	19.4%	19.1%	17.4%	15.7%	19.7%	20.5%	19.4%
22:00 - 06:00	18.5%	16.8%	14.2%	12.5%	16.5%	17.4%	17.9%
23:00 - 07:00	15.4%	14.0%	12.5%	10.8%	14.2%	15.4%	16.0%

Simulated Tasks based on Actual Incidents

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 103 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	11.3%	11.5%	11.9%	10.9%	9.9%	11.2%	11.3%
01:00 - 09:00	11.7%	11.9%	12.2%	11.3%	10.4%	11.6%	11.8%
02:00 - 10:00	11.8%	11.6%	11.2%	10.4%	10.3%	11.9%	11.7%
03:00 - 11:00	12.6%	12.8%	11.7%	11.0%	11.4%	13.0%	12.5%
04:00 - 12:00	14.9%	15.1%	14.2%	13.2%	13.5%	15.6%	15.0%
05:00 - 13:00	17.8%	18.1%	17.3%	16.1%	16.1%	18.2%	17.7%
06:00 - 14:00	21.2%	21.8%	21.0%	19.6%	19.1%	21.3%	20.9%
07:00 - 15:00	24.1%	24.5%	23.5%	22.2%	21.2%	23.0%	23.2%
08:00 - 16:00	27.2%	27.5%	26.6%	25.1%	23.7%	25.8%	26.7%
09:00 - 17:00	30.9%	31.4%	30.9%	28.6%	25.7%	28.1%	30.6%
10:00 - 18:00	34.8%	36.0%	36.1%	33.0%	28.9%	31.6%	34.6%
11:00 - 19:00	38.0%	38.6%	38.8%	35.3%	30.5%	33.4%	37.5%
12:00 - 20:00	39.9%	40.3%	40.3%	36.9%	31.3%	34.0%	38.8%
13:00 - 21:00	40.9%	40.8%	41.0%	37.5%	31.5%	34.9%	40.5%
14:00 - 22:00	40.5%	39.9%	40.0%	36.3%	31.0%	34.3%	40.1%
15:00 - 23:00	39.6%	38.9%	38.9%	34.6%	30.1%	34.1%	39.7%
16:00 - 24:00	37.3%	36.7%	35.9%	32.2%	28.2%	31.8%	37.1%
17:00 - 01:00	33.2%	32.3%	31.2%	28.2%	25.9%	29.1%	32.8%
18:00 - 02:00	29.4%	28.3%	26.9%	24.3%	22.8%	25.8%	28.9%
19:00 - 03:00	25.2%	24.7%	23.3%	21.1%	20.4%	22.9%	25.2%
20:00 - 04:00	21.1%	20.6%	19.2%	17.3%	17.6%	19.8%	21.4%
21:00 - 05:00	17.3%	16.9%	15.4%	14.0%	14.9%	16.2%	17.1%
22:00 - 06:00	14.4%	14.1%	12.7%	11.4%	12.5%	13.6%	14.3%
23:00 - 07:00	12.5%	12.5%	11.2%	10.6%	11.7%	11.8%	12.2%

Figure 9: Results of the sensitivity analysis for 103 SQN.

Real CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 413 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	11.8%	14.0%	14.3%	12.0%	11.4%	13.4%	12.2%
01:00 - 09:00	12.9%	14.5%	14.5%	12.2%	10.9%	12.9%	13.4%
02:00 - 10:00	15.1%	15.1%	13.8%	12.2%	13.1%	15.6%	15.1%
03:00 - 11:00	16.0%	16.3%	14.7%	14.7%	15.4%	16.7%	16.5%
04:00 - 12:00	18.3%	18.7%	17.8%	17.6%	18.0%	18.9%	18.7%
05:00 - 13:00	22.9%	24.1%	22.7%	22.3%	22.5%	22.7%	22.0%
06:00 - 14:00	24.3%	25.8%	24.3%	24.7%	24.5%	24.3%	23.6%
07:00 - 15:00	27.6%	28.3%	27.2%	29.4%	29.2%	27.2%	27.2%
08:00 - 16:00	29.8%	30.1%	30.5%	30.5%	28.7%	28.3%	30.3%
09:00 - 17:00	32.3%	33.4%	35.2%	35.4%	32.7%	33.2%	33.9%
10:00 - 18:00	32.3%	34.5%	37.0%	36.1%	32.3%	32.5%	33.6%
11:00 - 19:00	32.5%	34.3%	36.5%	34.7%	31.2%	31.6%	33.0%
12:00 - 20:00	32.7%	34.5%	36.1%	35.4%	31.8%	32.5%	33.0%
13:00 - 21:00	33.6%	34.1%	34.3%	34.3%	31.8%	32.5%	34.3%
14:00 - 22:00	34.3%	33.9%	34.3%	34.1%	31.4%	31.2%	33.6%
15:00 - 23:00	31.6%	32.1%	32.5%	31.2%	28.7%	29.6%	31.4%
16:00 - 24:00	29.8%	30.3%	28.5%	28.5%	28.3%	28.3%	29.0%
17:00 - 01:00	26.9%	25.8%	23.8%	24.1%	24.3%	22.9%	24.7%
18:00 - 02:00	25.2%	24.7%	22.7%	22.0%	22.5%	21.8%	22.5%
19:00 - 03:00	24.3%	23.8%	20.9%	20.9%	22.5%	21.2%	22.3%
20:00 - 04:00	22.0%	21.2%	18.0%	17.1%	19.4%	18.3%	19.8%
21:00 - 05:00	16.5%	16.5%	15.1%	13.1%	14.9%	14.7%	14.9%
22:00 - 06:00	14.9%	15.4%	12.9%	11.4%	13.8%	14.0%	13.4%
23:00 - 07:00	14.5%	14.5%	10.7%	9.6%	12.9%	12.7%	12.0%

Real CAT 1-3 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 413 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	11.5%	13.4%	14.0%	11.9%	10.9%	12.6%	11.9%
01:00 - 09:00	12.2%	13.8%	14.0%	11.9%	10.3%	11.7%	12.2%
02:00 - 10:00	14.9%	14.7%	13.8%	12.6%	13.0%	14.9%	14.5%
03:00 - 11:00	15.7%	15.5%	14.1%	14.3%	14.7%	15.9%	15.9%
04:00 - 12:00	19.1%	19.1%	17.4%	17.2%	18.2%	18.9%	19.1%
05:00 - 13:00	23.7%	23.9%	21.8%	22.0%	23.3%	22.8%	22.2%
06:00 - 14:00	25.6%	26.2%	23.5%	24.3%	25.6%	24.7%	24.1%
07:00 - 15:00	30.0%	29.6%	27.0%	28.9%	30.2%	28.5%	28.5%
08:00 - 16:00	32.3%	31.7%	30.8%	30.8%	30.8%	30.6%	31.9%
09:00 - 17:00	34.8%	35.2%	35.8%	35.6%	34.6%	35.8%	35.9%
10:00 - 18:00	34.2%	35.9%	37.1%	35.6%	33.7%	34.2%	35.0%
11:00 - 19:00	34.6%	35.8%	36.9%	34.8%	32.9%	33.5%	34.4%
12:00 - 20:00	33.7%	35.0%	36.5%	35.4%	32.5%	33.5%	33.5%
13:00 - 21:00	33.8%	34.4%	34.6%	33.7%	31.4%	32.9%	34.4%
14:00 - 22:00	34.0%	34.0%	34.6%	33.7%	30.8%	31.5%	33.7%
15:00 - 23:00	30.4%	31.4%	32.1%	30.6%	27.9%	28.7%	30.2%
16:00 - 24:00	28.9%	29.4%	27.9%	27.3%	26.6%	27.0%	27.9%
17:00 - 01:00	26.0%	25.2%	23.1%	23.1%	23.1%	22.0%	23.7%
18:00 - 02:00	24.3%	24.1%	22.0%	21.2%	21.4%	21.0%	21.8%
19:00 - 03:00	23.5%	23.5%	20.7%	20.3%	21.2%	20.3%	21.6%
20:00 - 04:00	21.2%	20.7%	17.6%	16.6%	18.4%	17.4%	19.1%
21:00 - 05:00	16.4%	16.6%	15.1%	12.8%	14.5%	14.7%	14.9%
22:00 - 06:00	14.7%	15.1%	12.8%	10.9%	13.2%	13.8%	13.2%
23:00 - 07:00	14.1%	14.3%	10.9%	9.4%	12.4%	12.8%	12.0%

Real (Maximum) CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 413 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	10.5%	11.8%	12.8%	11.3%	10.7%	12.1%	11.0%
01:00 - 09:00	10.6%	11.6%	12.1%	10.6%	9.8%	10.7%	10.7%
02:00 - 10:00	13.5%	12.5%	11.4%	11.4%	12.5%	13.9%	13.2%
03:00 - 11:00	14.8%	13.9%	12.4%	13.3%	14.8%	15.2%	14.8%
04:00 - 12:00	18.1%	17.3%	15.2%	15.6%	17.8%	18.4%	18.0%
05:00 - 13:00	22.3%	21.1%	18.6%	20.1%	22.9%	22.2%	21.1%
06:00 - 14:00	25.3%	24.2%	21.0%	23.1%	26.1%	25.0%	23.9%
07:00 - 15:00	29.3%	27.5%	24.4%	27.2%	29.9%	28.0%	27.6%
08:00 - 16:00	31.6%	29.4%	27.8%	29.5%	31.7%	30.9%	31.4%
09:00 - 17:00	34.4%	33.3%	33.3%	34.7%	35.9%	36.6%	35.9%
10:00 - 18:00	33.6%	34.3%	35.4%	34.8%	35.0%	35.0%	34.8%
11:00 - 19:00	34.1%	34.6%	35.5%	34.3%	34.1%	34.7%	34.8%
12:00 - 20:00	33.9%	34.3%	35.9%	35.6%	34.6%	34.7%	34.6%
13:00 - 21:00	33.6%	33.7%	34.6%	34.1%	33.1%	33.6%	34.7%
14:00 - 22:00	34.0%	34.1%	35.6%	34.8%	32.8%	32.5%	34.1%
15:00 - 23:00	32.1%	32.7%	33.5%	32.5%	31.4%	31.0%	32.0%
16:00 - 24:00	30.3%	31.0%	30.3%	29.4%	29.1%	28.3%	29.0%
17:00 - 01:00	27.8%	27.2%	25.6%	25.2%	25.7%	23.3%	24.9%
18:00 - 02:00	26.1%	25.9%	24.2%	23.4%	23.8%	22.0%	23.3%
19:00 - 03:00	24.5%	24.4%	22.3%	22.0%	22.9%	20.5%	21.9%
20:00 - 04:00	21.6%	21.1%	18.9%	18.4%	19.6%	17.6%	18.9%
21:00 - 05:00	17.7%	18.0%	16.7%	14.8%	16.3%	15.2%	15.5%
22:00 - 06:00	14.6%	14.8%	12.8%	11.4%	13.7%	13.2%	12.7%
23:00 - 07:00	12.5%	13.3%	11.0%	9.7%	12.0%	11.7%	10.7%

Simulated Tasks based on Actual Incidents

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for 413 SQN

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	11.3%	11.8%	12.0%	10.7%	9.9%	11.2%	11.3%
01:00 - 09:00	11.7%	12.0%	11.7%	10.4%	9.9%	11.6%	11.8%
02:00 - 10:00	11.7%	11.9%	10.9%	10.0%	10.3%	11.8%	11.5%
03:00 - 11:00	13.7%	14.4%	13.2%	11.9%	12.6%	14.4%	13.8%
04:00 - 12:00	16.2%	16.8%	15.7%	14.2%	14.7%	16.9%	16.3%
05:00 - 13:00	20.2%	20.7%	19.6%	18.2%	18.3%	20.6%	20.2%
06:00 - 14:00	22.8%	23.4%	22.0%	20.8%	20.3%	22.5%	22.6%
07:00 - 15:00	26.3%	26.5%	25.2%	24.1%	23.4%	25.5%	25.8%
08:00 - 16:00	29.5%	29.4%	28.7%	27.0%	24.9%	27.7%	29.6%
09:00 - 17:00	33.3%	33.5%	33.3%	31.3%	28.1%	30.7%	33.5%
10:00 - 18:00	37.7%	38.0%	38.2%	35.4%	31.0%	34.1%	37.6%
11:00 - 19:00	39.9%	39.7%	39.8%	36.9%	31.6%	34.7%	39.3%
12:00 - 20:00	40.9%	40.8%	40.9%	38.0%	32.3%	35.6%	40.3%
13:00 - 21:00	40.2%	39.6%	40.0%	36.8%	31.4%	34.9%	39.9%
14:00 - 22:00	39.5%	39.2%	39.6%	35.9%	31.0%	34.6%	39.3%
15:00 - 23:00	37.9%	37.8%	37.5%	33.8%	29.5%	33.0%	37.8%
16:00 - 24:00	34.5%	34.5%	33.4%	30.4%	27.5%	30.6%	34.0%
17:00 - 01:00	30.4%	30.4%	28.8%	26.3%	24.5%	27.2%	29.7%
18:00 - 02:00	26.0%	26.1%	24.3%	22.2%	21.6%	23.9%	25.7%
19:00 - 03:00	21.8%	21.9%	20.4%	18.6%	18.9%	20.7%	21.9%
20:00 - 04:00	18.3%	18.2%	16.7%	15.2%	16.2%	17.5%	18.4%
21:00 - 05:00	15.1%	15.3%	13.7%	12.5%	13.4%	14.3%	15.0%
22:00 - 06:00	13.3%	13.2%	11.6%	10.8%	12.0%	12.4%	13.0%
23:00 - 07:00	11.6%	11.7%	10.1%	9.4%	11.0%	11.1%	11.2%

Figure 10: Results of the sensitivity analysis for 413 SQN.

Real CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for Halifax SRR

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	13.3%	14.2%	14.2%	12.1%	11.3%	14.0%	13.3%
01:00 - 09:00	14.1%	14.8%	14.4%	12.6%	11.7%	14.1%	14.2%
02:00 - 10:00	14.2%	13.8%	12.7%	11.7%	12.6%	15.0%	14.5%
03:00 - 11:00	14.8%	14.8%	13.7%	13.7%	14.5%	16.1%	15.4%
04:00 - 12:00	17.3%	17.2%	16.6%	16.6%	17.3%	18.3%	17.8%
05:00 - 13:00	22.0%	21.9%	21.4%	22.1%	22.7%	23.1%	21.9%
06:00 - 14:00	24.0%	25.0%	24.7%	25.7%	26.1%	26.8%	24.1%
07:00 - 15:00	26.8%	27.4%	27.1%	28.8%	28.8%	28.3%	26.8%
08:00 - 16:00	28.8%	29.2%	30.2%	30.5%	29.2%	29.3%	29.5%
09:00 - 17:00	30.6%	31.3%	33.7%	34.3%	31.7%	32.4%	32.3%
10:00 - 18:00	31.3%	33.0%	36.1%	35.3%	31.9%	32.9%	33.0%
11:00 - 19:00	31.7%	32.7%	35.4%	34.0%	30.6%	31.9%	32.9%
12:00 - 20:00	32.6%	33.6%	35.7%	35.1%	31.3%	33.3%	34.0%
13:00 - 21:00	33.1%	33.7%	34.7%	33.3%	29.8%	32.6%	34.8%
14:00 - 22:00	32.9%	32.2%	33.1%	31.9%	28.5%	30.0%	33.6%
15:00 - 23:00	31.0%	31.3%	32.2%	30.5%	27.9%	29.6%	31.9%
16:00 - 24:00	29.3%	29.8%	28.5%	27.6%	27.2%	28.8%	29.8%
17:00 - 01:00	27.2%	26.7%	24.7%	23.8%	24.1%	24.8%	26.4%
18:00 - 02:00	26.5%	26.1%	23.8%	22.7%	23.4%	24.3%	25.2%
19:00 - 03:00	25.7%	25.2%	22.6%	22.0%	23.7%	23.8%	24.8%
20:00 - 04:00	22.3%	22.0%	19.2%	17.6%	20.5%	20.5%	21.2%
21:00 - 05:00	17.1%	17.2%	15.5%	13.8%	16.6%	16.5%	16.1%
22:00 - 06:00	15.9%	15.9%	13.3%	11.7%	14.8%	15.1%	14.8%
23:00 - 07:00	14.8%	14.5%	11.3%	10.0%	13.7%	13.8%	13.5%

Real CAT 1-3 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for Halifax SRR

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	13.1%	14.2%	14.3%	12.3%	11.3%	13.3%	12.7%
01:00 - 09:00	13.7%	14.7%	14.3%	12.6%	11.6%	13.1%	13.2%
02:00 - 10:00	14.4%	14.0%	13.2%	12.6%	13.1%	14.7%	14.2%
03:00 - 11:00	14.9%	14.9%	14.0%	14.3%	14.9%	15.9%	15.1%
04:00 - 12:00	18.3%	18.1%	17.1%	17.1%	18.0%	18.6%	18.3%
05:00 - 13:00	22.8%	22.3%	21.4%	22.3%	23.5%	23.3%	22.0%
06:00 - 14:00	24.9%	25.4%	24.4%	25.4%	26.7%	26.8%	24.4%
07:00 - 15:00	28.6%	28.4%	27.1%	28.6%	29.7%	29.3%	27.8%
08:00 - 16:00	30.3%	30.0%	30.2%	30.4%	30.3%	30.7%	30.5%
09:00 - 17:00	32.4%	32.6%	34.2%	34.6%	33.1%	34.4%	33.9%
10:00 - 18:00	32.6%	34.0%	36.1%	35.0%	32.8%	34.0%	33.9%
11:00 - 19:00	33.3%	33.7%	35.5%	34.0%	31.7%	32.9%	33.6%
12:00 - 20:00	33.1%	33.7%	35.7%	35.1%	31.9%	33.6%	33.9%
13:00 - 21:00	33.1%	33.5%	34.4%	33.0%	29.8%	32.6%	34.5%
14:00 - 22:00	32.8%	32.0%	33.0%	32.0%	28.7%	30.4%	33.4%
15:00 - 23:00	30.3%	30.5%	31.7%	30.4%	27.7%	29.1%	30.9%
16:00 - 24:00	28.8%	28.9%	28.0%	27.3%	26.5%	28.0%	28.9%
17:00 - 01:00	26.5%	25.6%	23.8%	23.3%	23.4%	23.9%	25.4%
18:00 - 02:00	25.6%	25.0%	22.9%	22.0%	22.5%	23.3%	24.3%
19:00 - 03:00	24.8%	24.3%	21.8%	21.3%	22.5%	22.8%	23.9%
20:00 - 04:00	21.6%	21.1%	18.3%	17.1%	19.5%	19.5%	20.3%
21:00 - 05:00	17.1%	17.1%	15.4%	13.5%	16.0%	16.3%	16.0%
22:00 - 06:00	15.9%	15.8%	13.3%	11.5%	14.0%	14.7%	14.7%
23:00 - 07:00	14.5%	14.4%	11.5%	9.9%	12.9%	13.4%	13.3%

Real (Maximum) CAT 1&2 Tasks

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for Halifax SRR

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	12.1%	12.8%	13.2%	11.9%	11.1%	12.9%	12.2%
01:00 - 09:00	12.0%	12.6%	12.7%	11.5%	10.9%	12.2%	12.0%
02:00 - 10:00	13.0%	12.2%	11.4%	11.6%	12.4%	13.8%	13.0%
03:00 - 11:00	13.8%	13.4%	12.5%	13.4%	14.5%	15.1%	14.1%
04:00 - 12:00	17.1%	16.4%	15.3%	15.7%	17.2%	18.0%	17.2%
05:00 - 13:00	21.4%	19.8%	18.6%	20.3%	22.5%	22.5%	20.9%
06:00 - 14:00	24.5%	23.7%	22.3%	24.3%	26.6%	26.6%	24.2%
07:00 - 15:00	28.1%	26.8%	25.2%	27.5%	29.5%	28.8%	27.4%
08:00 - 16:00	30.1%	28.4%	27.9%	29.7%	31.0%	30.9%	30.6%
09:00 - 17:00	32.7%	31.3%	32.1%	34.0%	34.3%	35.2%	34.3%
10:00 - 18:00	32.9%	32.9%	34.6%	34.5%	33.9%	34.5%	34.3%
11:00 - 19:00	33.8%	33.2%	34.5%	34.0%	33.1%	34.0%	34.4%
12:00 - 20:00	34.2%	33.8%	35.5%	35.6%	34.0%	34.6%	35.0%
13:00 - 21:00	33.5%	33.3%	34.3%	33.7%	31.7%	33.1%	34.7%
14:00 - 22:00	33.1%	32.6%	33.8%	33.1%	30.7%	31.1%	33.5%
15:00 - 23:00	31.8%	31.8%	32.3%	31.6%	30.4%	30.5%	31.8%
16:00 - 24:00	30.2%	30.5%	29.6%	28.6%	28.5%	28.6%	29.4%
17:00 - 01:00	28.1%	27.5%	25.8%	24.9%	25.5%	24.6%	26.0%
18:00 - 02:00	27.0%	26.4%	24.6%	23.6%	24.4%	23.9%	25.0%
19:00 - 03:00	25.3%	25.0%	23.0%	22.4%	23.7%	22.9%	23.9%
20:00 - 04:00	21.7%	21.3%	19.2%	18.2%	20.3%	19.5%	20.2%
21:00 - 05:00	18.2%	18.3%	16.9%	15.1%	17.4%	16.9%	16.8%
22:00 - 06:00	15.8%	15.5%	13.3%	11.8%	14.6%	14.5%	14.4%
23:00 - 07:00	13.4%	13.5%	11.5%	10.0%	12.7%	12.9%	12.4%

