

**DEPARTMENT OF NATIONAL DEFENCE  
CANADA**

**OPERATIONAL RESEARCH DIVISION**

**DIRECTORATE OF OPERATIONAL RESEARCH (MARITIME, LAND AND AIR)**

**MARITIME OPERATIONAL RESEARCH TEAM  
RESEARCH NOTE RN 2003/05**

**AFLOAT LOGISTICS AND SEALIFT CAPABILITY:  
DETERMINATION OF THE FREQUENCY AND DURATION OF EMPLOYMENT**

**By**

**P.L. Massel**

**May 2003**

**OTTAWA, CANADA**



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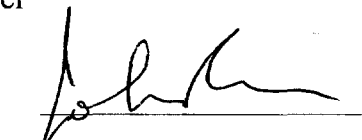
by

P. L. Massel

Recommended by:

  
R.M.H. Burton  
MORT Team Leader

Approved by:

  
J. Evans  
DOR(MLA)

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OTTAWA, ONTARIO

MAY 2003

## **ABSTRACT**

As part of a larger study into the potential fleet size requirements for a platform that would provide an Afloat Logistics and Sealift Capability to the Canadian Forces, an effort was made to benchmark the frequency and duration of the force employment for such a capability. A record of all the operations that the Canadian Forces has been involved in over the recent post Cold war period of 1990-99 was used to determine how often and for how long an Afloat Logistics and Sealift Capability was or might have been employed. This information was, in turn, used to calculate the baseline frequency and duration of employment of this capability across the eleven Canadian Forces Force Planning Scenarios. This research note documents this effort and reports on its results.

## **RÉSUMÉ**

Nous avons mené une étude approfondie des exigences à satisfaire pour doter les Forces canadiennes de plates-formes de soutien logistique à la mer et de transport maritime. Une partie de notre étude consistait en un étalonnage de la fréquence et la durée d'utilisation et des forces pour une telle capacité. Pour ce faire, nous avons d'abord obtenu un registre de toutes les opérations auxquelles les Forces canadiennes ont pris part durant la récente période d'après-guerre froide (1990-1999). Nous avons utilisé ce registre pour déterminer la fréquence et la durée à laquelle une capacité de plates-formes de soutien logistique à la mer et de transport maritime a été employée ou aurait pu l'être. Ce renseignement nous a permis de calculer la fréquence et la durée d'utilisation d'une telle capacité pour les onze scénarios de planification de la force conçus par les Forces canadiennes. La présente note de recherche fait état de nos efforts d'étalonnage et de leurs résultats.

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## **LIST OF ABBREVIATIONS/GLOSSARY**

ALSC	Afloat Logistics and Sealift Capability
CF	Canadian Forces
DMMCP	Directorate of Maritime Major Capital Projects
DMPPD	Directorate of Maritime Projects Planning and Development
FPS	Force Planning Scenario
MORT	Maritime Operational Research Team
STFA	Support to Forces Ashore

# AFLOAT LOGISTICS AND SEALIFT CAPABILITY: DETERMINATION OF THE FREQUENCY AND DURATION OF EMPLOYMENT

## I. INTRODUCTION

1. At reference [1] the Maritime Operational Research Team (MORT) was asked to provide advice to the Directorate of Maritime Projects Planning and Development (DMPPD)<sup>1</sup> regarding the numbers and types of platforms required to conduct at-sea logistics support to Canada's naval forces and to provide a sealift capability to the Canadian Forces (CF). This request resulted in the development of a detailed simulation model known as ALICIA that was used to study this problem and resulted in the publication of an Operational Research Division Project Report entitled Afloat Logistics And Sealift Capability Vol I: Simulation-based Fleet Sizing, Reference [2].

2. ALICIA is a model that creates a force generation and force employment schedule for a fleet of Afloat Logistics and Sealift Capability (ALSC) platforms. This study employed the Canadian Forces Planning Scenarios, reference [3], as the likely range of possible force employment operations to which an ALSC platform might be called upon to respond. As an input into ALICIA, the study needed to determine the baseline frequency and duration of employment of a notional ALSC platform.

## II. AIM

3. The aim of this research note is to document the effort to determine the baseline frequency and duration of employment of the ALSC platform.