Simulated Tasks based on Actual Incidents

Coverage Percentage of Tasks during the 8-hr / 5-d Period in the summers of 2008 - 2015 for Halifax SRR

Time Period	Thur to Mon	Fri to Tue	Sat to Wed	Sun to Thur	Mon to Fri	Tue to Sat	Wed to Sun
00:00 - 08:00	11.3%	11.7%	11.9%	10.8%	9.9%	11.2%	11.3%
01:00 - 09:00	11.7%	11.9%	11.9%	10.7%	10.1%	11.6%	11.8%
02:00 - 10:00	11.7%	11.8%	11.0%	10.2%	10.3%	11.8%	11.6%
03:00 - 11:00	13.3%	13.8%	12.6%	11.6%	12.1%	13.8%	13.3%
04:00 - 12:00	15.7%	16.1%	15.1%	13.8%	14.2%	16.4%	15.8%
05:00 - 13:00	19.2%	19.7%	18.7%	17.4%	17.5%	19.7%	19.2%
06:00 - 14:00	22.2%	22.8%	21.6%	20.3%	19.8%	22.1%	21.9%
07:00 - 15:00	25.5%	25.7%	24.5%	23.3%	22.6%	24.5%	24.8%
08:00 - 16:00	28.6%	28.7%	27.9%	26.3%	24.5%	27.0%	28.4%
09:00 - 17:00	32.4%	32.7%	32.4%	30.3%	27.2%	29.7%	32.4%
10:00 - 18:00	36.6%	37.2%	37.4%	34.5%	30.2%	33.1%	36.5%
11:00 - 19:00	39.2%	39.3%	39.4%	36.3%	31.2%	34.2%	38.6%
12:00 - 20:00	40.5%	40.6%	40.7%	37.6%	31.9%	34.9%	39.7%
13:00 - 21:00	40.5%	40.1%	40.4%	37.1%	31.5%	34.9%	40.1%
14:00 - 22:00	39.9%	39.5%	39.8%	36.1%	31.0%	34.5%	39.6%
15:00 - 23:00	38.5%	38.2%	38.0%	34.1%	29.7%	33.5%	38.6%
16:00 - 24:00	35.6%	35.4%	34.4%	31.1%	27.8%	31.1%	35.2%
17:00 - 01:00	31.5%	31.1%	29.7%	27.0%	25.0%	27.9%	30.9%
18:00 - 02:00	27.3%	26.9%	25.3%	23.0%	22.1%	24.6%	26.9%
19:00 - 03:00	23.1%	23.0%	21.5%	19.6%	19.5%	21.6%	23.2%
20:00 - 04:00	19.4%	19.1%	17.6%	16.0%	16.7%	18.4%	19.6%
21:00 - 05:00	16.0%	15.9%	14.3%	13.1%	14.0%	15.0%	15.8%
22:00 - 06:00	13.7%	13.5%	12.0%	11.0%	12.2%	12.8%	13.5%
23:00 - 07:00	12.0%	12.0%	10.5%	9.8%	11.2%	11.4%	11.6%

Figure 11: Results of the sensitivity analysis for the Halifax SRR.

3.4 Comparison with previous studies

Defence Research and Development Canada (DRDC) – Centre for Operational Research and Analysis (CORA) has a long history of analyzing SAR missions. The misalignment of weekly RP30 shifts with incident occurrence was noticed as early as 1987 [5]. Shurson and Fitch concluded that starting RP30 between 10:00 and 14:00, in addition to Saturday and Sunday in the Victoria and Trenton SRRs would improve the air SAR response. They did not see any advantage of introducing RP30 on the weekend in the Halifax SRR though. The optimal RP30 schedules in Table 21 agree with their conclusions except in the Halifax SRR. The disagreement is unlikely to be important because the two analyses were done almost thirty years apart. Table 21 and the sensitivity analysis are more consistent with the recent analyses by Steele (2012) [6], Kaluzny 2014 [8], Vincent and Chan 2015 [9].

Table 23 summarizes the optimal RP30 schedules suggested by the three previous studies and the current one. All optimal schedules, except one in the Halifax SRR by [6], started the daily 30-minute response posture between 10:00 and 14:00. Saturday and Sunday 8-hour shifts were also included. It is important to point out that the RP30 coverage percentages in Table 23 for the current study were obtained using the simulated tasks of all CAT 1 and 2 incidents, which were explained in Subsection 3.3.2. In this way, all RP30 coverage percentages in the table can be reasonably compared with one another. In addition, only [6] covered the whole year while the other three studies focused on the summer periods that were defined differently.

Table 23: Optimal RP30 schedules in other studies.

SQN/SRR	Study	Author	Data Period	Optimal RP30 Schedule	RP30 Coverage Percentage
442 SQN	[6]	Steele	2000–2004	13:00–21:00, Thursday–Monday	38%
	[8]	Kaluzny	2009–2012	10:00–18:00, Friday–Tuesday	40%
	[9]	Vincent & Chan	2008–2014	13:00–21:00, Friday–Tuesday	39%
	Current	Chan	2008–2015	10:00–18:00, Friday–Tuesday	35%
435 SQN	[8]	Kaluzny	2008–2012	11:00–19:00, Friday–Tuesday	49%
	[9]	Vincent & Chan	2008–2014	11:00–19:00, Wednesday–Sunday	50%
	Current	Chan	2008–2015	10:00–18:00, Thursday–Monday	46%
424 SQN	[8]	Kaluzny	2008–2012	12:00–20:00[#]	52%
	[9]	Vincent & Chan	2008–2014	12:00–20:00, Friday–Tuesday	53%
	Current	Chan	2008–2015	12:00–20:00, Friday–Tuesday	50%
Trenton SRR	[6]	Steele	2000–2004	12:00–20:00, Friday–Tuesday	43%
	Current	Chan	2008–2015	12:00–20:00, Friday–Tuesday	50%
Halifax SRR	[6]	Steele	2000–2004	09:00–17:00, Saturday–Wednesday	35%
	[8]	Kaluzny	2010–2012	12:00–20:00, Friday–Tuesday	43%
	[9]	Vincent & Chan	2008–2014	12:00–20:00, Saturday–Wednesday	40%
	Current	Chan	2008–2015	10:00–18:00, Saturday–Wednesday	37%

[#] CC-130 and CH-146 were not using the same RP30 schedule on purpose. The report only showed their combined 8-hour × 7-day RP30 schedules that started at noon daily. As a result, the combined schedules gave 65% coverage.

In Table 23, only 424 SQN and the Trenton SRR have complete agreement between different studies. In the case of 442 SQN, the optimal RP30 schedules suggested by the four studies have a maximum

schedule difference of 24 hours (from 13:00–21:00, Thursday–Monday to 13:00–21:00, Friday–Tuesday). Only the optimal schedules suggested by [8] and the current study lie in the green regions in all tables of Figure 6. That is to say, they could provide better SAR response than the legacy schedule even when incident classification, task occurrence, and incident occurrence change slightly from the historical pattern between 2008 and 2015. On the other hand, the other two optimal schedules suggested by [6] and [9] do not always reside within the green regions in the four tables of Figure 6. However, they still provide some improvement over the legacy RP30 schedule in the incident-based analysis, which was how [6] and [9] were done.

The optimal RP30 schedules for 435 SQN suggested by [8] and [9] are 48 hours apart and the current study puts the optimal schedule about half way in between. However, unlike the case of 442 SQN, all three schedules lie in the green regions of the four tables in Figure 7 and improve the RP30 coverage percentage over the legacy schedule.

Table 23 indicates that the optimal RP30 schedules for the Halifax SRR start as early as 12:00 on Friday ([8]). The other three schedules start between 09:00 and 12:00 on Saturday. The four schedules are as many as 24 hours apart. Nevertheless, they all stay in the green regions of the four tables in Figure 11.

4 Beyond tasking demands

The optimal RP30 schedules were derived by solely considering the air SAR task occurrence. For each squadron, the schedule optimally covers the air tasks over the eight summers in 2008–2015. The formulation of the schedules was driven by the demand of the air SRUs; it completely ignored the "supply side" of the relationship. In Table 21, three out of seven optimal RP30 schedules have the daily shift ended after 18:00; the other four end at 18:00. In the 2013–2015 summer SAR response posture trials, a common complaint from the squadrons is late shift time. For instance, single parents have difficulties in finding daycare service after six o'clock in the evening for five days a week, 14 to 16 weeks in a summer. Another common issue of being on 30-minute standby on weekend is the lower level of support from the base. (For example, finding keys for access to storerooms.) As a result, CJOC SAR suggested exploring other summer schedules in which the daily 8-hour RP30 shifts do not all start at the same time. The new schedules are inhomogeneous in daily start time.

4.1 Inhomogeneous schedules

Given the fact that air SAR RP30 service has previously been provided on weekdays between 08:00 and 16:00 for a full year except summer, it is not a surprise that the new inhomogeneous summer schedules keep the start time on weekdays at 8:00 a.m. as was suggested by CJOC SAR. In this way, the personal life of the squadron members will have the least disruption. However, the RP30 service is not provided on each weekday; one or two days on a weekend will have the RP30 service. On a weekend, the RP30 service starts between 08:00 and 12:00 for eight hours, and end between 16:00 and 20:00. It is important not to start the shift after 12:00; otherwise the crew would end the shift after 8 o'clock at night on Sunday but expect to start another shift at 8 o'clock on Monday morning. Each row in Table 24 represents a way of distributing the five 8-hour shifts in a week. Note that the last shift pattern is exactly the legacy schedule and it will not be considered in this chapter.

Table 24: The patterns of five 8-hour RP30 shifts over one week.

Monday (M)	**Tuesday** (Tu)	**Wednesday** (W)	**Thursday** (Th)	**Friday** (F)	**Saturday** (Sa)	**Sunday** (Su)
Daily shift starts at 08:00					Daily shift starts between 08:00 and 12:00	
	8 hrs	8 hrs	8 hrs	8 hrs	8 hrs	
		8 hrs	8 hrs	8 hrs	8 hrs	8 hrs
8 hrs			8 hrs	8 hrs	8 hrs	8 hrs
8 hrs	8 hrs			8 hrs	8 hrs	8 hrs
8 hrs	8 hrs	8 hrs			8 hrs	8 hrs
8 hrs	8 hrs	8 hrs	8 hrs			8 hrs
8 hrs	8 hrs	8 hrs	8 hrs	8 hrs		

If the weekend shifts start at the beginning of an hour between 8 o'clock and 12 o'clock, Table 24 implies that there are 30 variations in a weekly schedule. These inhomogeneous schedules are depicted in

Table 25 by a 6 × 5 matrix. The six rows in Table 25 (rows in different shade) correspond to the first six rows in Table 24. The five columns in Table 25, which are coloured differently, vary in weekend start time. When each of these inhomogeneous schedules is applied to the historical data, it will capture a fraction of the SAR tasks. If the number of tasks is greater than that of using the legacy schedule, the inhomogeneous schedule shows some improvement. Although the generic inhomogeneous schedules have an extra degree of freedom by having two start times in a week, the set in Table 25 unlikely produces better RP30 service than those in Table 21 because the start time in weekdays is always at 8:00 a.m. In addition to find the best inhomogeneous schedule for each squadron, it is important to compare the performance of using the inhomogeneous schedules to the performance of using the optimal schedules.

Table 25: Thirty different schedules by alternating six sets of shift day and five sets of weekend shift time.

RP30 Day of Week	RP30 Time of Day	RP30 Day of Week	RP30 Time of Day	RP30 Day of Week	RP30 Time of Day	RP30 Day of Week	RP30 Time of Day	RP30 Day of Week	RP30 Time of Day
Tu–F:	08:00–16:00	Tu–F:	08:00–16:00	Tu–F:	08:00–16:00	Tu–F:	08:00–16:00	Tu–F:	08:00–16:00
Sa:	08:00–16:00	Sa:	09:00–17:00	Sa:	10:00–18:00	Sa:	11:00–19:00	Sa:	12:00–20:00
W–F:	08:00–16:00	W–F:	08:00–16:00	W–F:	08:00–16:00	W–F:	08:00–16:00	W–F:	08:00–16:00
Sa–Su:	08:00–16:00	Sa–Su:	09:00–17:00	Sa–Su:	10:00–18:00	Sa–Su:	11:00–19:00	Sa–Su:	12:00–20:00
M, Th–F:	08:00–16:00	M, Th–F:	08:00–16:00	M, Th–F:	08:00–16:00	M, Th–F:	08:00–16:00	M, Th–F:	08:00–16:00
Sa–Su:	08:00–16:00	Sa–Su:	09:00–17:00	Sa–Su:	10:00–18:00	Sa–Su:	11:00–19:00	Sa–Su:	12:00–20:00
M–Tu, F:	08:00–16:00	M–Tu, F:	08:00–16:00	M–Tu, F:	08:00–16:00	M–Tu, F:	08:00–16:00	M–Tu, F:	08:00–16:00
Sa–Su:	08:00–16:00	Sa–Su:	09:00–17:00	Sa–Su:	10:00–18:00	Sa–Su:	11:00–19:00	Sa–Su:	12:00–20:00
M–W:	08:00–16:00	M–W:	08:00–16:00	M–W:	08:00–16:00	M–W:	08:00–16:00	M–W:	08:00–16:00
Sa–Su:	08:00–16:00	Sa–Su:	09:00–17:00	Sa–Su:	10:00–18:00	Sa–Su:	11:00–19:00	Sa–Su:	12:00–20:00
M–Th:	08:00–16:00	M–Th:	08:00–16:00	M–Th:	08:00–16:00	M–Th:	08:00–16:00	M–Th:	08:00–16:00
Su:	08:00–16:00	Su:	09:00–17:00	Su:	10:00–18:00	Su:	11:00–19:00	Su:	12:00–20:00

4.2 Performance of the inhomogeneous schedules

The number of tasks triggered by the CAT 1 and 2 incidents in the summer periods from 2008 until 2015 (115 days × 8 years) was counted. The set of 30 inhomogeneous schedules in Table 25 netted a fraction of these tasks for each squadron and produced the RP30 coverage percentage. The results, along with the RP30 coverage using the legacy and the optimal schedules, are summarized in Table 26. For each squadron and the Halifax SRR, the best inhomogeneous schedule outperforms the legacy schedule but is not as good as the optimal schedule. The best inhomogeneous schedules are particularly effective for 442 SQN, 435 SQN, 424 SQN and 103 SQN. Only 413 SQN (and hence Halifax SRR as a whole) expects the best inhomogeneous schedule's performance to be half way between the performance of the legacy and optimal schedules.

The set of inhomogeneous schedules was also tested on sensitivity similar to the one described in Section 3.3. Figure 12 to Figure 17 show the results. Each figure has four colour matrices that show the performance of the 30 inhomogeneous RP30 schedules on four different datasets. The green-grey-red colour code is used to identify positive, neutral and negative RP30 coverage percentage with respect to using the legacy RP30 schedule in each set of data. The upper left matrix depicts the RP30 coverage percentages of the inhomogeneous schedules using the dataset of the real tasks from the CAT 1 and 2 incidents in the 920-day period. This matrix acts as a status quo while the other three matrices in each figure show the RP30 coverage of different data sample variations (i.e., datasets of real tasks from the CAT 1 to 3 incidents, real tasks from maximum CAT 1 and 2 incidents, and simulated CAT 1 and 2 tasks).

Table 26: The best inhomogeneous RP30 schedules in the 920-day period.

SQN/SRR	Best Inhomogeneous RP30 Schedule	RP30 Coverage Percentage (by task)		
		Inhomogeneous Schedule	Legacy Schedule	Optimal Schedule
442 SQN	08:00–16:00, Monday/Thursday/Friday 10:00–18:00, Saturday/Sunday	38.1%	33.2%	39.3%
435 SQN	08:00–16:00, Monday/Thursday/Friday 10:00–18:00, Saturday/Sunday	36.8%	26.3%	38.9%
424 SQN	08:00–16:00, Monday/Tuesday/Friday 12:00–20:00, Saturday/Sunday	38.0%	26.2%	41.0%
103 SQN	08:00–16:00, Monday/Tuesday/Wednesday 12:00–20:00, Saturday/Sunday	35.4%	30.0%	35.8%
413 SQN	08:00–16:00, Monday/Tuesday/Wednesday 11:00–19:00, Saturday/Sunday	33.2%	28.7%	37.0%
Halifax SRR	08:00–16:00, Monday/Tuesday/Wednesday 12:00–20:00, Saturday/Sunday	33.9%	29.2%	36.1%

In general, the best inhomogeneous schedules are quite insensitive to data variations in terms of incident classification and incident occurrence. They remain in the green regions except for one case in Figure 16. When the best inhomogeneous schedule for 413 SQN was applied to the tasks from the CAT 1 and 2 incidents of maximum classification, the RP30 coverage percentage is 31.3%, which is slightly less than the coverage of using the legacy schedule (31.7%[8]). Given the fact that 39% of incidents were downgraded from the maximum CAT 1 or 2 classification to a final CAT 3 and below classification (and under 1% were upgraded), the inhomogeneous schedule for 413 SQN will unlikely neglect the truly important tasks (i.e., CAT 1 and 2 incidents of final classification) during the RP30 shifts. Hence, the risk is small in this case.

As was pointed out by a reviewer, the colour matrices of using simulated CAT 1 and 2 tasks are always green in the six figures. That is to say the 30 inhomogeneous RP30 schedules are always better than the legacy schedule. This result did not happen to the other three matrices in general. Recall that each matrix represents the coverage percentage of using a dataset of simulated task time and tasked squadron. Each real incident triggered an air SAR task in the simulation by using the incident alerted time. In this way, the JRCC's preference for tasking a squadron (while it was on RP30) vanished. That is to say the times when a squadron was on RP30 no longer attract SAR tasks. It is particularly clear on the time of legacy RP30 schedule. In the simulations, the coverage percentage of the legacy RP30 schedule in the five SAR squadrons is about 5% smaller than the coverage using real task data. As the reference coverage is lowered in the case of using the simulated tasks, it is easier for the inhomogeneous schedules to perform well and become "greener."

[8] The value 31.7% can be found in the lower left table in Figure 10 for 08:00–16:00 from Monday to Friday. It is inappropriate to use 28.7% in Table 26 for the comparison because the percentage was calculated using the final incident classification instead of the maximum incident classification.

		Real CAT 1&2 Tasks					Real CAT 1-3 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 442 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 442 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	33.4%	33.8%	34.6%	34.0%	34.0%	32.9%	33.1%	33.6%	33.1%	33.1%
	Wed, Thur, Fri, Sat, Sun	35.0%	35.4%	36.6%	36.0%	35.2%	33.8%	34.5%	35.5%	35.0%	34.5%
	Mon, Thur, Fri, Sat, Sun	36.4%	36.8%	**38.1%**	37.4%	36.6%	34.6%	35.3%	36.3%	35.8%	35.3%
	Mon, Tue, Fri, Sat, Sun	36.0%	36.4%	37.7%	37.0%	36.2%	35.0%	35.7%	36.7%	36.2%	35.7%
	Mon, Tue, Wed, Sat, Sun	33.4%	33.8%	35.0%	34.4%	33.6%	33.3%	34.0%	35.0%	34.5%	34.0%
	Mon, Tue, Wed, Thur, Sun	32.4%	32.4%	32.8%	32.8%	32.0%	32.4%	32.9%	33.4%	33.4%	32.9%

		Real (Maximum) CAT 1&2 Tasks					Simulated CAT 1&2 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 442 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 442 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	35.0%	35.6%	36.2%	36.0%	35.8%	27.6%	28.2%	28.9%	29.2%	29.6%
	Wed, Thur, Fri, Sat, Sun	34.5%	35.5%	36.7%	36.2%	35.7%	30.0%	31.2%	32.2%	32.9%	33.4%
	Mon, Thur, Fri, Sat, Sun	35.4%	36.3%	37.5%	37.0%	36.5%	30.8%	32.1%	33.1%	33.7%	34.3%
	Mon, Tue, Fri, Sat, Sun	36.8%	37.7%	38.9%	38.5%	38.0%	30.4%	31.6%	32.6%	33.3%	33.8%
	Mon, Tue, Wed, Sat, Sun	35.0%	36.0%	37.1%	36.7%	36.2%	29.2%	30.4%	31.4%	32.1%	32.6%
	Mon, Tue, Wed, Thur, Sun	34.9%	35.2%	35.8%	35.6%	35.2%	27.6%	28.1%	28.5%	28.8%	29.0%

Figure 12: Sensitivity analysis on the set of 30 inhomogeneous schedules for 442 SQN.

		Real CAT 1&2 Tasks					Real CAT 1-3 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 435 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 435 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	29.5%	29.5%	33.7%	32.6%	31.6%	28.6%	28.6%	31.7%	31.0%	30.2%
	Wed, Thur, Fri, Sat, Sun	30.5%	30.5%	34.7%	31.6%	30.5%	31.0%	31.0%	34.1%	31.7%	29.4%
	Mon, Thur, Fri, Sat, Sun	32.6%	32.6%	**36.8%**	33.7%	32.6%	31.7%	31.7%	34.9%	32.5%	30.2%
	Mon, Tue, Fri, Sat, Sun	30.5%	30.5%	34.7%	31.6%	30.5%	28.6%	28.6%	31.7%	29.4%	27.0%
	Mon, Tue, Wed, Sat, Sun	23.2%	23.2%	27.4%	24.2%	23.2%	23.8%	23.8%	27.0%	24.6%	22.2%
	Mon, Tue, Wed, Thur, Sun	22.1%	22.1%	22.1%	20.0%	20.0%	22.2%	22.2%	22.2%	20.6%	19.0%

		Real (Maximum) CAT 1&2 Tasks					Simulated CAT 1&2 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 435 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 435 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	33.9%	33.9%	34.8%	34.3%	34.8%	27.8%	29.5%	30.9%	31.9%	32.3%
	Wed, Thur, Fri, Sat, Sun	31.8%	33.5%	35.2%	33.9%	33.5%	35.2%	38.3%	40.8%	42.5%	42.7%
	Mon, Thur, Fri, Sat, Sun	32.6%	34.3%	36.1%	34.8%	34.3%	37.0%	40.0%	42.5%	44.3%	44.4%
	Mon, Tue, Fri, Sat, Sun	30.5%	32.2%	33.9%	32.6%	32.2%	37.1%	40.2%	42.7%	44.4%	44.5%
	Mon, Tue, Wed, Sat, Sun	26.2%	27.9%	29.6%	28.3%	27.9%	35.5%	38.6%	41.1%	42.9%	43.0%
	Mon, Tue, Wed, Thur, Sun	26.6%	28.3%	29.2%	28.3%	27.5%	30.0%	31.3%	32.4%	33.2%	32.9%

Figure 13: Sensitivity analysis on the set of 30 inhomogeneous schedules for 435 SQN.

		Real CAT 1&2 Tasks					Real CAT 1-3 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 424 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 424 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	27.4%	27.8%	29.6%	31.0%	31.7%	26.0%	26.3%	27.7%	28.8%	29.6%
	Wed, Thur, Fri, Sat, Sun	30.5%	31.4%	33.7%	34.4%	35.1%	28.6%	29.5%	31.6%	32.3%	33.3%
	Mon, Thur, Fri, Sat, Sun	32.6%	33.5%	35.7%	36.4%	37.1%	30.5%	31.4%	33.5%	34.2%	35.3%
	Mon, Tue, Fri, Sat, Sun	33.5%	34.4%	36.7%	37.3%	38.0%	30.7%	31.6%	33.7%	34.4%	35.4%
	Mon, Tue, Wed, Sat, Sun	28.5%	29.4%	31.7%	32.4%	33.0%	26.8%	27.7%	29.8%	30.5%	31.6%
	Mon, Tue, Wed, Thur, Sun	26.0%	26.5%	26.9%	26.2%	26.2%	25.3%	25.8%	26.5%	26.1%	26.3%

		Real (Maximum) CAT 1&2 Tasks					Simulated CAT 1&2 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 424 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 424 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	28.6%	29.6%	30.6%	31.5%	32.1%	23.7%	25.8%	27.5%	29.0%	29.9%
	Wed, Thur, Fri, Sat, Sun	30.8%	32.5%	33.8%	34.6%	35.5%	29.3%	33.3%	36.5%	39.1%	40.7%
	Mon, Thur, Fri, Sat, Sun	31.1%	32.8%	34.1%	34.9%	35.8%	30.4%	34.5%	37.7%	40.3%	41.9%
	Mon, Tue, Fri, Sat, Sun	30.2%	31.9%	33.2%	34.0%	34.9%	30.7%	34.7%	38.0%	40.6%	42.2%
	Mon, Tue, Wed, Sat, Sun	27.8%	29.5%	30.8%	31.6%	32.5%	29.7%	33.7%	37.0%	39.6%	41.2%
	Mon, Tue, Wed, Thur, Sun	27.1%	27.8%	28.1%	28.0%	28.3%	24.9%	26.9%	28.3%	29.5%	30.2%

Figure 14: Sensitivity analysis on the set of 30 inhomogeneous schedules for 424 SQN.

		Real CAT 1&2 Tasks					Real CAT 1-3 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 103 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 103 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	31.2%	31.2%	32.7%	32.7%	33.1%	30.8%	30.8%	32.2%	32.2%	32.2%
	Wed, Thur, Fri, Sat, Sun	28.1%	29.2%	31.2%	31.9%	33.8%	28.0%	29.4%	31.1%	31.8%	32.9%
	Mon, Thur, Fri, Sat, Sun	26.9%	28.1%	30.0%	30.8%	32.7%	26.6%	28.0%	29.8%	30.4%	31.5%
	Mon, Tue, Fri, Sat, Sun	27.7%	28.8%	30.8%	31.5%	33.5%	27.0%	28.4%	30.1%	30.8%	31.8%
	Mon, Tue, Wed, Sat, Sun	29.6%	30.8%	32.7%	33.5%	**35.4%**	29.1%	30.4%	32.2%	32.9%	33.9%
	Mon, Tue, Wed, Thur, Sun	30.4%	31.5%	31.9%	32.7%	34.2%	29.8%	31.1%	31.5%	32.2%	33.2%

		Real (Maximum) CAT 1&2 Tasks					Simulated CAT 1&2 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 103 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 103 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	31.1%	31.1%	32.5%	32.5%	32.5%	25.8%	26.7%	27.7%	28.6%	28.8%
	Wed, Thur, Fri, Sat, Sun	28.8%	29.9%	31.9%	32.5%	33.6%	26.7%	29.4%	32.0%	33.8%	34.9%
	Mon, Thur, Fri, Sat, Sun	27.1%	28.2%	30.2%	30.8%	31.9%	27.2%	29.9%	32.5%	34.3%	35.4%
	Mon, Tue, Fri, Sat, Sun	26.2%	27.4%	29.3%	29.9%	31.1%	27.5%	30.3%	32.8%	34.6%	35.7%
	Mon, Tue, Wed, Sat, Sun	28.2%	29.3%	31.3%	31.9%	33.0%	26.6%	29.3%	31.9%	33.7%	34.8%
	Mon, Tue, Wed, Thur, Sun	29.9%	31.1%	31.6%	32.2%	33.3%	25.1%	26.9%	28.5%	29.4%	30.3%

Figure 15: Sensitivity analysis on the set of 30 inhomogeneous schedules for 103 SQN.

		Real CAT 1&2 Tasks					Real CAT 1-3 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 413 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 413 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	28.3%	29.2%	29.4%	30.1%	29.8%	30.6%	31.7%	31.7%	32.3%	32.1%
	Wed, Thur, Fri, Sat, Sun	30.3%	31.8%	32.7%	33.0%	32.7%	31.9%	33.8%	34.4%	34.6%	34.4%
	Mon, Thur, Fri, Sat, Sun	29.8%	31.4%	32.3%	32.5%	32.3%	32.3%	34.2%	34.8%	35.0%	34.8%
	Mon, Tue, Fri, Sat, Sun	30.1%	31.6%	32.5%	32.7%	32.5%	31.7%	33.7%	34.2%	34.4%	34.2%
	Mon, Tue, Wed, Sat, Sun	30.5%	32.1%	33.0%	33.2%	33.0%	30.8%	32.7%	33.3%	33.5%	33.3%
	Mon, Tue, Wed, Thur, Sun	30.5%	31.2%	31.8%	31.4%	31.4%	30.8%	31.5%	32.1%	31.7%	31.7%

		Real (Maximum) CAT 1&2 Tasks					Simulated CAT 1&2 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 413 SQN					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for 413 SQN				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	30.9%	32.2%	32.4%	33.1%	32.7%	27.7%	28.4%	29.7%	30.2%	30.4%
	Wed, Thur, Fri, Sat, Sun	31.4%	33.6%	34.3%	35.0%	34.8%	29.6%	31.8%	34.6%	35.9%	36.6%
	Mon, Thur, Fri, Sat, Sun	31.6%	33.7%	34.4%	35.1%	35.0%	29.5%	31.7%	34.5%	35.8%	36.5%
	Mon, Tue, Fri, Sat, Sun	29.4%	31.6%	32.2%	32.9%	32.8%	29.4%	31.6%	34.4%	35.8%	36.5%
	Mon, Tue, Wed, Sat, Sun	27.8%	29.9%	30.6%	31.3%	31.2%	28.7%	30.9%	33.7%	35.1%	35.8%
	Mon, Tue, Wed, Thur, Sun	29.5%	30.3%	30.9%	30.9%	31.2%	27.0%	28.6%	30.0%	30.9%	31.3%

Figure 16: Sensitivity analysis on the set of 30 inhomogeneous schedules for 413 SQN.

		Real CAT 1&2 Tasks					Real CAT 1-3 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for Halifax SRR					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for Halifax SRR				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	29.3%	29.9%	30.6%	31.0%	31.0%	30.7%	31.4%	31.9%	32.3%	32.1%
	Wed, Thur, Fri, Sat, Sun	29.5%	30.9%	32.2%	32.6%	33.1%	30.5%	32.3%	33.3%	33.6%	33.9%
	Mon, Thur, Fri, Sat, Sun	28.8%	30.2%	31.5%	31.9%	32.4%	30.3%	32.0%	33.0%	33.4%	33.6%
	Mon, Tue, Fri, Sat, Sun	29.2%	30.6%	31.9%	32.3%	32.9%	30.0%	31.8%	32.8%	33.1%	33.4%
	Mon, Tue, Wed, Sat, Sun	30.2%	31.6%	32.9%	33.3%	**33.9%**	30.2%	31.9%	32.9%	33.3%	33.5%
	Mon, Tue, Wed, Thur, Sun	30.5%	31.3%	31.9%	31.9%	32.4%	30.4%	31.4%	31.9%	31.9%	32.3%

		Real (Maximum) CAT 1&2 Tasks					Simulated CAT 1&2 Tasks				
		Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for Halifax SRR					Coverage Percentage of Tasks in the Special 8-hr / 5-d Period in the summers of 2008 - 2015 for Halifax SRR				
		Weekend Hour					Weekend Hour				
		08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00	08:00 to 16:00	09:00 to 17:00	10:00 to 18:00	11:00 to 19:00	12:00 to 20:00
RP30 Day of Week	Tue, Wed, Thur, Fri, Sat	30.9%	31.9%	32.4%	32.9%	32.6%	27.0%	27.7%	28.9%	29.6%	29.8%
	Wed, Thur, Fri, Sat, Sun	30.6%	32.4%	33.5%	34.2%	34.4%	28.4%	30.9%	33.6%	35.1%	36.0%
	Mon, Thur, Fri, Sat, Sun	30.1%	32.0%	33.1%	33.7%	34.0%	28.6%	31.0%	33.7%	35.2%	36.1%
	Mon, Tue, Fri, Sat, Sun	28.4%	30.2%	31.3%	32.0%	32.2%	28.7%	31.1%	33.8%	35.3%	36.2%
	Mon, Tue, Wed, Sat, Sun	27.9%	29.7%	30.8%	31.5%	31.8%	27.9%	30.3%	33.0%	34.5%	35.4%
	Mon, Tue, Wed, Thur, Sun	29.7%	30.6%	31.1%	31.3%	31.9%	26.3%	27.9%	29.4%	30.3%	30.9%

Figure 17: Sensitivity analysis on the set of 30 inhomogeneous schedules for the Halifax SRR.

5 Conclusion and recommendation

5.1 Quick summary

The first goal of this study is to assess the effectiveness of the summer 2015 SAR response posture trial, which involved all five SAR squadrons. Each squadron followed an 8-hour × 5-day weekly schedule that was proposed by [9] to provide 30-minute standby SAR service. All 8-hour shifts in the same schedule have the same daily start time. Although summer 2015 had more incidents than the historical average, the proposed RP30 schedules met the expectation in the trial.

The second goal is to determine a set of RP30 schedules that improves the air SAR service from the five SAR squadrons. Previous studies investigated the exact same problem but they utilized the occurrence of CAT 1 and 2 incidents as the historical data source. Since the SAR squadrons are responsible to respond to certain types of incidents, it is inappropriate to plan the air SAR resources based upon all types of incidents. As was shown in Table 5, incident occurrence distribution is very different from the distribution of air SAR tasks in terms of incident type. Therefore this analysis used the historical records of air SAR tasks to derive a set of optimal RP30 schedules that maximized the number of air SAR tasks received by each squadron on RP30.

CJOC SAR discussed the optimal RP30 schedules with the SAR squadrons before the 2016 summer season started. Given the squadrons' concerns, another set of RP30 schedules were derived using the same set of historical data. The new inhomogeneous schedules, which are characterized by two different daily start times as shown in Table 26, are slightly inferior to the optimal schedules in general but are less stressful to the personnel.

5.2 Result and conclusion

This study showed that shorter standby time at the time of tasking a SAR aircraft could improve the outcome of most missions. Although the improvement is mild as shown in Table 10, it is statistically distinguishable among the "simple incidents," which make up about three-quarters of all incidents. Hence, changing the response posture of the SAR squadrons could save more lives in long term. The result is consistent with a similar work [6].

The summer 2015 SAR response posture trial was a success. The proposed RP30 schedules increased the number of air SAR tasks received by all squadrons while on RP30, in comparison with using the legacy schedule. Most squadrons implemented the schedules well; some even exceeded the expectation. However, 435 SQN missed one intended task in its RP30 shift over the 115-day trial period.

The analysis derived a set of optimal schedules (Table 21) that, in hindsight, would have increased the average RP30 coverage from 29% (by using the legacy schedule) to 38% for the air SAR tasks of CAT 1 and 2 incidents. The optimal RP30 schedules agreed closely with the findings in previous studies ([6], [8], [9]) in general, although they used different source data and different methodology. In addition, the optimal RP30 schedules were shown to be insensitive to changes in incident classification and incident occurrence.

The optimal RP30 schedules only considered the demand of the air SAR service. When the concerns of the service providers were considered, a set of inhomogeneous schedules was derived as shown in Table 26. The air SAR squadrons provided RP30 service between 08:00 and 16:00 on three weekdays every week and provided two 8-hour RP30 shifts on Saturday and Sunday starting between 10:00 and 12:00. The schedules still offered good improvement over the legacy schedule and were quite insensitive to changes in incident classification and incident occurrence.

5.3 Recommendation and future work

The derived inhomogeneous RP30 schedules are an important first step toward finding a balance between service demand and service supply. 442 SQN and 424 SQN have used these schedules (Table 26) in the 2016 summer. The optimal RP30 schedule for Halifax SRR (Table 21) has been approved and used in the 2016 summer period for 103 SQN and 413 SQN. (Only 435 SQN did not alter its response posture in the 2016 summer because 30-minute standby posture outside normal office hour time frame interferes with its other duty, i.e., air-to-air refuelling of fighter aircraft.) The effectiveness of the new schedules should be analyzed in the future.

Future response posture schedule management will benefit by a qualitative analysis of squadron members' quality-of-life issues. The best inhomogeneous RP30 schedules were a product of discussion between CJOC SAR and squadron leaders. A documented analysis on the issues will be a useful reminder to the future schedule planners.

This study used the air SAR tasks instead of SAR incidents to derive the RP30 schedules. However, the air SAR tasks frequency is affected by the incident occurrence and tasking decision at the JRCCs. Hence, a better understanding of the decision process would improve the simulation of air SAR tasks for finding the optimal RP30 schedules.

References

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Annex A SAR Tasks affected by changes in RP30 schedules in the 2015 trial

The following table lists some of the tasks of CAT 1 and 2 incidents that received response from the SAR squadrons between May 16 and September 7, 2015. The squadrons were tasked at a time when they would have responded differently if the legacy RP30 schedules were used. For example, a squadron was on RP30 (either actually or supposedly on 30-minute RP) at tasked time but it would have been on RP2 by the legacy RP30 schedule. Most information was directly extracted from the SMMS database. Only the *Local Tasked Time* and the endnote were inserted by the author for convenience.

Table A.1: SAR tasks of CAT 1 and 2 incidents affected by the summer 2015 trial.