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<sup>1</sup> Due to a subsequent reorganization, the sponsor of this project has been changed to the Directorate of Maritime Major Capital Projects, DMMCP.

### III. METHODOLOGY

4. This section describes how the author benchmarked the frequency and duration of employment of the ALSC platform. In coordination with the project sponsor, it was agreed that this effort would use the historical employment rates of the CF for the period of 1990-99. In comparison with other decades in the post World War II era, this decade was known to have had a substantial increase in the number of force employment operations of various kinds. Admittedly, frequency and duration of employment of a capability is clearly subject to a number of intangible variables such as platform availability, urgency of the situation, political will, proximity, relevance to national interests and others. Given the flexibility in the design of the ALICIA simulation, it should be noted that it is a relatively straightforward exercise to vary the frequency and duration of employment as part of either a 'what if' exercise or a sensitivity analysis.

5. To determine the baseline frequency and duration of employment for the ALSC platform one needed to answer several questions:

- a. How often do different types of force employment operations occur?
- b. Would the ALSC platform be employed in these operations, and, if so, how often? And,
- c. How long would the ALSC platform be employed?

Each of these questions is addressed in the following sections.

#### **Frequency of Occurrence of CF Force Employment Operations**

6. The effort to determine the frequency of employment of CF Force Employment Operations was greatly aided by the provision of a database of all post-World War II, CF operations, reference [4]. This database includes a record of the units and, to a certain



extent, the resources involved in each of the known CF operations that had been mounted from the end of World War II to the end of 1999. It also determined the CF Force Planning Scenarios to which each operation most closely corresponded. From this large collection of activity related data, the records that corresponded to any CF operation that occurred in the period of 1990-99 were extracted and grouped by Force Planning Scenario (FPS).

### **Frequency and Duration of Employment of the ALSC Platform**

7. For the purposes of the ALSC fleet-sizing study, the ALSC was assumed to be capable of performing three different types of missions, namely: afloat logistics support; port-to-port sealift of CF material; and a broadly outlined role of providing logistical, medical, or Command and Control Support to Forces Ashore (STFA). From the above set of CF operations for the period 1990-99, a short list of operations that may have or actually did call upon the use of each of these capabilities was derived. Based on the observed number of operations that called upon each type of capability across the FPS spectrum, a value for the frequency and duration of employment of the ALSC platform on a per-FPS basis was derived. These values were used to generate:

- a. an estimated probability that one or more of these ALSC employment operations would occur for a given time period; and,
- b. the probable duration of an ALSC employment operation.

These values were then used as inputs into the ALSC fleet-sizing study and to a subsequent MORT study of the potential utility of a logistics over the shore capability.

#### IV. RESULTS

8. Detailed analysis of CF operations from the ten year period of 1990-99 and their potential demand upon an ALSC capability can be found in Annex A. The analysis results are summarised in Tables 1 and 2. There were a number of observations from the data analysis that follow below.

- a. Three of the CF FPSs were assessed as not having a realistic need for the ALSC capability. These were Scenario (Sc) 1 – Search and Rescue in Canada; Sc 4 – Surveillance, Control of Canadian Territory/Approaches; and, Sc 7 – Aid of the Civil Power. This is not to say that an ALSC would not be used in any of these scenarios, but rather that if ALSC was used it would be duplicating a capability already provided by other CF resources;
- b. There were three other scenarios (Sc 2 – Disaster Relief in Canada, Sc 3 – International Humanitarian Assistance, and Sc 5 – Evacuation of Canadians Overseas) where the historic record did not show that an ALSC capability had been called upon. However, it was postulated that if an ALSC capability had been available it would have been so employed at a nominal level of activity as reflected by the occurrence of these scenarios;
- c. Sc 10 – Defence of Canadian/US Territory and Sc 11 – Collective Defence, did not occur in the 1990s. However, since Canada actively participated in these types of operations in the previous 40-50 years, it was decided to expand the time period to the last half of the twentieth century so that a nominal baseline frequency for these two scenarios could be postulated;
- d. Sc 6 – Peace Support Operations were such frequent operations in 1990s that , for the purposes of the ALSC sea-lift capability, it made sense to

differentiate between SC 6 operations that called for a Naval Task Group support, and those that might call upon one or three ALSC ship moves of material in support of a Battle Group or Company Level strategic lift requirement, and,

- e. The duration of the scenarios is in terms of the postulated duration of employment of the ALSC capability to the scenario. It includes consideration of transit time to and from the possible scene of the scenario, and also assumes that the capability would not be called upon for the entire duration of the scenario but rather would be capped at a duration of approximately 6 months. Capping the duration was a fleet minimizing assumption for the baseline case. Allowing for longer durations greatly expands the potential demand for the various ALSC capabilities. As a start point, the fleet-sizing study assumed that capping the duration would provide a measure of the minimum amount of the resource that would be needed to meet the projected baseline demand.