1	Incident Number: V2015-00903	Final Classification: M1	SRR: Victoria
	Location: (52.3832, -126.8102)	Occurred Date: 2015/05/16 01:00	Departed Date: 2015/05/16 02:02
	Source Name: 442 SQN CC-115	Alerted Date: 2015/05/16 01:57	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/05/16 02:02	Ended Date: 2015/05/17 02:54
	POB: 3 (Saved = 0, Assisted = 2, Lost = 1, Missing = 0)		Local Tasked Time: Friday, 7:02 PM
	Summary: 911 transfer for Man overboard in North Bentinck Arm between Tallheo Cannery and Bella Coola Public Wharf. CG Cape Farewell, CF R904 R457 conducted initial night search. Cape farewell and R904 crews remained in Bella Coola overnight and conducted exhaustive search of the north Bentinck Arm area the next morning along with multiple GSAR crews and VOO's. RCMP Lindsay arrived on scene by late afternoon on the 16th. SRU's stood down after search areas completed and case handed to RCMP as missing person case		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
2	Incident Number: V2015-00903	Final Classification: M1	SRR: Victoria
	Location: (52.3832, -126.8102)	Occurred Date: 2015/05/16 01:00	Departed Date: 2015/05/16 02:02
	Source Name: 442 SQN CH-149	Alerted Date: 2015/05/16 01:57	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/05/16 02:20	Ended Date: 2015/05/17 02:54
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 7:20 PM
	Summary: 911 transfer for Man overboard in North Bentinck Arm between Tallheo Cannery and Bella Coola Public Wharf. CG Cape Farewell, CF R904 R457 conducted initial night search. Cape farewell and R904 crews remained in Bella Coola overnight and conducted exhaustive search of the north Bentinck Arm area the next morning along with multiple GSAR crews and VOO's. RCMP Lindsay arrived on scene by late afternoon on the 16th. SRU's stood down after search areas completed and case handed to RCMP as missing person case		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
3	Incident Number: H2015-00431	Final Classification: A1	SRR: Halifax
	Location: (48.9852, -54.7398)	Occurred Date: 2015/05/16 19:49	Departed Date: 2015/05/16 20:08
	Source Name: 103 SQN CH-149	Alerted Date: 2015/05/16 19:49	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/05/16 19:52	Ended Date: 2015/05/17 05:40
	POB: 4 (Saved = 4, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 5:22 PM
	Summary: JRCC Halifax received notification that a float plan crashed in Joe Batts Pond to the NW of Gander. Bystanders went out to the site and brought the two occupants to shore where they were transported to hospital via ambulance wfi. R901 arrived on sence and shut of the ELT. Case Closed.		
	Note: At tasked time, 103 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
4	Incident Number: T2015-00656	Final Classification: A1	SRR: Trenton
	Location: (54.8228, -110.3483)	Occurred Date: 2015/05/22 22:32	Departed Date: 2015/05/22 23:26
	Source Name: 435 SQN CC-130	Alerted Date: 2015/05/22 22:42	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/05/22 22:54	Ended Date: 2015/05/23 02:56
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 5:54 PM
	Summary: Cold Lake Terminal advised of crashed water bomber north of Cold Lake, AB with 1POB. 417 Sqn CH146 R417 and 435 Sqn CC130 R339 tasked. R417 arrived on scene and confirmed 1 black. R339 stood down. Due to forest fires in the area, 1 black was removed from the scene and transported to 4 Wing Cold Lake. Company, Coroner, RCMP, TSB and CACO all advised. Case closed.		
	Note: At tasked time, 435 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

5	Incident Number: T2015-00699	Final Classification: M2	SRR: Trenton
	Location: (42.3170, -82.5975)	Occurred Date: 2015/05/26 21:53	Departed Date: 2015/05/26 22:03
	Source Name: 424 SQN CC-130	Alerted Date: 2015/05/26 21:53	Arrival on Scene: 2015/05/26 22:15
	Response Posture: 30 M	Tasked Date: 2015/05/26 22:24	Ended Date: 2015/05/27 01:37
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 6:24 PM
	Summary: Report of overdue vessel out of Belle River with 1 POB. broadcasts issues with nil response. 424 Sqn Herc R334 tasked but U/S from previous training sortie; ETIC 0+45. USCG Detroit Dolphin on another mission and dealing with bad weather. CG 1003 tasked and located the vessel in the vicinity of Stoney Creek. Vessel operator had become disorientated in his return voyage to Belle River, CG 1003 escorted to port. Case Closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
6	Incident Number: V2015-01099	Final Classification: A1	SRR: Victoria
	Location: (57.6223, -123.3681)	Occurred Date: 2015/06/01 16:50	Departed Date: 2015/06/01 18:13
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/01 16:53	Arrival on Scene: 2015/06/01 20:31
	Response Posture: 2 HR	Tasked Date: 2015/06/01 17:32	Ended Date: 2015/06/02 23:38
	POB: 2 (Saved = 0, Assisted = 0, Lost = 2, Missing = 0)		Local Tasked Time: Monday, 10:32 AM
	Summary: Brief detection 406 ELT in N BC registered to overdue American C182 with 2 POB. Search area between Fort Nelson and Fort St John. Multiple CF aircraft tasked to search. The initial position of the 406 detection was close enough to have Corm visually locate the crashed aircraft. Both occupants were deceased. Case transferred to Coroner and RCMP for extraction.		
	Note: At tasked time, 442 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
7	Incident Number: V2015-01099	Final Classification: A1	SRR: Victoria
	Location: (57.6223, -123.3681)	Occurred Date: 2015/06/01 16:50	Departed Date: 2015/06/01 18:13
	Source Name: 442 SQN CC-115	Alerted Date: 2015/06/01 16:53	Arrival on Scene: 2015/06/01 20:31
	Response Posture: 2 HR	Tasked Date: 2015/06/01 17:34	Ended Date: 2015/06/02 23:38
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Monday, 10:34 AM
	Summary: Brief detection 406 ELT in N BC registered to overdue American C182 with 2 POB. Search area between Fort Nelson and Fort St John. Multiple CF aircraft tasked to search. The initial position of the 406 detection was close enough to have Corm visually locate the crashed aircraft. Both occupants were deceased. Case transferred to Coroner and RCMP for extraction.		
	Note: At tasked time, 442 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
8	Incident Number: V2015-01137	Final Classification: A1	SRR: Victoria
	Location: (49.2768, -121.8630)	Occurred Date: 2015/06/05 17:03	Departed Date: 2015/06/05 17:40
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/05 17:12	Arrival on Scene: 2015/06/05 18:30
	Response Posture: 2 HR	Tasked Date: 2015/06/05 17:24	Ended Date: 2015/06/06 10:51
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 10:24 AM
	Summary: 406 ELT for GZYQ near Chiliwack, no flight plan, no contact with ATC. R904 tasked. Turns out GZYQ had had a crash landing at around 10am and the pilot knowing that the ELT would have gone off attempted to disable the ELT. He also arranged for transport to take the Helicopter back to Hobart, SK. RCMP were finallly able to track pilot down to a residence in Langley. Pilot was already 'know to them' and RCMP were quite anxious to locate the Helicopter as they suspected Pilot may have been transporting illegal goods. Much later CMCC did get a MEOSAR hit on the machine's ELT which put the machine close to the Loughheed Highway which seemingly corroborated the Pilot's story about putting the machine on a transport of some kind. RCMP have not yet been able to locate the machine and CMCC will continue to monitor for any subsequent hits and will advise RCMP directly. Case closed.		
	Note: At tasked time, 442 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
9	Incident Number: T2015-00784	Final Classification: H1	SRR: Trenton
	Location: (44.5167, -76.4752)	Occurred Date: 2015/06/06 15:30	Departed Date: 2015/06/06 16:23
	Source Name: 424 SQN CH-146	Alerted Date: 2015/06/06 15:42	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/06 16:02	Ended Date: 2015/06/07 11:53
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 12:02 PM
	Summary: Smith Falls OPP reported a 72 YOM with a head injury, drifting in and out of consciousness in Frontenac Provincial Park. 424 Griffon R419 was tasked for MEDEVAC. OPP called at 1632z to advise that they are on scene, will evacuate by other means. No further assistance required. Case Closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
10	Incident Number: V2015-01152	Final Classification: H1	SRR: Victoria
	Location: (48.3003, -123.5377)	Occurred Date: 2015/06/06 19:27	Departed Date: 2015/06/06 19:42
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/06 19:28	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/06 19:33	Ended Date: 2015/06/06 22:34
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 12:33 PM
	Summary: Dive charter operator reported 2 missing divers at Race Rocks. R907, CG 501 RCM 35 and RCM 37 tasked. Divers located 1 nm SW of Race Rocks. all OK. NFAR		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
11	Incident Number: T2015-00799	Final Classification: M1	SRR: Trenton
	Location: (43.3183, -81.7577)	Occurred Date: 2015/06/07 17:00	Departed Date: 2015/06/07 17:15
	Source Name: 424 SQN CH-146	Alerted Date: 2015/06/07 17:07	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/07 17:20	Ended Date: 2015/06/07 20:05
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 1:20 PM
	Summary: Received report of persons in the water from a capsized boat near Grand Bend. Cape Discovery FRC, CGA Point SAR, USCG Stn Port Huron, and 424 Sqn R493 tasked. All 6 persons transferred safely to shore by sea doo on scene. Case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

12	Incident Number: T2015-00799	Final Classification: M1	SRR: Trenton
	Location: (43.3183, -81.7577)	Occurred Date: 2015/06/07 17:00	Departed Date: 2015/06/07 17:15
	Source Name: 424 SQN CC-130	Alerted Date: 2015/06/07 17:07	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/07 17:21	Ended Date: 2015/06/07 20:05
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 1:21 PM
	Summary: Received report of persons in the water from a capsized boat near Grand Bend. Cape Discovery FRC, CGA Point SAR, USCG Stn Port Huron, and 424 Sqn R493 tasked. All 6 persons transferred safely to shore by sea doo on scene. Case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
13	Incident Number: H2015-00637	Final Classification: M1	SRR: Halifax
	Location: (44.8717, -65.9833)	Occurred Date: 2015/06/07 19:32	Departed Date: 2015/06/07 19:45
	Source Name: 413 SQN CH-149	Alerted Date: 2015/06/07 19:32	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/07 19:35	Ended Date: 2015/06/07 23:36
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 4:35 PM
	Summary: Halifax MCTS reported that there was a seriously injured crewmember aboard a 60' fishing vessel in the Bay of Fundy near Digby, NS, and that the vessel was unable to proceed to port due to fishing gear in the water and a parted cable. A radio medical was completed and the following assets were tasked: CCGC COURTNEY BAY, MV PRINCESS OF ACADIA (ferry), a 413 Sqn Cormorant helicopter (R913) and a 413 Sqn Hercules aircraft (R343). The MV PRINCESS OF ACADIA used its life boat to transfer the patient aboard, where the patient was treated by a doctor and several nurses (who were passengers). The ferry delivered the patient to an ambulance in Saint John, NB. All other resources were stood down.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
14	Incident Number: H2015-00637	Final Classification: M1	SRR: Halifax
	Location: (44.8717, -65.9833)	Occurred Date: 2015/06/07 19:32	Departed Date: 2015/06/07 19:45
	Source Name: 413 SQN CC-130	Alerted Date: 2015/06/07 19:32	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/07 19:39	Ended Date: 2015/06/07 23:36
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 4:39 PM
	Summary: Halifax MCTS reported that there was a seriously injured crewmember aboard a 60' fishing vessel in the Bay of Fundy near Digby, NS, and that the vessel was unable to proceed to port due to fishing gear in the water and a parted cable. A radio medical was completed and the following assets were tasked: CCGC COURTNEY BAY, MV PRINCESS OF ACADIA (ferry), a 413 Sqn Cormorant helicopter (R913) and a 413 Sqn Hercules aircraft (R343). The MV PRINCESS OF ACADIA used its life boat to transfer the patient aboard, where the patient was treated by a doctor and several nurses (who were passengers). The ferry delivered the patient to an ambulance in Saint John, NB. All other resources were stood down.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
15	Incident Number: T2015-00805	Final Classification: A1	SRR: Trenton
	Location: (49.2830, -113.6300)	Occurred Date: 2015/06/07 21:00	Departed Date: 2015/06/08 02:56
	Source Name: 435 SQN CC-130	Alerted Date: 2015/06/08 00:56	Arrival on Scene:
	Response Posture: 2 HR	Tasked Date: 2015/06/08 14:13	Ended Date: 2015/06/08 22:13
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Monday, 9:13 AM
	Summary: Numerous high flyer ELT reports provided to JRCC by Edmonton ACC in the area North of Lethbridge AB. CASARA Zone 1 - Lethbridge tasked to investigate via air and ground vehicles. Extensive electronic search conducted with nil results including all areas North towards a known Ammunition Destruction Centre in Tudor AB, the source of previous false alarms. No overdue or other related signs of distress. CASARA stood down. 435 Sqn C130 R339 tasked to home. R339 homed the signal to an aircraft on a farm near Hill Spring, AB that had crashed the previous evening. 4POBs sustained no injuries and the pilot failed to report the crash. ELT turned off and R339 cleared to RTB. YEG ACC advised and confirmed they will contact TSB. Case closed.		
	Note: At tasked time, 435 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
16	Incident Number: H2015-00646	Final Classification: M1	SRR: Halifax
	Location: (47.6250, -63.4667)	Occurred Date: 2015/06/08 19:15	Departed Date: 2015/06/08 20:01
	Source Name: 413 SQN CH-149	Alerted Date: 2015/06/08 19:31	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/08 20:01	Ended Date: 2015/06/09 14:49
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Monday, 5:01 PM
	Summary: Sydney MCTS advises the F/V East Wind IV has a crew member on board complaining of chest pain. Radiomedical was conducted with PRAXES and MEDEVAC was recommended. 413 Sqn Cormorant (R913) tasked to evacuate the crewmember off the F/V to Charlottetown, PEI. Medevac completed by CORM R913 and the helo returned to base. Case closed.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
17	Incident Number: V2015-01214	Final Classification: M1	SRR: Victoria
	Location: (49.4486, -123.7458)	Occurred Date: 2015/06/11 02:34	Departed Date: 2015/06/11 03:56
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/11 03:48	Arrival on Scene: 2015/06/11 04:35
	Response Posture: 30 M	Tasked Date: 2015/06/11 03:57	Ended Date: 2015/06/11 05:55
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 8:57 PM
	Summary: Third hand report of a possible sinking boat near Davis Bay, Sunshine Coast. Aux 12 and 14, Moytel and Cormorant tasked to search. Person from sunken vessel located by local boater. taken to boat launch where EHS attended.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		

18	Incident Number: H2015-00695	Final Classification: M1	SRR: Halifax
	Location: (47.8217, -46.5033)	Occurred Date: 2015/06/12 10:23	Departed Date: 2015/06/12 18:01
	Source Name: 103 SQN CH-149	Alerted Date: 2015/06/12 10:25	Arrival on Scene: 2015/06/12 20:27
	Response Posture: 30 M	Tasked Date: 2015/06/12 19:30	Ended Date: 2015/06/13 03:14
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 5:00 PM
	Summary: DPO in Ukraine has asked the Bulk Carrier Arvika to redirect towards St Johns for an Ordinary Seaman with abdominal pains. 36 YOM Ukranian. PRAXES recommends helo MEDEVAC. 4 hour comm sched established with vessel. CORM R901 tasked and hoisted the crewmember and delivered him to an awaiting ambulance in St. John's for transport to the Health Science Centre. HERC R344 provided top cover. MV Arvika resuming normal passage to its destination. Case Closed		
	Note: At tasked time, 103 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
19	Incident Number: V2015-01253	Final Classification: H1	SRR: Victoria
	Location: (49.8028, -119.9423)	Occurred Date: 2015/06/13 02:39	Departed Date: 2015/06/13 04:00
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/13 02:39	Arrival on Scene: 2015/06/13 05:15
	Response Posture: 2 HR	Tasked Date: 2015/06/13 02:51	Ended Date: 2015/06/13 15:33
	POB: 1 (Saved = 0, Assisted = 0, Lost = 0, Missing = 1)		Local Tasked Time: Friday, 7:51 PM
	Summary: E Div offically requested Corm for search of missing 24 YOF near Peachland, R909 tasked to search. After searching a 3nm radius around last known position of missing person, negative result. RCMP notified and 907 stood down.		
	Note: At tasked time, 442 SQN was on RP2. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
20	Incident Number: T2015-00857	Final Classification: M1	SRR: Trenton
	Location: (44.0010, -77.6744)	Occurred Date: 2015/06/13 19:40	Departed Date: 2015/06/13 19:50
	Source Name: 424 SQN CC-130	Alerted Date: 2015/06/13 19:45	Arrival on Scene: 2015/06/13 19:57
	Response Posture: 30 M	Tasked Date: 2015/06/13 19:50	Ended Date: 2015/06/13 22:37
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 3:50 PM
	Summary: Report of a capsized vessel with 1 PIW. Brighton rescue and R336 tasked. R336 located the vessel as it was being towed by VOO who assisted the capsized in the shallows. VOO towed vessel to port with the occupant standing on hull. Brighton Rescue remained as escorted until they secured. Case Closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
21	Incident Number: T2015-00860	Final Classification: M1	SRR: Trenton
	Location: (44.6197, -80.0143)	Occurred Date: 2015/06/13 22:00	Departed Date: 2015/06/13 22:14
	Source Name: 424 SQN CH-146	Alerted Date: 2015/06/13 22:03	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/13 22:12	Ended Date: 2015/06/13 23:34
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 6:12 PM
	Summary: Report of PIW in the water off Deanlea Beach Notttawasaga Bay waving for help. BX issued, Cape Providence and R432 tasked. VOO from shore rescued PIW's and returned them to shore. All assest stood down and bx cancelled. Case Closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
22	Incident Number: V2015-01267	Final Classification: H1	SRR: Victoria
	Location: (48.5445, -124.5133)	Occurred Date: 2015/06/13 23:41	Departed Date: 2015/06/14 00:19
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/13 23:42	Arrival on Scene: 2015/06/14 00:50
	Response Posture: 30 M	Tasked Date: 2015/06/13 23:51	Ended Date: 2015/06/14 03:49
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 4:51 PM
	Summary: Parks Canada reported 51 yo hiker with broken ankle on WCT 1/2nm W of Owen Pt, on blood thinners. Parks Canada cannot evac by boat, BCAS cannot get air ambulance either; requested Cormorant Medevac.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
23	Incident Number: T2015-00878	Final Classification: A1	SRR: Trenton
	Location: (52.2322, -94.3428)	Occurred Date: 2015/06/15 21:45	Departed Date: 2015/06/15 22:30
	Source Name: 435 SQN CC-130	Alerted Date: 2015/06/15 21:52	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/15 22:04	Ended Date: 2015/06/16 16:49
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Monday, 5:04 PM
	Summary: Kenora FSS reported a relayed message of an aircraft with engine failure conducting a forced landing on Old Shoes Lake, ON. R340 was tasked and stood down before arriving. Company of downed aircraft arrived on scene and aided POB who had made a safe landing on the lake. No further assistance required. Case Closed.		
	Note: At tasked time, 435 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
24	Incident Number: H2015-00743	Final Classification: M1	SRR: Halifax
	Location: (47.6300, -54.3275)	Occurred Date: 2015/06/16 21:50	Departed Date:
	Source Name: 103 SQN CH-149	Alerted Date: 2015/06/16 21:54	Arrival on Scene: 2015/06/16 22:30
	Response Posture: N/A	Tasked Date: 2015/06/17 10:51	Ended Date: 2015/06/17 20:01
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 8:21 AM
	Summary: Placentia MCTS received a call from a person reporting his brother overdue on board a 23ft boat in the northern part of Placentia Bay, 3 POB, they left early morning and were supposed to return in the afternoon. Placentia MCTS started a mayday relay broadcast. Gander Cormorants R901 and R910, Greenwood Hercules R344, CCGC Spray, CCGS Corporal McLaren M.M.V., DFO FRC, HMCS Shawiningan and CCGA Linda Marie III tasked to search the area. All three POB were found deceased on Bar Haven Island and transported to Argentia. Case closed.		
	Note: At tasked time, 103 SQN's actual RP is unknown. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		

25	Incident Number: H2015-00747	Final Classification: M2	SRR: Halifax
	Location: (45.3360, -66.2010)	Occurred Date: 2015/06/17 12:50	Departed Date: 2015/06/17 13:20
	Source Name: 413 SQN CH-149	Alerted Date: 2015/06/17 12:57	Arrival on Scene: 2015/06/17 13:40
	Response Posture: 2 HR	Tasked Date: 2015/06/17 13:25	Ended Date: 2015/06/17 16:02
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 10:25 AM
	Summary: A concerned citizen reported 2 teenagers on the Saint John River near Westfield in kayaks with no PFD. IRB Saint John tasked to go speak to them. One of the kayaks capsized. CCGC Courtenay Bay FRC, Grand Bay Fire Department and Greenwood Cormorant R913 tasked. The PIW was rescued by a passing sailboat and transfered to IRB Saint John and trasported to EHS on shore. The other kayak was escorted to shore by Grand Bay Fire Department boat. Cormorant R913 was stood down prior to take off. Case closed.		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
26	Incident Number: H2015-00769	Final Classification: M1	SRR: Halifax
	Location: (44.4717, -64.2056)	Occurred Date: 2015/06/20 14:27	Departed Date: 2015/06/20 14:32
	Source Name: 413 SQN CH-149	Alerted Date: 2015/06/20 14:27	Arrival on Scene: 2015/06/20 14:49
	Response Posture: 30 M	Tasked Date: 2015/06/20 14:32	Ended Date: 2015/06/20 22:04
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 11:32 AM
	Summary: 25 ft Cruiser with 2 POB reported taking on water in Mahone Bay between Tancook Isand and Oak Island. Mayday relay put out, IRB Mahone Bay, CCGC Sambro , R307 and R902 tasked. PC Good Vibrations first onscene and IRB assisted in dewatering and beaching the vessel on NW of Round Island. 2pobs returned to Atlantica Oak Isl Marina. Case closed.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
27	Incident Number: H2015-00769	Final Classification: M1	SRR: Halifax
	Location: (44.4717, -64.2056)	Occurred Date: 2015/06/20 14:27	Departed Date: 2015/06/20 14:32
	Source Name: 413 SQN CC-130	Alerted Date: 2015/06/20 14:27	Arrival on Scene: 2015/06/20 14:49
	Response Posture: N/A	Tasked Date: 2015/06/20 14:38	Ended Date: 2015/06/20 22:04
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 11:38 AM
	Summary: 25 ft Cruiser with 2 POB reported taking on water in Mahone Bay between Tancook Isand and Oak Island. Mayday relay put out, IRB Mahone Bay, CCGC Sambro , R307 and R902 tasked. PC Good Vibrations first onscene and IRB assisted in dewatering and beaching the vessel on NW of Round Island. 2pobs returned to Atlantica Oak Isl Marina. Case closed.		
	Note: At tasked time, 413 SQN's actual RP is unknown. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
28	Incident Number: T2015-00923	Final Classification: A1	SRR: Trenton
	Location: (50.5090, -70.3790)	Occurred Date: 2015/06/20 15:00	Departed Date: 2015/06/20 15:31
	Source Name: 424 SQN CC-130	Alerted Date: 2015/06/20 15:01	Arrival on Scene: 2015/06/20 16:15
	Response Posture: 30 M	Tasked Date: 2015/06/20 16:37	Ended Date: 2015/06/20 23:00
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 12:37 PM
	Summary: CMCC called to advise of 406 detect only; shortly after SARSAT position was established. Further investigation found no flight plan but next of kin confirmed that aircraft had departed with 2 POB with a destination of Lac Otapoco. SARSAT detection confirmed Lac Otapoco. A Transport Canada Dash 7 was tasked and located crash site with two survivors moving around. Griffon Helicopter was tasked out of Baggotville, Quebec. 2 POB found and flown to Chicoutimi Hospital with minor injuries. Hercules tasked for top cover and stood down prior to arriving on scene. All SRUs RTB. Case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
29	Incident Number: Q2015-01031	Final Classification: M1	SRR: Halifax
	Location: (47.3260, -62.3163)	Occurred Date: 2015/06/25 12:09	Departed Date: 2015/06/25 12:23
	Source Name: 413 SQN CH-149	Alerted Date: 2015/06/25 12:09	Arrival on Scene: 2015/06/25 14:26
	Response Posture: 2 HR	Tasked Date: 2015/06/25 12:33	Ended Date: 2015/06/25 19:41
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Thursday, 9:33 AM
	Summary: MRSC QUÉBEC SMC : Le bateau de pêche NICOLE REMI à un membre d'équipage qui a fait une chute dans une cale et nécessite une évacuation médicale. NGCC CAP AUX MEULES et le CORM R-902 assignés. Le marin est évacué à l'aéroport des Îles de la Madeleine où il est tranféré aux services ambulanciers.		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
30	Incident Number: V2015-01462	Final Classification: M1	SRR: Victoria
	Location: (50.4582, -126.1617)	Occurred Date: 2015/06/27 22:21	Departed Date: 2015/06/27 22:29
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/27 22:22	Arrival on Scene: 2015/06/27 23:28
	Response Posture: 30 M	Tasked Date: 2015/06/27 23:12	Ended Date: 2015/06/28 06:06
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 4:12 PM
	Summary: 30 ft vessel w 2 POB struck the beach at St. Vincent Bight Johnstone Strait, 1 person w injuries, Tasked CG 508. VOO Island Fury towed to vessel to Kelsey Bay w OO. 1 person w injurues transported to Kelsey Bay on RCMP vessel with EHS then transfered to Victoria General Hospital via S909.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

31	Incident Number: T2015-01022	Final Classification: A1	SRR: Trenton
	Location: (48.2333, -74.3167)	Occurred Date: 2015/06/28 03:37	Departed Date: 2015/06/28 06:12
	Source Name: 424 SQN CC-130	Alerted Date: 2015/06/28 03:38	Arrival on Scene: 2015/06/28 07:33
	Response Posture: 30 M	Tasked Date: 2015/06/28 05:20	Ended Date: 2015/06/28 13:28
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 1:20 AM
	Summary: Family member reported an overdue ultralight on a flight from Alma, PQ to Lac Duchamp, PQ. Confirmed not at destination. 424 SQN Hercules R334 and 439 Sqn Griffon R489 were tasked. R334 found the aircraft and R489 extracted the pilot and returned to Alma. Pilot force landed on a lake due to engine failure. No injuries, no further assistance required. Case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
32	Incident Number: S2015-00226	Final Classification: M1	SRR: Halifax
	Location: (45.9433, -60.5962)	Occurred Date: 2015/06/28 15:40	Departed Date: 2015/06/28 15:40
	Source Name: 413 SQN CH-149	Alerted Date: 2015/06/28 15:40	Arrival on Scene: 2015/06/28 16:30
	Response Posture: 30 M	Tasked Date: 2015/06/28 15:51	Ended Date: 2015/06/29 03:07
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 12:51 PM
	Summary: Truro Royal Canadian Mounted Police (RCMP) dispatch reports a missing person from the community of Eskasoni may have fallen overboard of a small open boat in the Bras D'Or Lakes. The Sydney Mines and Glace Bay FD boats have been requested by the Incident Commander to assist. MAYDAY Relay requested from Sydney MCTS. Cormorant R913 and Hercules 332 tasked. Search object was found VSA near Christmas Is, and was transported by R913 to Sydney hospital. Case closed.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
33	Incident Number: S2015-00226	Final Classification: M1	SRR: Halifax
	Location: (45.9433, -60.5962)	Occurred Date: 2015/06/28 15:40	Departed Date: 2015/06/28 15:40
	Source Name: 413 SQN CC-130	Alerted Date: 2015/06/28 15:40	Arrival on Scene: 2015/06/28 16:30
	Response Posture: 30 M	Tasked Date: 2015/06/28 16:41	Ended Date: 2015/06/29 03:07
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 1:41 PM
	Summary: Truro Royal Canadian Mounted Police (RCMP) dispatch reports a missing person from the community of Eskasoni may have fallen overboard of a small open boat in the Bras D'Or Lakes. The Sydney Mines and Glace Bay FD boats have been requested by the Incident Commander to assist. MAYDAY Relay requested from Sydney MCTS. Cormorant R913 and Hercules 332 tasked. Search object was found VSA near Christmas Is, and was transported by R913 to Sydney hospital. Case closed.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
34	Incident Number: V2015-01490	Final Classification: M1	SRR: Victoria
	Location: (49.0217, -128.3633)	Occurred Date: 2015/06/28 22:59	Departed Date: 2015/06/28 23:47
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/28 23:00	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/28 23:42	Ended Date: 2015/06/29 04:47
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 4:42 PM
	Summary: 67 year old male had prostate problems on 45' sailing vessel 100nm offshore of Tofino. DMO/EHS recommended helo medevac. 442Sqn, CGGS M.Charles and CG Tofino tasked. Patient hoisted by Corm helo and taken to Nanaimo.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
35	Incident Number: V2015-01490	Final Classification: M1	SRR: Victoria
	Location: (49.0217, -128.3633)	Occurred Date: 2015/06/28 22:59	Departed Date: 2015/06/28 23:47
	Source Name: 442 SQN CC-115	Alerted Date: 2015/06/28 23:00	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/06/28 23:47	Ended Date: 2015/06/29 04:47
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 4:47 PM
	Summary: 67 year old male had prostate problems on 45' sailing vessel 100nm offshore of Tofino. DMO/EHS recommended helo medevac. 442Sqn, CGGS M.Charles and CG Tofino tasked. Patient hoisted by Corm helo and taken to Nanaimo.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
36	Incident Number: V2015-01537	Final Classification: H1	SRR: Victoria
	Location: (49.1442, -123.6122)	Occurred Date: 2015/06/30 20:00	Departed Date: 2015/06/30 20:19
	Source Name: 442 SQN CH-149	Alerted Date: 2015/06/30 20:15	Arrival on Scene: 2015/06/30 20:43
	Response Posture: N/A	Tasked Date: 2015/06/30 20:55	Ended Date: 2015/07/01 02:47
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 1:55 PM
	Summary: VAK advised that a VOO had located a body east of thrasher rock, CG Penac tasked to assist with investigation and body recovery, Cape Naden tasked but stood down. RCMP Inkster took the body aboard for the Coroner. Unable to make quick identification therefore CF R907, 457 and Penac conducted a search of the area. RCMP Surrey and Naniamo correlated a missing person report with the subject. Confirmed no marine distress.		
	Note: At tasked time, 442 SQN's actual RP is unknown. (It was on RP30 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
37	Incident Number: V2015-01537	Final Classification: H1	SRR: Victoria
	Location: (49.1442, -123.6122)	Occurred Date: 2015/06/30 20:00	Departed Date: 2015/06/30 20:19
	Source Name: 442 SQN CC-115	Alerted Date: 2015/06/30 20:15	Arrival on Scene: 2015/06/30 20:43
	Response Posture: N/A	Tasked Date: 2015/06/30 22:58	Ended Date: 2015/07/01 02:47
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 3:58 PM
	Summary: VAK advised that a VOO had located a body east of thrasher rock, CG Penac tasked to assist with investigation and body recovery, Cape Naden tasked but stood down. RCMP Inkster took the body aboard for the Coroner. Unable to make quick identification therefore CF R907, 457 and Penac conducted a search of the area. RCMP Surrey and Naniamo correlated a missing person report with the subject. Confirmed no marine distress.		
	Note: At tasked time, 442 SQN's actual RP is unknown. (It was on RP30 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

38	Incident Number: T2015-01052	Final Classification: M1	SRR: Trenton
	Location: (43.6667, -78.1880)	Occurred Date: 2015/06/30 22:40	Departed Date: 2015/06/30 23:13
	Source Name: 424 SQN CH-146	Alerted Date: 2015/06/30 22:49	Arrival on Scene: 2015/07/01 00:04
	Response Posture: 2 HR	Tasked Date: 2015/06/30 22:58	Ended Date: 2015/07/01 02:37
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 6:58 PM
	Summary: Reported Medical condition with crew member aboard Laker ship Paul J Martin, possible heart attack or appendix. Radio Medical issued by Prescott MCTS (VBR). CCGS Cape Mercy tasked to conduct medevac and transport person back to Cobourg. Griffon R491 tasked also but Cape Mercy arrived on scene first and conducted the medevac. Patient transfered to ambulance in Cobourg. Case closed.		
	Note: At tasked time, 424 SQN was on RP2. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
39	Incident Number: T2015-01075	Final Classification: M2	SRR: Halifax
	Location: (62.1345, -72.7838)	Occurred Date: 2015/06/30 07:56	Departed Date: 2015/07/02 09:30
	Source Name: 413 SQN CC-130	Alerted Date: 2015/07/02 07:03	Arrival on Scene: 2015/07/02 23:10
	Response Posture: 30 M	Tasked Date: 2015/07/02 17:05	Ended Date: 2015/07/04 18:39
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Thursday, 2:05 PM
	Summary: Overdue 22ft Futura power boat with cutty cabin, 3 POB departed Salluit, Que June 29th for hunting on Charles Island NU and due to return June 30th. Winnipeg 435 Sqn Herc R340, Greenwood 413 Sqn Herc R332, Transport Canada R922 and CCGS Pierre Raddison with CG helo 366 tasked. Local Kativik police vessel also is involved in the search. CG 366 located the boat that drifted ashore all occupants OK. R340 RON Iqaluit. The CG 366 recovered the 3 persons returning them to the CCGS Pierre Radisson. The 3 were dropped off at Salluit by CG 366 the following morning, July 3rd. 2015. Case Closed		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
40	Incident Number: T2015-01075	Final Classification: M2	SRR: Trenton
	Location: (62.1345, -72.7838)	Occurred Date: 2015/06/30 07:56	Departed Date: 2015/07/02 09:30
	Source Name: 435 SQN CC-130	Alerted Date: 2015/07/02 07:03	Arrival on Scene: 2015/07/02 23:10
	Response Posture: 2 HR	Tasked Date: 2015/07/03 19:10	Ended Date: 2015/07/04 18:39
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 2:10 PM
	Summary: Overdue 22ft Futura power boat with cutty cabin, 3 POB departed Salluit, Que June 29th for hunting on Charles Island NU and due to return June 30th. Winnipeg 435 Sqn Herc R340, Greenwood 413 Sqn Herc R332, Transport Canada R922 and CCGS Pierre Raddison with CG helo 366 tasked. Local Kativik police vessel also is involved in the search. CG 366 located the boat that drifted ashore all occupants OK. R340 RON Iqaluit. The CG 366 recovered the 3 persons returning them to the CCGS Pierre Radisson. The 3 were dropped off at Salluit by CG 366 the following morning, July 3rd. 2015. Case Closed		
	Note: At tasked time, 435 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
41	Incident Number: S2015-00296	Final Classification: M1	SRR: Halifax
	Location: (46.5208, -64.6567)	Occurred Date: 2015/07/03 19:30	Departed Date: 2015/07/03 19:39
	Source Name: 413 SQN CH-149	Alerted Date: 2015/07/03 19:37	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/07/03 19:39	Ended Date: 2015/07/03 23:45
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 4:39 PM
	Summary: Codiac 911 had a concerned citizen report a child drifting in an inflatable boat 1km off shore near Bouctouche, NB. Fire, police and EHS responding. Distress Broadcast (MAYDAY) broadcast made by MCTS Sydney (VCO). IRB Shediac and Cormorant from Greenwood tasked. Shortly after the initial call, a second call was made to JRCC reporting the child was safely ashore and was hypothermic, 911 arranged for an ambulance to respond; all other resources stood down. Case Closed.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
42	Incident Number: V2015-01648	Final Classification: H1	SRR: Victoria
	Location: (48.3000, -123.5320)	Occurred Date: 2015/07/05 18:30	Departed Date: 2015/07/05 19:07
	Source Name: 442 SQN CC-115	Alerted Date: 2015/07/05 18:46	Arrival on Scene: 2015/07/05 19:14
	Response Posture: 30 M	Tasked Date: 2015/07/06 00:57	Ended Date: 2015/07/07 04:03
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 5:57 PM
	Summary: VAK reported Juan De Fuca Warrior has a diver missing near Race Rocks. R909, R465, USCG R6957, RCM 33, RCM 35, RCM37 CG Ganges and HMCS Whitehorse tasked, along with multiple VOO's. Area searched extensively with negative results. Handed over to Westshore RCMP as a missing persons case.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
43	Incident Number: V2015-01648	Final Classification: H1	SRR: Victoria
	Location: (48.3000, -123.5320)	Occurred Date: 2015/07/05 18:30	Departed Date:
	Source Name: 442 SQN CH-149	Alerted Date: 2015/07/05 18:46	Arrival on Scene: 2015/07/05 19:14
	Response Posture: 30 M	Tasked Date: 2015/07/06 17:23	Ended Date: 2015/07/07 04:03
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Monday, 10:23 AM
	Summary: VAK reported Juan De Fuca Warrior has a diver missing near Race Rocks. R909, R465, USCG R6957, RCM 33, RCM 35, RCM37 CG Ganges and HMCS Whitehorse tasked, along with multiple VOO's. Area searched extensively with negative results. Handed over to Westshore RCMP as a missing persons case.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		

44	Incident Number: H2015-00907	Final Classification: A1	SRR: Halifax
	Location: (45.4187, -63.4606)	Occurred Date: 2015/07/11 21:29	Departed Date: 2015/07/11 21:29
	Source Name: 413 SQN CH-149	Alerted Date: 2015/07/11 21:30	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/07/11 21:29	Ended Date: 2015/07/12 00:34
	POB: 2 (Saved = 2, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 6:29 PM
	Summary: JRCC received a call from Truro 911, an Air Cadet glider crashed short of rwy34 in Debert. Caller Ryan Fernandez says that the carsh site has been found; the glider is suspended in a tree, 2 POB are conscious, and injuries are unknown at this time. Fire and emergency services arrived on scene and extracted the 2 POB and were assesed on scene by paramedics. R913 was stood down. Case Closed.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
45	Incident Number: T2015-01247	Final Classification: M2	SRR: Trenton
	Location: (62.5633, -77.1300)	Occurred Date: 2015/07/12 13:00	Departed Date: 2015/07/12 13:19
	Source Name: 424 SQN CC-130	Alerted Date: 2015/07/12 13:18	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/07/12 14:35	Ended Date: 2015/07/13 14:35
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 10:35 AM
	Summary: Vessel broken down and stuck in the ice, worried about being crushed by ice due to currents, possibly 6 POB. CCGS Terry Fox and R333 424 Sqn Herc tasked to assist. Vessel located and all OK CCGS Terry Fox assited vessel with POBs back to safe haeven. All safe and secure. Case closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
46	Incident Number: T2015-01260	Final Classification: M1	SRR: Trenton
	Location: (45.9670, -81.4832)	Occurred Date: 2015/07/12 19:10	Departed Date: 2015/07/12 19:30
	Source Name: 424 SQN CH-146	Alerted Date: 2015/07/12 19:17	Arrival on Scene: 2015/07/12 19:40
	Response Posture: 30 M	Tasked Date: 2015/07/12 19:28	Ended Date: 2015/07/12 21:07
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 3:28 PM
	Summary: CCGA Dolphine tasked for a medical emergency aboard a S/V, VOO & CGA DOlphin got onscene with paramedics & assisted. R491 Griffon from 424 SQN tasked & stood down. Person transfered to ORNGE. Case Closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
47	Incident Number: H2015-00984	Final Classification: H1	SRR: Halifax
	Location: (47.0920, -55.2108)	Occurred Date: 2015/07/18 14:21	Departed Date: 2015/07/18 14:26
	Source Name: 103 SQN CH-149	Alerted Date: 2015/07/18 14:29	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/07/18 14:26	Ended Date: 2015/07/18 22:33
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 11:56 AM
	Summary: Esatern Health requested assistance in order to MEDEVAC a critical patient in renal failure from the hospital in Burin to St John's. Both provincial fixed wing and helicopters air assets are unavailable. Gander Cormorant (R910) carried out the mission WFI. Case closed.		
	Note: At tasked time, 103 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
48	Incident Number: T2015-01385	Final Classification: M2	SRR: Trenton
	Location: (43.2258, -79.6127)	Occurred Date: 2015/07/19 18:50	Departed Date: 2015/07/19 19:10
	Source Name: 424 SQN CC-130	Alerted Date: 2015/07/19 18:54	Arrival on Scene: 2015/07/19 19:36
	Response Posture: 30 M	Tasked Date: 2015/07/19 19:23	Ended Date: 2015/07/20 23:12
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 3:23 PM
	Summary: CCGA Gamru and 424 Sqn Herc R333 tasked to assist a raft with 2 POB drifting in the small arms range near Fifty Mile Pt Lake Ontario. Party picked up by Hamilton Police and brought to shore. R333 released enroute. Case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
49	Incident Number: H2015-01005	Final Classification: M2	SRR: Halifax
	Location: (47.0452, -55.1480)	Occurred Date: 2015/07/19 21:20	Departed Date: 2015/07/19 21:40
	Source Name: 103 SQN CH-149	Alerted Date: 2015/07/19 21:23	Arrival on Scene: 2015/07/19 21:50
	Response Posture: 30 M	Tasked Date: 2015/07/19 21:35	Ended Date: 2015/07/19 23:21
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 7:05 PM
	Summary: Placentia MCTS repots 2 vessels disabled: the Madison Bailey and a 27' pleasure craft. 103 Sqn Cormorant and CCGC W, Jackman tasked to assist. The 27 ft Cabin Cruiser was found aground with 5 persons on the shore trying to keep the boat off the rocks. The CCGC W. Jackman towed the vessel off the rocks where another vessel took the tow. Vessel was escorted to Burin. Case closed.		
	Note: At tasked time, 103 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
50	Incident Number: H2015-01021	Final Classification: H1	SRR: Halifax
	Location: (47.1028, -55.1980)	Occurred Date: 2015/07/21 15:01	Departed Date: 2015/07/21 15:25
	Source Name: 103 SQN CH-149	Alerted Date: 2015/07/21 15:01	Arrival on Scene:
	Response Posture: 2 HR	Tasked Date: 2015/07/21 15:20	Ended Date: 2015/07/21 23:08
	POB: 2 (Saved = 1, Assisted = 0, Lost = 1, Missing = 0)		Local Tasked Time: Tuesday, 12:50 PM
	Summary: EHS called to request a medevac of a 69 year old diabetic patient in acute renal failure from Burin to St John's Health Science Center (HSC). Provincial helicopters unable to complete mission due to weather. Corm R910 was tasked to conduct medevac. On arrival at Burin a request was made for a second critical patient as well. The Doctor from Burin accompaniend both patients to HSC. Case closed.		
	Note: At tasked time, 103 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