**Table 1: Table of Scenarios Mapped to ALSC Capabilities, Levels of Employment, and Frequency of Occurrence**

Scenarios	ALSC Role			Level of Employment	Mean Rate of Occurrence
	AOR (w TG)	Sea Lift	STFA		
1. Search and Rescue in Canada				●	
2. Disaster Relief in Canada			√	●	1/10 yrs
3. International Humanitarian Assistance			√	●	2/10 yrs
4. Surveillance/Control of Canadian Territory/Approaches				●	
5. Evacuation of Canadians Overseas	√		√	●	1/10 yrs
6. Peace Support Operations (Chp 6) – Van Guard Battalion (6A)	√	√	√	●	2/10 yrs
6. Peace Support Operations (Chp 6) – Company Level (6B)	√	√	√	●	4/10 yrs
7. Aid of the Civil Power				●	
8. National Sovereignty/Interests Enforcement	√			●	1/10 yrs
9. Peace Support Operations (Chp 7)	√	√	√	●	3/10 yrs
10. Defence of Canadian/US Territory	√				1/40 yrs
11. Collective Defence	√	√	√		1/50 yrs

- - no specific call for the ALSC capabilities by this Scenario
- - no recent demand for the ALSC capabilities by this Scenario
- - recent demand for the ALSC capabilities by this Scenario

**Table 2: Table of Range of Durations of the CF Scenarios for ALSC Employment**

Category of Duration	Scenario	Probable Duration
SHORT	Sc 2 – Disaster Relief Sc 3 – Int’l Humanitarian Assistance Sc 5 – Evacuation of Canadians Overseas	5 – 25 days
MEDIUM	Sc 8 – National Sovereignty Interests Enforcement Sc 10 – Defence of N. America	14 – 42 days
LONG	Sc 6 – Peace Support Operations (Chp 6) Sc 9 – Peace Support Operations (Chp 7) Sc 11 – Collective Defence	150 – 210 days

## **V. CONCLUSION**

9. This effort to benchmark the frequency and duration of force employment of an ALSC capability was an important input into the ALSC Fleet Size study that was conducted by MORT. This effort served as a useful start point for understanding the potential demand for the ALSC capability.

## VI. REFERENCES

1. MS: 32673-300 (DMPPD 11-3), 24 Nov, 1999, OR Study – Request for Support to M2763 ALSC Project.
2. Burton, R.M.H., and Massel, P.L., Afloat Logistics And Sealift Capability Vol I: Simulation-based Fleet Sizing, DOR(MLA) Project Report 2001/24, Dec 2001.
3. Bradfield, A., Christopher, G.L., and McLean, LCdr D.M., The Development of a Scenario Set for Departmental Force Planning, DOR(J&L) Research Note, 98-22, Nov 1998.
4. Funk, R.W., Analysis of Canadian Forces Commitments Since World War II, DOR(J&L) Research Note 2000-24, Dec 2000.

**DETAILED ANALYSIS OF THE POTENTIAL AND ACTUAL  
EMPLOYMENT OF THE ALSC CAPABILITIES IN SUPPORT OF CF  
OPERATIONS 1990-99**

This annex contains a record of the data that supported the effort to benchmark the frequency and duration of employment of the ALSC capabilities for each Force Planning Scenario.

A short note on the determination of the duration of the force employment activity. Most of the FPSs have a low number of occurrences and thus leave a very small sample size for determining the value for the duration of the ALSC contribution. Secondly, the duration value from the raw data table is a value for the duration of the operation not the duration of a capability commitment to that operation. Thus, these two factors were taken into consideration in the postulation of a range of possible durations for the ALSC capability in each of the FPSs that are summarized in Table 2 of this research note and were used in the ALSC fleet-sizing study.