51	Incident Number: T2015-01453	Final Classification: H1	SRR: Trenton
	Location: (42.8581, -79.0588)	Occurred Date: 2015/07/23 21:05	Departed Date: 2015/07/23 21:21
	Source Name: 424 SQN CH-146	Alerted Date: 2015/07/23 21:10	Arrival on Scene: 2015/07/23 21:21
	Response Posture: N/A	Tasked Date: 2015/07/24 21:34	Ended Date: 2015/07/24 19:23
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 5:34 PM
	Summary: PIW Off east end of Crystal beach, MAYDAY relay issued CGS Robertson and RHIBs, CGA Pocomar and Sandman Fort eire FD and griffon R432 tasked. CGS Robertson have been assigned On scene coordinator. NRPD also assigend a dive team to search LKP with no result. Case assumed by NRP once it was determined that the raft was not used for surface navigation and case classified as humanitarian. NRPD 15-60695. Case Closed		
	Note: At tasked time, 424 SQN's actual RP is unknown. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
52	Incident Number: S2015-00333	Final Classification: A1	SRR: Halifax
	Location: (64.3010, -60.9370)	Occurred Date: 2015/07/25 17:51	Departed Date: 2015/07/25 18:50
	Source Name: 413 SQN CC-130	Alerted Date: 2015/07/25 17:51	Arrival on Scene: 2015/07/26 01:00
	Response Posture: 2 HR	Tasked Date: 2015/07/25 18:30	Ended Date: 2015/07/30 11:44
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 3:30 PM
	Summary: A Robinson 22 helicopter (D-HDIM) that was transiting from Iqaluit, NU to Nuuk Greenland was declared to be overdue with a last-known-position (LKP) 210 NM East of Iqaluit. The LKP was obtained from a Delorme Tracker. Iqaluit MCTS (VFF) issued a Marine Distress Broadcast (MADAY) and Halifax MCTS (VCS) issued an Enhanced Group Call (EGC) broadcast. Multiple resources were tasked to assist. The CCGS PIERRE RADISSON sighted a red flare and the vessels helicopter (CG366) rescued the missing pilot, who was safe and sound less than one NM from the LKP. After transiting aboard the CCGS PIERRE RADISSON to a position 10 NM from Iqaluit, CG366 transfer the survivor to the Iqaluit airport. Case closed.		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
53	Incident Number: V2015-01998	Final Classification: M1	SRR: Victoria
	Location: (49.5165, -123.2929)	Occurred Date: 2015/07/26 03:50	Departed Date: 2015/07/26 04:18
	Source Name: 442 SQN CH-149	Alerted Date: 2015/07/26 03:55	Arrival on Scene: 2015/07/26 04:27
	Response Posture: 30 M	Tasked Date: 2015/07/26 04:54	Ended Date: 2015/07/27 05:16
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 9:54 PM
	Summary: A 20' P/C was found adrift south of Anvil Island with no persons on board. The personal effects on board indicated that this was not a derelict but there were people missing. The CG Hovercrafts, Penac & Moytel, CG506, R909, R908, R462, CG AUX 01, 04, and 14 were tasked to search Howe Sound. One 6 YOF was found deceased and the search continued for a 60 YOM with NEGRES. Case was handed over to RCMP as a missing person case. Their case # 2015-5037.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
54	Incident Number: V2015-01998	Final Classification: M1	SRR: Victoria
	Location: (49.5165, -123.2929)	Occurred Date: 2015/07/26 03:50	Departed Date:
	Source Name: 442 SQN CH-149	Alerted Date: 2015/07/26 03:55	Arrival on Scene: 2015/07/26 04:27
	Response Posture: 30 M	Tasked Date: 2015/07/26 20:10	Ended Date: 2015/07/27 05:16
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 1:10 PM
	Summary: A 20' P/C was found adrift south of Anvil Island with no persons on board. The personal effects on board indicated that this was not a derelict but there were people missing. The CG Hovercrafts, Penac & Moytel, CG506, R909, R908, R462, CG AUX 01, 04, and 14 were tasked to search Howe Sound. One 6 YOF was found deceased and the search continued for a 60 YOM with NEGRES. Case was handed over to RCMP as a missing person case. Their case # 2015-5037.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
55	Incident Number: V2015-01998	Final Classification: M1	SRR: Victoria
	Location: (49.5165, -123.2929)	Occurred Date: 2015/07/26 03:50	Departed Date:
	Source Name: 442 SQN CH-149	Alerted Date: 2015/07/26 03:55	Arrival on Scene: 2015/07/26 04:27
	Response Posture: 30 M	Tasked Date: 2015/07/27 01:00	Ended Date: 2015/07/27 05:16
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 6:00 PM
	Summary: A 20' P/C was found adrift south of Anvil Island with no persons on board. The personal effects on board indicated that this was not a derelict but there were people missing. The CG Hovercrafts, Penac & Moytel, CG506, R909, R908, R462, CG AUX 01, 04, and 14 were tasked to search Howe Sound. One 6 YOF was found deceased and the search continued for a 60 YOM with NEGRES. Case was handed over to RCMP as a missing person case. Their case # 2015-5037.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
56	Incident Number: S2015-00364	Final Classification: M1	SRR: Halifax
	Location: (45.6153, -60.8620)	Occurred Date: 2015/07/29 22:50	Departed Date: 2015/07/29 23:08
	Source Name: 413 SQN CH-149	Alerted Date: 2015/07/29 22:53	Arrival on Scene:
	Response Posture: N/A	Tasked Date: 2015/07/29 23:08	Ended Date: 2015/07/30 05:43
	POB: 2 (Saved = 2, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 8:08 PM
	Summary: 911 Truro transferred a caller reporting people in the water off Grand Greve, NS. The following resources were tasked: a 413 Sqn Cormorant helicopter (R910), some vessels of opportunity, and local emergency services. The F/V MISS BETHONY recovered two persons from the water and transferred them to the St Peter's Fire Boat. Case closed.		
	Note: At tasked time, 413 SQN's actual RP is unknown. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		

57	Incident Number: S2015-00370	Final Classification: M1	SRR: Halifax
	Location: (44.2333, -62.9700)	Occurred Date: 2015/07/30 12:10	Departed Date: 2015/07/30 12:06
	Source Name: 413 SQN CH-149	Alerted Date: 2015/07/30 12:10	Arrival on Scene: 2015/07/30 12:10
	Response Posture: 2 HR	Tasked Date: 2015/07/30 12:40	Ended Date: 2015/07/30 17:30
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Thursday, 9:40 AM
	Summary: FV Midnight Magic reported having a crew member with possible Anaphylaxis shock. PRAXES reccomended medical attention and epinephrine epipen. CCGS Cape Edensaw evacuated patient to Sambro and transferred to EHS. Case closed.		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
58	Incident Number: T2015-01616	Final Classification: M2	SRR: Trenton
	Location: (46.9898, -90.8513)	Occurred Date: 2015/08/01 13:30	Departed Date: 2015/08/01 21:04
	Source Name: 424 SQN CC-130	Alerted Date: 2015/08/01 21:01	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/01 21:12	Ended Date: 2015/08/02 00:02
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 5:12 PM
	Summary: USCG requested helo to assist in search of missing 17 YOM kayaker separated from group western Lake Superior US side. 424 Sqn Herc R307 in Sault airborne tasked but stood down enroute as party located by passing boaters. R307 RTB case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
59	Incident Number: T2015-01620	Final Classification: H1	SRR: Trenton
	Location: (43.4270, -77.9619)	Occurred Date: 2015/08/01 21:05	Departed Date: 2015/08/01 22:10
	Source Name: 424 SQN CH-146	Alerted Date: 2015/08/01 22:02	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/01 22:10	Ended Date: 2015/08/02 03:37
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 6:10 PM
	Summary: USCG requested air support for a PIW off Rochester NY. 424 Sqn Griffon R422 tasked. Area searched and person found still treading water without PFD for multiple hours. Griffon released case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
60	Incident Number: T2015-01636	Final Classification: M2	SRR: Trenton
	Location: (45.9683, -81.3358)	Occurred Date: 2015/08/02 14:00	Departed Date: 2015/08/02 17:20
	Source Name: 424 SQN CC-130	Alerted Date: 2015/08/02 16:50	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/02 17:20	Ended Date: 2015/08/02 22:01
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 1:20 PM
	Summary: Group of kayakers lost sight of two kayaks in their group so they returned to point of departure thinking they might be there but they weren't. Issued Urgency brdcst, tasked CG07 and 424 Sqn Herc R307 to the area. Reporting party later advised they made contact with missing kayakers via cell phone, they were in another bay close by, cold but okay, no further assistance required by JRCC. Brdcst cancelled, SAR units stood down. Case closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
61	Incident Number: S2015-00417	Final Classification: M2	SRR: Halifax
	Location: (44.6450, -63.4180)	Occurred Date: 2015/08/02 19:15	Departed Date: 2015/08/02 19:24
	Source Name: 413 SQN CH-149	Alerted Date: 2015/08/02 19:22	Arrival on Scene: 2015/08/02 19:45
	Response Posture: N/A	Tasked Date: 2015/08/02 19:24	Ended Date: 2015/08/03 01:06
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 4:24 PM
	Summary: Halifax 911 had a caller reporting a group of people in distress off Rainbow Haven Beach. Halifax MCTS issued Broadcast. Tasked CCGC Cape Edenshaw, Halifax IRB, CCGC G. Peddle, Cormorant 910. Locad FD and EHS also responded. All POB's self recovered safely ashore. All resources stood down. Case Closed.		
	Note: At tasked time, 413 SQN's actual RP is unknown. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
62	Incident Number: S2015-00420	Final Classification: H1	SRR: Halifax
	Location: (46.3000, -61.2333)	Occurred Date: 2015/08/02 19:30	Departed Date: 2015/08/02 19:39
	Source Name: 413 SQN CH-149	Alerted Date: 2015/08/02 19:36	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/02 19:39	Ended Date: 2015/08/03 00:41
	POB: 24 (Saved = 22, Assisted = 0, Lost = 2, Missing = 0)		Local Tasked Time: Sunday, 4:39 PM
	Summary: 911 reported multiple swimmers in trouble at MacLeod's camp ground in Inverness County. Witness reported up to 12 swimmers possibly in trouble. A Cormorant helicopter and Hercules were tasked. The swimmers were able to self recover to the beach and were treated by EHS. 1 swimmer deceased at the scene and one was treated by paramedics on scene. All assets were stood down when all PIWs were confirmed to have returned to shore. Case Closed		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
63	Incident Number: S2015-00420	Final Classification: H1	SRR: Halifax
	Location: (46.3000, -61.2333)	Occurred Date: 2015/08/02 19:30	Departed Date: 2015/08/02 19:39
	Source Name: 413 SQN CC-130	Alerted Date: 2015/08/02 19:36	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/02 19:40	Ended Date: 2015/08/03 00:41
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 4:40 PM
	Summary: 911 reported multiple swimmers in trouble at MacLeod's camp ground in Inverness County. Witness reported up to 12 swimmers possibly in trouble. A Cormorant helicopter and Hercules were tasked. The swimmers were able to self recover to the beach and were treated by EHS. 1 swimmer deceased at the scene and one was treated by paramedics on scene. All assets were stood down when all PIWs were confirmed to have returned to shore. Case Closed		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

64	Incident Number: S2015-00480	Final Classification: M1	SRR: Halifax
	Location: (43.3000, -51.3500)	Occurred Date: 2015/08/05 13:00	Departed Date: 2015/08/05 13:36
	Source Name: 103 SQN CH-149	Alerted Date: 2015/08/05 13:09	Arrival on Scene:
	Response Posture: 2 HR	Tasked Date: 2015/08/05 14:10	Ended Date: 2015/08/06 01:12
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 11:40 AM
	Summary: FV Santa Isabel is 270nm S of St John's and a crew member overdosed on anti-depressants. Praxes radiomedical conducted with vessel and the Dr recommends a helo medevac. R901 tasked and delivered patient to Saint John's Health Services Centre. Case Closed.		
	Note: At tasked time, 103 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
65	Incident Number: S2015-00480	Final Classification: M1	SRR: Halifax
	Location: (43.3000, -51.3500)	Occurred Date: 2015/08/05 13:00	Departed Date: 2015/08/05 13:36
	Source Name: 413 SQN CC-130	Alerted Date: 2015/08/05 13:09	Arrival on Scene:
	Response Posture: 2 HR	Tasked Date: 2015/08/05 14:48	Ended Date: 2015/08/06 01:12
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 11:48 AM
	Summary: FV Santa Isabel is 270nm S of St John's and a crew member overdosed on anti-depressants. Praxes radiomedical conducted with vessel and the Dr recommends a helo medevac. R901 tasked and delivered patient to Saint John's Health Services Centre. Case Closed.		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
66	Incident Number: H2015-01064	Final Classification: M2	SRR: Halifax
	Location: (50.7308, -57.3417)	Occurred Date: 2015/08/07 19:13	Departed Date: 2015/08/07 19:38
	Source Name: 103 SQN CH-149	Alerted Date: 2015/08/07 19:14	Arrival on Scene: 2015/08/07 19:45
	Response Posture: 2 HR	Tasked Date: 2015/08/07 19:39	Ended Date: 2015/08/07 21:43
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 5:09 PM
	Summary: FV Demaris & Lucas was reported disabled near shore to JRCC by Port Aux Basque MCTS. MARB done and VOO Katie Michelle responded. CCGS Cape Norman also tasked due to location of vessel. CCGS Cape Norman arrived on scene and towed the vessel back to Port aux Choix. Case closed.		
	Note: At tasked time, 103 SQN was on RP2. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
67	Incident Number: V2015-02262	Final Classification: M1	SRR: Victoria
	Location: (49.3383, -129.1283)	Occurred Date: 2015/08/08 21:15	Departed Date: 2015/08/08 23:20
	Source Name: 442 SQN CH-149	Alerted Date: 2015/08/08 21:18	Arrival on Scene: 2015/08/09 00:50
	Response Posture: 30 M	Tasked Date: 2015/08/08 22:48	Ended Date: 2015/08/09 04:08
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 3:48 PM
	Summary: Crewmember on deep sea bulk carrier reported stomach pains, lowered consciousness level. EPOS recommended air medevac at sea. Cormorant R908 tasked along with Buff R465 for top cover. R908 hoisted member from ship and evacuated to EHS crew in Comox.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
68	Incident Number: V2015-02262	Final Classification: M1	SRR: Victoria
	Location: (49.3383, -129.1283)	Occurred Date: 2015/08/08 21:15	Departed Date: 2015/08/08 23:20
	Source Name: 442 SQN CC-115	Alerted Date: 2015/08/08 21:18	Arrival on Scene: 2015/08/09 00:50
	Response Posture: 30 M	Tasked Date: 2015/08/08 23:06	Ended Date: 2015/08/09 04:08
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 4:06 PM
	Summary: Crewmember on deep sea bulk carrier reported stomach pains, lowered consciousness level. EPOS recommended air medevac at sea. Cormorant R908 tasked along with Buff R465 for top cover. R908 hoisted member from ship and evacuated to EHS crew in Comox.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
69	Incident Number: T2015-01776	Final Classification: M2	SRR: Trenton
	Location: (42.6617, -80.2777)	Occurred Date: 2015/08/11 21:00	Departed Date: 2015/08/11 21:52
	Source Name: 424 SQN CH-146	Alerted Date: 2015/08/11 21:48	Arrival on Scene: 2015/08/11 22:25
	Response Posture: 30 M	Tasked Date: 2015/08/11 21:56	Ended Date: 2015/08/12 00:34
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 5:56 PM
	Summary: Report rec'd of capsized Jet boat with 3 piws, somewhere near Turkey Pt. Distress brdcst issued, CG04 and Cape Lambton FRC tasked. CG04 arrived on scene and vessel was not capsized but swamped. Vessel was towed into Turkey Point. Case Closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
70	Incident Number: T2015-01776	Final Classification: M2	SRR: Trenton
	Location: (42.6617, -80.2777)	Occurred Date: 2015/08/11 21:00	Departed Date: 2015/08/11 21:52
	Source Name: 424 SQN CC-130	Alerted Date: 2015/08/11 21:48	Arrival on Scene: 2015/08/11 22:25
	Response Posture: 30 M	Tasked Date: 2015/08/11 21:56	Ended Date: 2015/08/12 00:34
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 5:56 PM
	Summary: Report rec'd of capsized Jet boat with 3 piws, somewhere near Turkey Pt. Distress brdcst issued, CG04 and Cape Lambton FRC tasked. CG04 arrived on scene and vessel was not capsized but swamped. Vessel was towed into Turkey Point. Case Closed		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

71	Incident Number: V2015-02394	Final Classification: M2	SRR: Victoria
	Location: (49.3698, -124.4403)	Occurred Date: 2015/08/16 00:20	Departed Date: 2015/08/16 00:34
	Source Name: 442 SQN CH-149	Alerted Date: 2015/08/16 00:30	Arrival on Scene: 2015/08/16 00:41
	Response Posture: 30 M	Tasked Date: 2015/08/16 00:33	Ended Date: 2015/08/16 01:16
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 5:33 PM
	Summary: 911 from ashore reporting 2 women capsized their canoe off Qualicum Beach. Fr Creek 1 and 908 tasked. Fr Crk recovered and took ashore		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
72	Incident Number: H2015-01174	Final Classification: M1	SRR: Halifax
	Location: (42.9667, -61.9167)	Occurred Date: 2015/08/16 15:30	Departed Date: 2015/08/16 16:09
	Source Name: 413 SQN CH-149	Alerted Date: 2015/08/16 15:39	Arrival on Scene: 2015/08/16 16:58
	Response Posture: 30 M	Tasked Date: 2015/08/16 15:54	Ended Date: 2015/08/16 23:10
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 12:54 PM
	Summary: Halifax MCTS performed a radiomedico between the FV Nicole and Sisters 2 and PRAXIS, PRAXIS reccomends a medevac due to a crew member suffering from a possible heart attack. The vessel was 112nm south of Sambro NS. Herc R344 and Cormorant R910 tasked to assist. Herc arrived approx 35 min before the Corm. SAR Techs from Herc. Corm hoisted patient and flew to Shearwater and handed over to EHS. Case closed		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
73	Incident Number: H2015-01174	Final Classification: M1	SRR: Halifax
	Location: (42.9667, -61.9167)	Occurred Date: 2015/08/16 15:30	Departed Date: 2015/08/16 16:09
	Source Name: 413 SQN CC-130	Alerted Date: 2015/08/16 15:39	Arrival on Scene: 2015/08/16 16:58
	Response Posture: 30 M	Tasked Date: 2015/08/16 16:07	Ended Date: 2015/08/16 23:10
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 1:07 PM
	Summary: Halifax MCTS performed a radiomedico between the FV Nicole and Sisters 2 and PRAXIS, PRAXIS reccomends a medevac due to a crew member suffering from a possible heart attack. The vessel was 112nm south of Sambro NS. Herc R344 and Cormorant R910 tasked to assist. Herc arrived approx 35 min before the Corm. SAR Techs from Herc. Corm hoisted patient and flew to Shearwater and handed over to EHS. Case closed		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
74	Incident Number: H2015-01185	Final Classification: H1	SRR: Halifax
	Location: (48.1670, -53.9670)	Occurred Date: 2015/08/16 21:21	Departed Date: 2015/08/16 21:41
	Source Name: 103 SQN CH-149	Alerted Date: 2015/08/16 21:21	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/16 21:41	Ended Date: 2015/08/17 14:16
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 7:11 PM
	Summary: Eastern Health requesting a helo medevac for a MVA victim near Clarenville, NL. Ground transport not available due to closed highway and air resources unable due night flight conditions. R905 tasked to conduct medevac. R905 picked up medical flight team and proceeded to Clarenville. R905 airlifted patient to St John's hospital and returned to base Gander WFI. Case Closed.		
	Note: At tasked time, 103 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
75	Incident Number: V2015-02435	Final Classification: A1	SRR: Victoria
	Location: (49.0867, -124.2550)	Occurred Date: 2015/08/18 17:46	Departed Date: 2015/08/18 18:24
	Source Name: 442 SQN CH-149	Alerted Date: 2015/08/18 17:47	Arrival on Scene: 2015/08/18 18:47
	Response Posture: 2 HR	Tasked Date: 2015/08/18 18:08	Ended Date: 2015/08/19 03:17
	POB: 2 (Saved = 2, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 11:08 AM
	Summary: CMCC reported an ELT activation on a small home built helicopter. Nanaimo FSS reported the helicopter left Nanaimo airport and had not returned or made contact. Corm 904 and Buf 465 were tasked to search for the crash. The 2 POB survived the crash with minor injuries and the Corm took them back to Nanaimo airport. EHS was not required and TSB was advised.		
	Note: At tasked time, 442 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
76	Incident Number: V2015-02435	Final Classification: A1	SRR: Victoria
	Location: (49.0867, -124.2550)	Occurred Date: 2015/08/18 17:46	Departed Date: 2015/08/18 18:24
	Source Name: 442 SQN CC-115	Alerted Date: 2015/08/18 17:47	Arrival on Scene: 2015/08/18 18:47
	Response Posture: 2 HR	Tasked Date: 2015/08/18 18:20	Ended Date: 2015/08/19 03:17
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 11:20 AM
	Summary: CMCC reported an ELT activation on a small home built helicopter. Nanaimo FSS reported the helicopter left Nanaimo airport and had not returned or made contact. Corm 904 and Buf 465 were tasked to search for the crash. The 2 POB survived the crash with minor injuries and the Corm took them back to Nanaimo airport. EHS was not required and TSB was advised.		
	Note: At tasked time, 442 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		

77	Incident Number: V2015-02453	Final Classification: M2	SRR: Victoria
	Location: (51.0257, -128.4163)	Occurred Date: 2015/08/19 10:40	Departed Date:
	Source Name: 442 SQN CH-149	Alerted Date: 2015/08/19 10:45	Arrival on Scene: 2015/08/19 20:05
	Response Posture: 30 M	Tasked Date: 2015/08/19 16:30	Ended Date: 2015/08/20 04:00
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 9:30 AM
	Summary: A 45' S/V with 1 POB made a MAYDAY call because he was OOF and the O/O was injured. Prince Rupert MCTS heard the transmission but could not isolate the source. They were subsequently unable to raise the S/V and establish effective comms thereafter. Buff, Corm, CCGS Tanu, and the Cape Sutil were tasked to search. After an extensive search the S/V was located 14NM north of Cape Scott. The O/O was unresponsive to all hails and not seen to be in control of his vessel; the Buff SAR Techs jumped to establish his condition. The person was below, in good condition, and unaware of all attempts to search for him. The SAR Techs were recovered by the Cormorant, the O\O was transferred to the CCGS Tanu for transport, and the CCGC Cape Sutil towed the vessel into Port Hardy.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
78	Incident Number: H2015-01233	Final Classification: M1	SRR: Halifax
	Location: (48.0622, -66.3071)	Occurred Date: 2015/08/20 20:00	Departed Date: 2015/08/21 02:40
	Source Name: 413 SQN CC-130	Alerted Date: 2015/08/21 02:04	Arrival on Scene: 2015/08/21 03:00
	Response Posture: 30 M	Tasked Date: 2015/08/21 12:00	Ended Date: 2015/08/21 22:58
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Friday, 9:00 AM
	Summary: Bathurst 911 advised of a missing boater near Dalhousie NB. A 35 ft Benneteau sailboat was found adrift with the motor running and all three lifejackets in the vessel. Les Escoumins MCTS issued a Mayday relay broadcast. Multiple CGA vessels tasked, Fire dept, Speed Air, Cormorant and Hercules. Solo occupant was a 55 YOM whose body was found just Southwest of the Bonami Rocks. Case closed.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
79	Incident Number: T2015-01935	Final Classification: A1	SRR: Trenton
	Location: (43.1412, -79.5745)	Occurred Date: 2015/08/22 15:30	Departed Date: 2015/08/22 16:05
	Source Name: 424 SQN CH-146	Alerted Date: 2015/08/22 15:33	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/22 16:05	Ended Date: 2015/08/23 04:46
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 12:05 PM
	Summary: Unlocated 406 ELT registered in Grimsby, ON. During the investigation process, NRPD confirmed that an aircraft had crashed near Grimsby. 424 Sqn R491 tasked while in transit through the area and stood down before arriving on scene aftter the sole occuppant was extracted from the wreckage and transported to Hamilton General Hospital with severe injuries. NOK, ACC and TSB info'ed. No further action required from RCC. Case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
80	Incident Number: T2015-01958	Final Classification: A1	SRR: Halifax
	Location: (48.2528, -69.6895)	Occurred Date: 2015/08/23 16:58	Departed Date: 2015/08/23 17:17
	Source Name: 413 SQN CC-130	Alerted Date: 2015/08/23 16:58	Arrival on Scene: 2015/08/23 18:30
	Response Posture: 30 M	Tasked Date: 2015/08/23 17:17	Ended Date: 2015/08/24 17:37
	POB: 6 (Saved = 0, Assisted = 0, Lost = 6, Missing = 0)		Local Tasked Time: Sunday, 2:17 PM
	Summary: Air Saguenay reported that company aircraft, C-FKRJ was overdue from conducting a tourist flight near Tadoussac, QC with 6 POB. Numerous resources were tasked to search: 413 Sqn Cormorant helicopter (R913); 439 Sqn Griffon Helicopter (R439); 413 Sqn Hercules aircraft (R344); CCGS CAP PERCÉ; and CCGA ASTRO. Air SAguenay discovered the crash site in a remote area on a hill side, 52 NM East of Bagotville, QC. R344 parachuted three SAR Techs to the crash site and confirmed occupants were deceased. Two SAR Techs from R913 remained at crash site until arrival of SQ members. Due to a fire that spread from the wreckage, SQ members and SAR techs had to be hoisted from the crash site. Case turned over to the SQ for body recovery. All SAR resources stood down. Case ongoing...		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
81	Incident Number: T2015-01958	Final Classification: A1	SRR: Halifax
	Location: (48.2528, -69.6895)	Occurred Date: 2015/08/23 16:58	Departed Date: 2015/08/23 17:17
	Source Name: 413 SQN CH-149	Alerted Date: 2015/08/23 16:58	Arrival on Scene: 2015/08/23 18:30
	Response Posture: 30 M	Tasked Date: 2015/08/23 17:19	Ended Date: 2015/08/24 17:37
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 2:19 PM
	Summary: Air Saguenay reported that company aircraft, C-FKRJ was overdue from conducting a tourist flight near Tadoussac, QC with 6 POB. Numerous resources were tasked to search: 413 Sqn Cormorant helicopter (R913); 439 Sqn Griffon Helicopter (R439); 413 Sqn Hercules aircraft (R344); CCGS CAP PERCÉ; and CCGA ASTRO. Air SAguenay discovered the crash site in a remote area on a hill side, 52 NM East of Bagotville, QC. R344 parachuted three SAR Techs to the crash site and confirmed occupants were deceased. Two SAR Techs from R913 remained at crash site until arrival of SQ members. Due to a fire that spread from the wreckage, SQ members and SAR techs had to be hoisted from the crash site. Case turned over to the SQ for body recovery. All SAR resources stood down. Case ongoing...		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
82	Incident Number: T2015-01961	Final Classification: H1	SRR: Trenton
	Location: (44.5335, -80.0133)	Occurred Date: 2015/08/23 17:10	Departed Date: 2015/08/23 17:37
	Source Name: 424 SQN CH-146	Alerted Date: 2015/08/23 17:30	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/23 17:36	Ended Date: 2015/08/23 21:37
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 1:36 PM
	Summary: OPP Orillia requested air support for a 24 YOF that fell off a raft in Wasaga Beach, ON. Mayday relay issued, 424 Sqn helicopter R491 and CCG Cape Rescue FRC tasked but stood down as victim was recoved. Case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

83	Incident Number: H2015-01262	Final Classification: H1	SRR: Halifax
	Location: (47.1030, -55.1900)	Occurred Date: 2015/08/23 22:00	Departed Date: 2015/08/23 22:36
	Source Name: 103 SQN CH-149	Alerted Date: 2015/08/23 22:01	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/23 22:14	Ended Date: 2015/08/24 06:48
	POB: 1 (Saved = 1, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 7:44 PM
	Summary: Eastern Health Services (EHS) requested helicopter support to medevac a critical patient from Burin, NL to St John's. The provincial fixed-wing aircraft could not land due to weather and a road transfer would be too long for the critical patient. 103 Squadron Cormorant helicopter (R905) was tasked to complete mission. R905 picked up EHS medical flight team to assist with the mission. R905 transferred Patient to awaiting ambulance in St Johns. Case closed		
	Note: At tasked time, 103 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
84	Incident Number: Q2015-01964	Final Classification: M1	SRR: Halifax
	Location: (49.8715, -64.5360)	Occurred Date: 2015/08/26 17:48	Departed Date: 2015/08/26 18:00
	Source Name: 413 SQN CC-130	Alerted Date: 2015/08/26 17:48	Arrival on Scene: 2015/08/26 20:00
	Response Posture: 2 HR	Tasked Date: 2015/08/26 18:10	Ended Date: 2015/08/27 04:56
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 3:10 PM
	Summary: MRSC QUÉBEC SMC : 4 kayaks désemparé dont 2 chaviré au large de la Pointe Ouest d'Anticosti. MAYDAY RELAY radiodiffusé et plusieurs ressources assignées. Le HERC R-333 aperçoit les kayakistes au large et le NGCC A. LEBLANC procède au sauvetage. Les personnes sont en bonne santé mais souffre de légère déshydratation. Le NGCC A. LEBLANC a transporté les rescapés jusqu'au Havre-Saint-Pierre.		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
85	Incident Number: Q2015-01964	Final Classification: M1	SRR: Halifax
	Location: (49.8715, -64.5360)	Occurred Date: 2015/08/26 17:48	Departed Date: 2015/08/26 18:00
	Source Name: 413 SQN CH-149	Alerted Date: 2015/08/26 17:48	Arrival on Scene: 2015/08/26 20:00
	Response Posture: 2 HR	Tasked Date: 2015/08/26 18:10	Ended Date: 2015/08/27 04:56
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 3:10 PM
	Summary: MRSC QUÉBEC SMC : 4 kayaks désemparé dont 2 chaviré au large de la Pointe Ouest d'Anticosti. MAYDAY RELAY radiodiffusé et plusieurs ressources assignées. Le HERC R-333 aperçoit les kayakistes au large et le NGCC A. LEBLANC procède au sauvetage. Les personnes sont en bonne santé mais souffre de légère déshydratation. Le NGCC A. LEBLANC a transporté les rescapés jusqu'au Havre-Saint-Pierre.		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
86	Incident Number: H2015-01314	Final Classification: M1	SRR: Halifax
	Location: (44.6243, -63.3670)	Occurred Date: 2015/08/27 16:26	Departed Date: 2015/08/27 16:28
	Source Name: 413 SQN CH-149	Alerted Date: 2015/08/27 16:26	Arrival on Scene: 2015/08/27 17:24
	Response Posture: 2 HR	Tasked Date: 2015/08/27 17:17	Ended Date: 2015/08/28 08:23
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Thursday, 2:17 PM
	Summary: Halifax 911 reported that the sailing vessel, S/V SCRIMSHAW, was disabled and not under command with three people on board 1.5 NM SW of Lawrencetown Head, NS. The CCGC SAMBRO and the Halifax inshore rescue boat were tasked to assist. Before any SAR assets arrived on scene, the S/V ran aground and began taking on water. Halifax MCTS (VCS) issued a Marine Distress Broadcast (MAYDAY) and the following additional resources were tasked: a 413 Sqn Cormorant helicopter (R913), Provincial Airlines (Speed Air 05), and the CCGS SAMUEL RISLEY. The three people abandoned their vessel, and a Zodiac and the IRB recovered them from the water and transferred them to the CGC SAMBRO. CGC SAMBRO transported them to emergency services in Eastern Passage. Case closed. Case closed.		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
87	Incident Number: S2015-00507	Final Classification: H1	SRR: Halifax
	Location: (47.7067, -52.7067)	Occurred Date: 2015/08/29 20:20	Departed Date: 2015/08/29 20:33
	Source Name: 103 SQN CH-149	Alerted Date: 2015/08/29 20:21	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/29 20:26	Ended Date: 2015/08/29 21:47
	POB: 1 (Saved = 0, Assisted = 0, Lost = 0, Missing = 1)		Local Tasked Time: Saturday, 5:56 PM
	Summary: RNC Nfld reported a person jumped off the cliff at Flat Rock Nfld. Witnesses lost sight of the body in the surf. RNC Incident Commander advised JRCC they are treating it as a body recovery. CCGS cape Roger tasked and then stood down. IC advised that if he required any assistance by coast guard that it would be a ROC tasking - contact info passed along. No further action taken by JRCC Halifax. Case Closed.		
	Note: At tasked time, 103 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
88	Incident Number: V2015-02631	Final Classification: M1	SRR: Victoria
	Location: (48.6692, -124.8523)	Occurred Date: 2015/08/31 00:11	Departed Date: 2015/08/31 01:45
	Source Name: 442 SQN CH-149	Alerted Date: 2015/08/31 01:20	Arrival on Scene: 2015/08/31 03:03
	Response Posture: 30 M	Tasked Date: 2015/08/31 02:09	Ended Date: 2015/08/31 20:25
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 7:09 PM
	Summary: Parks Canada reported a overturned 16ft vessel at Nitinat bar with 3 POB. 2 POB reached shore and 1 was stranded on a rock offshore. Bamfield Lifeboat and Corm 904 were tasked. 904 hoisted the person off the rock and took them to Tofino. Parks cared for the other two persons.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

89	Incident Number: S2015-00530	Final Classification: M2	SRR: Halifax
	Location: (48.0228, -64.2250)	Occurred Date: 2015/08/31 10:40	Departed Date: 2015/08/31 10:52
	Source Name: 103 SQN CH-149	Alerted Date: 2015/08/31 10:41	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/31 10:49	Ended Date: 2015/08/31 15:35
	POB: 8 (Saved = 8, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Monday, 8:19 AM
	Summary: MCTS Les Escoumins reports the F/V Phine is taking on water on the Miscou Banks, 8 POB. Distress Broadcast (MAYDAY) relay requested. CGA Daniel Marcel M diverted (from case S2015-00529), Cormorant R915 and Hercules R344 tasked. SpeedAir 05 diverted from Fundy Patrol. CCGC Cap Breton tasked and is escorting the F/V. All other assets stood down. Vessel escorted to Petit-Shippegan. Case closed		
	Note: At tasked time, 103 SQN was on RP30. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
90	Incident Number: S2015-00530	Final Classification: M2	SRR: Halifax
	Location: (48.0228, -64.2250)	Occurred Date: 2015/08/31 10:40	Departed Date: 2015/08/31 10:52
	Source Name: 413 SQN CC-130	Alerted Date: 2015/08/31 10:41	Arrival on Scene:
	Response Posture: 30 M	Tasked Date: 2015/08/31 10:54	Ended Date: 2015/08/31 15:35
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Monday, 7:54 AM
	Summary: MCTS Les Escoumins reports the F/V Phine is taking on water on the Miscou Banks, 8 POB. Distress Broadcast (MAYDAY) relay requested. CGA Daniel Marcel M diverted (from case S2015-00529), Cormorant R915 and Hercules R344 tasked. SpeedAir 05 diverted from Fundy Patrol. CCGC Cap Breton tasked and is escorting the F/V. All other assets stood down. Vessel escorted to Petit-Shippegan. Case closed		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
91	Incident Number: V2015-02652	Final Classification: M1	SRR: Victoria
	Location: (50.7333, -128.4000)	Occurred Date: 2015/08/31 23:15	Departed Date: 2015/08/31 23:45
	Source Name: 442 SQN CH-149	Alerted Date: 2015/08/31 23:19	Arrival on Scene: 2015/09/01 00:45
	Response Posture: 30 M	Tasked Date: 2015/08/31 23:36	Ended Date: 2015/09/01 15:27
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Monday, 4:36 PM
	Summary: A catamaran S/V with 1 POB went A/G in Lowrie Bay. The Tanu, Bartlett, and CORM 907 were tasked to assist. Due to depth and sea conditions it seemed vessels would be unable to extract the person from the S/V. The POB was able to make it ashore, but CORM 907 was still required for a hoist.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
92	Incident Number: V2015-02668	Final Classification: M2	SRR: Victoria
	Location: (49.2885, -124.0664)	Occurred Date: 2015/09/01 23:02	Departed Date: 2015/09/01 23:10
	Source Name: 442 SQN CH-149	Alerted Date: 2015/09/01 23:01	Arrival on Scene: 2015/09/01 23:34
	Response Posture: 30 M	Tasked Date: 2015/09/01 23:06	Ended Date: 2015/09/02 01:00
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Tuesday, 4:06 PM
	Summary: A C/C called in about a person stranded on Grey Rock after his boat sank. CORM 904 and French Creek 1 were tasked to assist. A VOO was able to find the person after they had swam from Grey Rock to Winchelsea Island. CORM 904 was stood down. French Creek 1 extracted the person from Winchelsea and transported him to Schooner Cove to EHS. Patient rewarmed in Marina Office. EHS stood down, no Medical required. Vessel found unrecoverable on Grey Rock, left in place.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
93	Incident Number: S2015-00551	Final Classification: M1	SRR: Halifax
	Location: (49.5237, -55.2156)	Occurred Date: 2015/09/02 13:16	Departed Date: 2015/09/02 13:49
	Source Name: 103 SQN CH-149	Alerted Date: 2015/09/02 13:16	Arrival on Scene: 2015/09/02 14:45
	Response Posture: 2 HR	Tasked Date: 2015/09/02 14:32	Ended Date: 2015/09/02 18:46
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 12:02 PM
	Summary: 103 Sqn reported that a concerned citizen had received a text from a family member on sailing vessel, S/V WHANDA B. that four people from the vessel were stranded, cold, and wet in Notre Dame Bay, NL. They had departed two days before aboard the P/C's tender. Labrador MCTS (VOK) issued a marine urgency broadcast (PAN), and the following resources were tasked: the Notre Dame Bay Inshore Rescue Boat (IRB) and a 103 Sqn Cormorant helicopter (R905). The IRB rescued the four people from shore and transported them to Fortune Harbour, NL. Case closed		
	Note: At tasked time, 103 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
94	Incident Number: S2015-00552	Final Classification: A1	SRR: Halifax
	Location: (50.5265, -66.0640)	Occurred Date: 2015/09/02 13:49	Departed Date: 2015/09/02 14:58
	Source Name: 413 SQN CC-130	Alerted Date: 2015/09/02 13:48	Arrival on Scene:
	Response Posture: 2 HR	Tasked Date: 2015/09/02 14:05	Ended Date: 2015/09/02 19:12
	POB: 5 (Saved = 0, Assisted = 3, Lost = 2, Missing = 0)		Local Tasked Time: Wednesday, 11:05 AM
	Summary: Rimouski 911 reported that emergency services were responding to a helicopter crash 30 NM NE of Sept-Îles airport, QC. A Bell 206B helicopter, C-GYBK, had crashed with 5 people on board. A 413 Sqn Hercules aircraft (R344) and a 413 Sqn Cormorant helicopter (R913) were tasked to assist. Sûreté du Québec (SQ) reported that there were two deceased and that three injured people were being airlifted by local helicopters to the hospital. R913 and R344 were stood down and return to base Greenwood. The case turned over to the SQ. Case Closed		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		