## SC 1 – SEARCH AND RESCUE IN CANADA

### SCENARIO 1

### Search & Rescue Canada

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
Les Filotas		Canada		1	1991	31
Herc Crash at Alert	Boxtop	Canada	Alert	1	1991	31
	SAR MV Marika	Canada		1	1994	31
	SAR Fierce Competitor	Canada		1	1994	31
	SAR Inlet Rebel	Canada		1	1994	31
	SAR Jorgensen	Canada		1	1995	31
	SAR Edkins	Canada		1	1996	31
	SAR Agnew	Canada		1	1996	31
	SAR O'Brien	Canada		1	1996	31
	Persistence	Canada	Peggy's Cove	1	1998	30

### SCENARIO 1

#### FOR PERIOD 90-99

There was one occasion when an ALSC capability might have been employed:

Operation	Duration
OP Persistence	30

Therefore, postulated:

- a mean rate of occurrence of 1 in 10 years
- a duration in the range of 5-25 days

However:

we saw this scenario as one that did not uniquely call upon any of the specific ALSC capabilities that were being studied; therefore, concluded that, for this study, ALSC did not have a specific role to play in scenario 1.

## SC 2 – DISASTER RELIEF IN CANADA

**SCENARIO 2**                      **Disaster Relief in Canada**

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
Sherbrooke Flooding ?	Canatex 2	Canada		2	1994	31
Saguenay River Flooding	Saguenay	Canada		2	1996	31
Red River Flooding	Assistance	Canada	Red River Valley	2	1997	31
Ice Storm	Recuperation	Canada	Ontario & Quebec	2	1998	31

<b>SCENARIO 2</b>
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FOR PERIOD 90-99

There were no occasions when an ALSC capability was employed.

Thus for a 10 yr period the mean of the number of scenario 2s that occurred is 0/10

However, to provide a nominal baseline activity, we assumed that there might be at least one occasion when an ALSC capability would be employed:

Operation	Duration
OP Makebelieve I	5-25 days

Therefore, we postulated:

- a mean rate of occurrence of 1 in 10 years
- a duration in the range of 5-25 days

## SC 3 INTERNATIONAL HUMANITARIAN ASSISTANCE

### SCENARIO 3 International Humanitarian Assistance

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
UNHCR	Airbridge	Balkans	Bosnia-Herzegovina	3	1992	1553
	Boreal I	Europe	USSR	3	1992	0
	Boreal II	Europe	USSR	3	1992	0
	Boreal III	Europe	USSR	3	1993	23
UNDP, CMAC	-	Asia	Cambodia	3	1994	2324
Humanitarian Aid to Rwanda	Passage	Africa	Rwanda	3	1994	107
Disaster Relief	Sarno	Europe	Italy	3	1998	31
Disaster Relief	Central	South America	Honduras	3	1998	30
BHMAC	Noble	Balkans	Bosnia-Herzegovina	3	1998	925
Disaster Relief		Middle East	Turkey	3	1999	30
Mine Action Centre	Module	Balkans	Bosnia-Herzegovina	3	1999	560

<p><b>SCENARIO 3</b></p> <p><b>FOR PERIOD 90-99</b></p> <p>There were no occasions when an ALSC capability was employed.</p> <p>Thus for a 10 yr period the mean of the number of scenario 3s that occurred is 0/10.</p> <p>However, to provide a nominal baseline activity, we assumed that there might be at least two occasions when an ALSC capability would be employed:</p> <table style="margin-left: 40px;"> <tr> <td>Operation</td> <td>Duration</td> </tr> <tr> <td>OP Makebelieve I</td> <td>5-25 days</td> </tr> <tr> <td>OP Makebelieve II</td> <td>5-25 days</td> </tr> </table> <p>Therefore, we postulated:</p> <ul style="list-style-type: none"> <li>- a mean rate of occurrence of 2 in 10 years</li> <li>- a duration in the range of 5-25 days</li> </ul>	Operation	Duration	OP Makebelieve I	5-25 days	OP Makebelieve II	5-25 days
Operation	Duration					
OP Makebelieve I	5-25 days					
OP Makebelieve II	5-25 days					