95	Incident Number: S2015-00552	Final Classification: A1	SRR: Halifax
	Location: (50.5265, -66.0640)	Occurred Date: 2015/09/02 13:49	Departed Date: 2015/09/02 14:58
	Source Name: 413 SQN CH-149	Alerted Date: 2015/09/02 13:48	Arrival on Scene:
	Response Posture: 2 HR	Tasked Date: 2015/09/02 14:28	Ended Date: 2015/09/02 19:12
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Wednesday, 11:28 AM
	Summary: Rimouski 911 reported that emergency services were responding to a helicopter crash 30 NM NE of Sept-Îles airport, QC. A Bell 206B helicopter, C-GYBK, had crashed with 5 people on board. A 413 Sqn Hercules aircraft (R344) and a 413 Sqn Cormorant helicopter (R913) were tasked to assist. Sûreté du Québec (SQ) reported that there were two deceased and that three injured people were being airlifted by local helicopters to the hospital. R913 and R344 were stood down and return to base Greenwood. The case turned over to the SQ. Case Closed		
	Note: At tasked time, 413 SQN was on RP2. (It was on RP30 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
96	Incident Number: S2015-00592	Final Classification: M1	SRR: Trenton
	Location: (62.5483, -66.5017)	Occurred Date: 2015/09/05 21:30	Departed Date: 2015/09/05 23:14
	Source Name: 424 SQN CC-130	Alerted Date: 2015/09/05 22:32	Arrival on Scene: 2015/09/06 01:00
	Response Posture: 30 M	Tasked Date: 2015/09/06 00:17	Ended Date: 2015/09/06 16:48
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Saturday, 8:17 PM
	Summary: Nunavut Provincial Emergency Organization reported a freighter canoe with 2 POB disabled 96nm SE of Iqaluit. No comms. Russian Cruise Ship Akademik Ioffe and other hunters tasked. Disabled canoe located and rescued by Russian Cruise Ship and landed ashore at York Sound. Case closed.		
	Note: At tasked time, 424 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
97	Incident Number: V2015-02724	Final Classification: M1	SRR: Victoria
	Location: (49.4472, -127.2791)	Occurred Date: 2015/09/06 04:40	Departed Date:
	Source Name: 442 SQN CH-149	Alerted Date: 2015/09/06 04:57	Arrival on Scene: 2015/09/06 18:40
	Response Posture: 30 M	Tasked Date: 2015/09/06 18:59	Ended Date: 2015/09/07 02:42
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 11:59 AM
	Summary: A 100 ft steel f/v with 4 POB missed their company comms check-in and had disappeared from AIS off the west coast of Vancouver Island. BUFF457, IRB 507, and Cape Anne were tasked to investigate the area. One of the POB was found in a life raft and extracted by IRB 507, who then transferred the survivor to a cruise ship for medical attention. The John P. Tully, Tanu, CORM 908, and the M. Charles were also tasked to help look for survivors. Multiple F/V also helped with the search. Three deceased POB were later recovered and brought to Tofino.		
	Note: At tasked time, 442 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP2 by the trial schedule.)		
98	Incident Number: S2015-00601	Final Classification: H1	SRR: Halifax
	Location: (45.8068, -62.5750)	Occurred Date: 2015/09/06 19:50	Departed Date: 2015/09/06 20:18
	Source Name: 103 SQN CH-149	Alerted Date: 2015/09/06 19:57	Arrival on Scene: 2015/09/06 20:35
	Response Posture: N/A	Tasked Date: 2015/09/06 20:25	Ended Date: 2015/09/07 08:48
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 5:55 PM
	Summary: Royal Canadian Mounted Police (RCMP) dispatch advised of a Motor Vehicle Accident (MVA) on Pictou Island and requested assistance with the evacuation of the victims. Tasked the Pictou IRB to transport police and EHS to the island. Cormorant R915 was tasked to evacuate the four patients to Halifax. The patients were transferred to awaiting ambulances at Windsor Park. Case Closed.		
	Note: At tasked time, 103 SQN's actual RP is unknown. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		
99	Incident Number: S2015-00601	Final Classification: H1	SRR: Halifax
	Location: (45.8068, -62.5750)	Occurred Date: 2015/09/06 19:50	Departed Date: 2015/09/06 20:18
	Source Name: 413 SQN CC-130	Alerted Date: 2015/09/06 19:57	Arrival on Scene: 2015/09/06 20:35
	Response Posture: 30 M	Tasked Date: 2015/09/06 20:39	Ended Date: 2015/09/07 08:48
	POB: 0 (Saved = 0, Assisted = 0, Lost = 0, Missing = 0)		Local Tasked Time: Sunday, 5:39 PM
	Summary: Royal Canadian Mounted Police (RCMP) dispatch advised of a Motor Vehicle Accident (MVA) on Pictou Island and requested assistance with the evacuation of the victims. Tasked the Pictou IRB to transport police and EHS to the island. Cormorant R915 was tasked to evacuate the four patients to Halifax. The patients were transferred to awaiting ambulances at Windsor Park. Case Closed.		
	Note: At tasked time, 413 SQN was on RP30. (It was on RP2 by the legacy RP30 schedule, and on RP30 by the trial schedule.)		

Annex B SAR Data

B.1 Data source

The data used in this analysis came only from the SMMS database; recent data from the System of Information for Search and Rescue (SISAR) database maintained by the CCG were unavailable to the author at the time of analysis. This is unlikely to cause a problem because the focus of the study is on the air SAR response. This study only examined the data from recent years (2008–2015). The SAR data before 2008 were not considered because there is data inconsistency in 2006 and 2007 [10]. In addition, the CH-113 Labrador helicopters were used until 2004, and 424 SQN started using the Griffon helicopters since 2005. Due to the capability difference of the three helicopters, the tasking practice before 2008 is different from that in recent years. Hence, data before 2005 are less relevant than the recent ones.

CJOC SAR helped to request the data from JRCC Halifax. The author provided a list of required data fields based on the data used in the 2013 and 2014 trial analyses. Afterward, it came to the author's attention that the names of some data fields were not used by the SMMS database. For example, *Incident Type* is the name of a data field in the previous analyses but the SMMS database does not have this field. In order to avoid potential confusion and misunderstanding, it is important to understand the data from the JRCC perspective. The next two sections are intended for future analysts who will request and analyze the SMMS data.

B.2 Data query on the SMMS database

A query is often needed to extract the required data, which could be stored in several data tables in a database. After the query has collected all data, the database can export them in Excel format. Once the data are in this format, it is impossible to know its source tables in the database. Confusion may arise when the names of some data fields in the Excel worksheet are modified. (Renaming is sometimes necessary because a name could be reasonable in a database table but not so in a worksheet.) This problem arose in the 2013 and 2014 trial analyses, where the names of some header fields in the Excel workbooks were changed.

Instead of receiving the SMMS data in the Excel format, the author received a copy of the database from JRCC Halifax. It offered an opportunity to better understand the source data. Two queries were quickly built to extract the data similar to the ones used in the previous analyses. They collected data from the following tables:

- rcc_incident;
- rcc_incident_main;
- rcc_SRU_SORTIES; and
- rcc_SRU_MASTER.

All tables could be linked by the field *incident_number* (or *INCIDENT_NUMBER*.) The first query linked the first two tables to infer incident-related data, and the second query linked all four tables for the SAR tasks. (Incidents that did not require SRU deployment do not appear in the last two tables. Hence, the

second query collected fewer incidents than the first one.) The first query had 91,799 rows of data record, and the second query extracted 162,441 data records with 26 data fields (columns.) The data fields are listed in Table B.1 for reference. The task query had 26 data fields while the incident query only had six (the grey rows in the table.) Only one field in Table B.1 was new; the other 25 fields were found in the 2013 and 2014 analyses. The data field *incident_srr* was the new one that identified the SRR in which the incident occurred.

Table B.1: Data fields for task query.

	Table	Field	Description
1	rcc_incident	incident_number	Incident identification
2	rcc_incident_main	incident_srr	Responsible SRR
3	rcc_incident_main	est_occurrence_dtg	Estimated date/time of occurrence
4	rcc_incident	rcc_alerted_at	JRCC alerted data/time
5	rcc_incident_main	INCIDENT_CLOSED	Date/time of incident closed
6	rcc_incident	incpos_latitude	Incident latitude (numerical)
7	rcc_incident	incpos_longitude	Incident longitude (numerical)
8	rcc_incident	lat_text	Incident latitude (textual)
9	rcc_incident	long_text	Incident longitude (textual)
10	rcc_incident_main	INCIDENT_CLASS_MAXIMUM	Maximum incident classification
11	rcc_incident_main	INCIDENT_FINAL_CLASS	Final incident classification
12	rcc_incident	situation	Incident type
13	rcc_incident_main	alert_type	Alert type
14	rcc_incident_main	ACTION_TAKEN	Action taken
15	rcc_incident_main	CASE_SUMMARY	Incident summary
16	rcc_incident	pob	Number of affected people on board
17	rcc_incident_main	SAVED	Number of saved people
18	rcc_incident_main	LOST	Number of lost people
19	rcc_incident_main	MISSING	Number of missing people
20	rcc_incident_main	assisted	Number of assisted people
21	rcc_SRU_MASTER	SOURCE	Response agency
22	rcc_SRU_MASTER	NAME	Name of the response unit
23	rcc_SRU_MASTER	STANDBY_POSTURE	Response posture
24	rcc_SRU_MASTER	TIME_TASKED	Date/time of SRU being tasked
25	rcc_SRU_SORTIES	DEPART_TIME	Departure date/time of the response unit
26	rcc_SRU_SORTIES	ONSCENE_TIME	Arrival date/time of the response unit

In the second last chapter of [6], Steele gave a detailed discussion on the anomalous data in SISAR. Although this work only used the SMMS data, a similar problem arose when the data were closely examined. Simple errors such as (0°0'0", 0°0'0") as coordinates were easy to identify but some suspicious anomalous data were difficult to detect without another data source as a reference. In this study, the author did the best to detect and rectify the errors but this could only be done to some extent. It is understood that the rectified data are reasonably correct. A lack of other data source and time constraint left no alternative approach to the analysis.

B.3 Data characteristics

Not all fields in Table B.1 were used in this analysis; those not used will be ignored in the following subsections. It is understood that the discussion is based on the SMMS data between 2008 and 2015.[9] Data from another time period could have a very different data quality. It is possible that the data quality will be improved in the future or the SMMS database will include other useful data fields for future analysis.

B.3.1 Incident number

This is a textual data field in the SMMS database. Since it is used to link various data tables in the database, the field is never blank in the output query. The value of this field is unique in the first query (for incidents) but is not unique in the second query (for tasks) because some incidents could have multiple entries of tasks. For example, an incident could have two rows of record in the table *rcc_SRU_SORTIES* for two different aircraft sorties. Consequently, the task query has 162,441 data rows that represent 45,199 unique incidents from 2008 until November 5, 2015 (there are 91,799 incidents in the same period; hence, 46,600 incidents did not require any SRU assistance).

B.3.2 Incident SRR

This textual data field indicates the SRR in which the incident occurred. 4,281 incidents out of all (91,799) incidents are blank in this field. When this piece of data is missing, the associated incident likely lacks other incident-related information such as incident location and incident category. For example, there are only 35 records that have proper coordinates but lack the incident SRR information.

B.3.3 Occurred time

This numerical data field indicates the date and time when the incident occurred. However, it is only an estimate as is suggested by its field name in the SMMS data table (third item in Table B.1.) In addition, only 95.5% of the data are available in the task query; this is a high percentage but this data field is not the highest one. Unlike the analysis for the 2013 trial [8], this study and the 2014 trial analysis [9] did not use this time to characterize an incident. The time when the JRCC received the alert (alerted time) was used instead.

B.3.4 Alerted time

This numerical data field contains the date and time when the JRCC was notified about an incident. The data quality is better than that of the occurred time. First, the query output did not have any empty data in this field; all data records could be used for further analysis. Secondly, while the occurred time contained some typographical errors such as “1908” as the year of incident occurrence, no such error was detected in this field. Thirdly, the field is not an estimate after all. Therefore it is used to characterize the incidents in this work.

[9] The last date of the dataset is November 5, 2015.

B.3.5 Tasked time

The tasked time is the time when a SRU received a SAR task. This numerical field has a data availability rate of 95.8% among all data records in the task query. It is important to understand that one incident may trigger multiple SAR tasks to several SRUs. For example, an incident of a capsized boat could lead multiple tasks to the CCG and the RCAF. The decision of which SRUs were tasked was made by the responsible JRCC. The tasking decision is beyond the scope of this analysis although it is important to any response posture analysis.

The time in the database is in Coordinated Universal Time (UTC). Given a task to a SAR squadron, it is necessary to convert the tasked time into the local time. For example, JRCC Trenton tasked 435 SQN at 2016/01/26 21:33 (UTC), which was a Tuesday afternoon in Trenton. Since the local time in Winnipeg was 2016/01/26 15:33, the squadron was on RP30 instead of RP2 according to the legacy RP30 schedule. However, if the task went to 424 SQN, the local time in Trenton was 16:33 and the squadron has a response posture of 2 hours. In order to be analyzed, an air SAR task must have the tasked time and the information on the response squadron.

B.3.6 Departure time, arrival time and closed time

Three more task-related times were captured in the query but they were not used in the current and previous analyses. They were extracted only for the sake of completeness. All of them have lower data availability rate, e.g., the arrival time availability is under 73%.

The timeline of an incident starts from the occurred time and stops at the incident closed time. A close examination of the six sequential times in the database shows that they do not always increase along the process. In the worst case scenario, 18.7% of the time differences from the tasked time to the departure time are negative in the query data.[10] In general, it is difficult to determine which time is wrongly entered into the database. It is also laborious to rectify the problem, if possible because 28.4% of the data records have this problem. One should be cautious when the time interval between two times is used in any calculation (one anonymous reviewer pointed out that [10] reported 11.7% of causality error in the consolidated SAR data, which combined the data from the SMMS and SISAR databases).

B.3.7 Incident classification

Incidents are divided into three types (aeronautical, maritime and humanitarian incidents) and grouped into five categories (1 to 5). Hence, there are 15 main classes as shown in Table B.2. The database also has other sub-classes such as *U4* (unknown CAT 4 incident) or A1P (previously unreported A1 incident that was likely resolved before a JRCC was notified [6].) Table B.1 has two types of incident classification: maximum (in severity) and final. In this study (and the last two trial analyses), only the final classification was used. In the incident query, 19.6% incidents do not have any classification[11] and they were excluded from the analysis.

[10] Only the cases where both tasked time and departure time existed were considered.
[11] The other 80.4% of incidents have classification but not all of them can be put in one of the 15 classes in Table B.2. For example, classification *U4* is not a known type of incident although it is in CAT 4.

Table B.2: Major incident classification.

	CAT 1	CAT 2	CAT 3	CAT 4	CAT 5
Aeronautical	A1	A2	A3	A4	A5
Maritime	M1	M2	M3	M4	M5
Humanitarian	H1	H2	H3	H4	H5

B.3.8 Latitude and longitude

Table B.1 has two pairs of coordinates, one in textual form and the other one in numerical form. The numerical data are preferred because they have better quality and easier to manipulate. The numerical coordinates are available in 99.8% records from the task query. In the incident query, only 97.7% incidents have coordinates.

B.3.9 Number of affected people

The query output has five numerical fields about the count of people who sought help. They represent the people saved, assisted, lost, missing and the sum of the four types. The sum refers to the People On Board (POB) although the field counts only those who were in distress and imminent danger. It excludes those on board (a vessel) but not in distress, and it includes the victims who were overboard in distress [6]. The data missing rate of all five fields is very low (under 1%). In addition, 97% of the data show consistency by having the sum of the number of saved, assisted, lost and missing people equals to the POB value. Hence, this set of fields could be useful in measuring mission success.

B.3.10 Source and name of the response unit

In the previous and current studies, the fields *SOURCE* and *NAME* in the table *rcc_SRU_MASTER* were used for analysis. They are sufficient for the analysts to identify the SRU. In addition, the data missing rate of the two fields is low (under 1%).

For the purpose of identifying the air tasks, the field *SOURCE* is sufficient. All RCAF SAR squadrons are labelled as “CF – SAR AIR” in this field. Other non-SAR aircraft (whether they belong to RCAF or not) are labelled differently such as “CF – AIR (NON SAR)”, “CF Secondary SAR Air”, “CG AIR”, etc. A simple filter can extract all records related to the primary air SAR squadrons. The other field *NAME* is far more complicated though.

This study depends on the knowledge of aircraft type and squadron number because the RP30 schedules vary from squadron to squadron; even different aircraft of the same squadron could have different response posture. The two pieces of information can be found in the field *NAME*. Sometimes, a missing piece of information renders the record useless for analysis. Consider an example of labelling the Cormorant helicopter 149909 (CH-149 of tail number 909) from 413 SQN in Greenwood. In the database, this particular aircraft was labelled as “413 CORM 909”, “COR 909 413” or even “CORM 909 YZX”, where YZX is the International Air Transport Association (IATA) airport code for the Greenwood Airport. These three examples contain both squadron and aircraft type information but there are other label variations. Table B.3 shows a list of distinct labels of the aircraft, some have only the aircraft type information. Sometimes one can deduce the squadron based on the tail number or the aircraft type but the

rectification process is laborious and the success rate is not perfect. Fortunately, the aircraft and the squadron labels are limited to a few variations in most cases (e.g., "413 CORM 909" and "CORM 909 413".) In this analysis, the task query has 33,044 data records of "CF – SAR AIR." After the rectification process, 32,836 data records were found to contain both squadron and aircraft type information.

Table B.3: Example of labelling the 413 SQN Cormorant helicopter 149909 in the SMMS database.

Label	Description	
	Squadron	**Aircraft Type**
413 CORM 909	✓	✓
COR 909 413	✓	✓
CORM 909 413	✓	✓
CORM 909 YZX	✓	✓
CORM909 413 SQN	✓	✓
R909 GREEN CORM	✓	✓
CORM 909		✓
CORM R 909		✓
CORM R909		✓
CORMORANT R909		✓
R 909		✓
R909		✓
R-909		✓
RSCU-909		✓

B.3.11 Response posture

In the task query, only 52% data records contain the information on the SRU's RP. However, 92% of air SAR tasks have the information. The textual field turns out to be useful for further analysis.

It is interesting to point out that the field shows that the SAR squadrons have four different times of response posture over the eight-year period; they are "30 M," "2 HR," "1 HR" and "12 HR." However, the 1-hour and 12-hour cases only occurred 41 times (0.6%) and once in the eight years, respectively. They are not expected to affect the analysis much.

List of symbols/abbreviations/acronyms/initialisms

CAF	Canadian Armed Forces
CAT	Category
CCG	Canadian Coast Guard
CFB	Canadian Forces Base
CJOC	Canadian Joint Operations Command
CORA	Centre for Operational Research and Analysis
DND	Department of National Defence
DRDC	Defence Research and Development Canada
IATA	International Air Transport Association
JRCC	Joint Rescue Coordination Centre
OR&A	Operational Research and Analysis
POB	People On Board
RCAF	Royal Canadian Air Force
RP2	2-hour Response Posture
RP30	30-minute Response Posture
SAR	Search and Rescue
SISAR	System of Information for Search and Rescue
SMMS	SAR Mission Management System
SQN	Squadron
SRR	Search and Rescue Region
SRU	Search and Rescue Unit
UTC	Coordinated Universal Time

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It has been suggested that the Search and Rescue (SAR) services provided by the Royal Canadian Air Force (RCAF) could be improved by rescheduling the squadrons' shifts. The air SAR squadrons are on 2-hour Response Posture (RP2) except 40 hours in a week. The 40-hour period is divided into five 8-hour shifts in which the squadrons are on 30-minute Response Posture (RP30). The legacy schedule starts each RP30 shift at 08:00 local time on weekdays. Since 2013, some SAR squadrons started rescheduling the RP30 shifts in the summer during the SAR response posture trials.

In summer 2015, all five SAR squadrons used different RP30 schedules in the 115-day trial to improve the air SAR service by increasing the chance of a squadron being on RP30 at the time of tasking. This report examines the effectiveness of the approach. The report also derives a set of RP30 schedules that have the daily RP30 shift starts at 08:00 on three weekdays and starts at a different time on weekend. These inhomogeneous schedules improve over the legacy RP30 schedule.

Il a été suggéré qu'il serait possible d'améliorer les services de recherche et de sauvetage (SAR) offerts par l'Aviation royale canadienne (ARC) en réorganisant les quarts de travail des escadrons. Les escadrons aériens SAR maintiennent une posture d'intervention de 2 heures (PI 2 h), à l'exception de 40 heures par semaine. Cette période de 40 heures est divisée en 5 quarts de travail de 8 heures au cours desquels les escadrons maintiennent une posture d'intervention de 30 minutes (PI 30). Selon les anciennes grilles d'horaires, chaque quart en PI 30 commence à 8 h, heure locale, en semaine. Depuis 2013, certains escadrons SAR ont modifié les grilles de PI 30 en été, pendant les essais sur la posture d'intervention SAR.

Dans le cadre de l'essai de 115 jours mené au cours de l'été 2015, les cinq escadrons SAR ont varié leurs grilles de PI 30 afin d'augmenter les chances que l'un d'eux soit en PI 30 au moment d'une affectation et d'améliorer ainsi les services SAR aériens. Le présent rapport examine l'efficacité de cette approche et décrit un ensemble de grilles dont le quart de travail en PI 30 commence à 8 h, trois jours de la semaine, et à une heure différente la fin de semaine. Ces grilles d'horaire non homogènes constituent une amélioration par rapport aux anciennes grilles de PI 30.