**SC 4 – SURVEILLANCE, CONTROL OF CANADIAN TERRITORY/APPROACHES**

**SCENARIO 4**

**Surveillance Control of Canadian Approaches**

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
Aircraft Intercept		Canada	Casey, Quebec	4	1992	31
Fishing Boat		Canada	Nova Scotia Coast	4	1994	31
Yacht		Canada	Cape Breton Coast	4	1996	31
Chinese Immigrants	Semaphore I	Canada	West Coast	4	1999	31
Chinese Immigrants	Semaphore II	Canada	West Coast	4	1999	31
Chinese Immigrants	Semaphore II	Canada	West Coast	4	1999	31

**SCENARIO 4**

**FOR PERIOD 90-99**

There were no occasions when an ALSC capability would have been employed.

Thus for a 10 yr period the mean of the number of scenario 4's that occurred is 0/10.

We saw this scenario as one that did not uniquely call upon any of the specific ALSC capabilities that were being studied therefore concluded that, for this study, ALSC did not have a specific role to play in scenario 4. This was another fleet minimization assumption.

## SC 5 – EVACUATION OF CANADIANS OVERSEAS

**SCENARIO 5                      Evacuation of Canadians Overseas**

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
Plan to Evacuate Civilians	Dialogue	South America	Haiti	5	1993	0

<b>SCENARIO 5</b>	<p>FOR PERIOD 90-99</p> <p>There were no occasions when an ALSC capability was employed.</p> <p>Thus for an 10 yr period the mean of the number of scenario 2s that occurred is 0/10.</p> <p>However, to provide a nominal baseline activity, we assumed that there might be at least one occasion when an ALSC capability would be employed:</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;">Operation</th> <th style="text-align: left;">Duration</th> </tr> </thead> <tbody> <tr> <td>OP Makebelieve I</td> <td>5-25 days</td> </tr> </tbody> </table> <p>Therefore, we postulated:</p> <ul style="list-style-type: none"> <li>- a mean rate of occurrence of 1 in 10 years</li> <li>- a duration in the range of 5-25 days</li> </ul> <p>Given speed-time-distance issues it is does not seem very likely that we would deliberately task such a mission; however, it could roll out of a force that is already deployed on a mission or monitoring a deteriorating mission.</p>	Operation	Duration	OP Makebelieve I	5-25 days
Operation	Duration				
OP Makebelieve I	5-25 days				

## SC 6 – PEACE SUPPORT OPERATIONS (CHP 6)

### SCENARIO 6

### Peace Support Operations (Chp 6)

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
ONUVEH	Heritage	Central America	Haiti	6	1990	113
OSGAP		Asia	Pakistan/Afganistan	6	1990	852
MINURSO	Python	Africa	W Sahara	6	1991	1140
ONUSAL	Match	Central America	El Salvador	6	1991	1143
UNIKOM	Record	Middle East	Iraq	6	1991	3358
UNSCOM	Forum	Middle East	Iraq	6	1991	3361
UNAVEM II	Pastel	Africa	Angola	6	1991	762
ECMM	Bolster	Balkans	Bosnia-Herzegovina	6	1991	822
>>> UNCHR Protected Areas		Balkans	Bosnia-Herzegovina	6	1991	822
UNCOE	Justice	Balkans	Bosnia-Herzegovina	6	1991	1004
UNAMIC	-	Asia	Cambodia	6	1991	143
Maritime Interdiction Force	Barrier	Middle East	Red Sea	6	1992	207
>>> UNPROFOR I	Harmony	Balkans	Bosnia-Herzegovina	6	1992	1279
>> UNTAC	Marquis	South America	Cambodia	6	1992	561
UNOSOM	Cordon	Africa	Somalia	6	1992	118
>>> UNPROFOR	Cavalier	Balkans	Bosnia-Herzegovina	6	1992	1065
UNOMOZ	Consonance	Africa	Mozambique	6	1993	857
UNOMUR		Africa	Rwanda	6	1993	548
Enforce B-H No Fly Zone	Deny Flight	Balkans	Bosnia-Herzegovina	6	1993	974
Enforce UN Embargo of FRY	Sharp Guard	Balkans	FRY	6	1993	944
UNFICYP	Snowgoose	Middle East	Cyprus	6	1993	2554
UNOSOM II	Consort	Africa	Somalia	6	1993	365
UNMIH	Pivot	Central America	Haiti	6	1993	989
UNMIH	Forward Action	Central America	Haiti	6	1993	258
>> UNOMIR	Lance	Africa	Rwanda	6	1993	989
UNMLT		Asia	Cambodia	6	1993	2389
> FRY Embargo		Balkans	FRY	6	1993	365
CPAG		Africa	South Africa	6	1994	74
MOG Dominican Republic	-	Central America	Dominican Republic	6	1994	184
OSE Peacekeeping	Nylon	Balkans	Nagorno-Karabakh	6	1995	453
>> IFOR	Alliance	Balkans	Nagorno-Karabakh	6	1995	0
Maritime Interdiction Force	Tranquillity	Middle East	Arabian Gulf	6	1995	
>>> UNSMIH	Standard/Stable	Central America	Haiti	6	1996	61

<b>Common Name</b>	<b>CF Op Name(s)</b>	<b>Region</b>	<b>Location</b>	<b>Sc</b>	<b>Start Year</b>	<b>Dur (Days)</b>
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MINUGUA	Quartz	Central America	Guatemala	6	1996	1261
>>> SFOR	Palladium	Balkans	Bosnia-Herzegovina	6	1996	1275
MINUGUA	Vision	Central America	Guatemala	6	1997	80
>>> UNTMIH	Constable	Central America	Haiti	6	1997	92
CACBH	Mirador	Balkans	Bosnia-Herzegovina	6	1997	92
MIPONUH	Compliment	Central America	Haiti	6	1997	925
Maritime Interdiction Force	Prevention	Middle East	Arabian Gulf	6	1997	0
Coalition Ops Against Iraq	Determination	Middle East	Arabian Gulf	6	1998	89
MAMDRIM	Bison	Balkans	FRY	6	1998	92
MINURCA	Prudence	Africa	CAR	6	1998	804
Coalition Ops Against Iraq	Mercator	Middle East	Arabian Gulf	6	1998	77
	Kimono	Balkans	FRY	6	1998	181
Extraction Force HQ Kumanovo	Guarantor	Balkans	FRY	6	1998	114
Coalition Ops Against Iraq	Augmentation	Middle East	Arabian Gulf	6	1999	333
> INTERFET	Toucan	Asia	East Timor	6	1999	183
UNMOP		Balkans	Prevlaka Croatia	6	1999	560
MONUC - DRC	Crocodile			6	1999	560
USAF AWACS				6	1999	560
UNMIK / UNMACC	Quadrant	Balkans	FRY	6	1999	560

- > - actual deployment of an AOR
- >> - reasonable place for an ALSC deployment
- >>> - reasonable place for three ALSC deployments

SCENARIO 6  
FOR PERIOD 90-99

There were two occasions when an AOR was employed: 1 in an AOR role and 1 in a STFA role:

Operation	Duration
OP Sharp Guard	944
OP Toucan	183

There were a number of occasions when a 3 x ALSC sealift might have been employed as a three ship sealift force:

Operation	Duration
Op Harmony	1279
OP Constable	92

There were a number of occasions when a 1 x ALSC sealift might have been employed as a single ship sealift force:

Operation	Duration
OP Marquis	561
OP Lance	989
OP Alliance	0
OP Toucan	183

We reasoned that, for the sealift role, we could break Sc 6 into:

Sc 6A where a three ship sealift force would be needed to move a Battle Group and  
Sc 6B where a one ship sealift force would be needed to move a Company sized operation

We also reasoned that the frequency for the 6A and B sealift roles  
would also be a reasonable frequency for the other two ALSC roles of AOR and STFA

Thus we postulated:

**Scenario 6A**

- a mean rate of occurrence of 2 in 10 years
- a duration in the range of 150-210 days

**Scenario 6B**

- a mean rate of occurrence of 4 in 10 years
- a duration in the range of 150-210 days



## SC 7 - AID OF THE CIVIL POWER

### SCENARIO 7

### Aid of the Civil Powers

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
Oka Crisis	Salon	Canada	Oka	7	1990	31
	Maple	Canada	Ipperwash	7	1997	30
		Canada	Gustafeson Lake, BC	7	1997	31

### SCENARIO 7

FOR PERIOD 90-99

There were no occasions when an ALSC capability was employed.

We saw this scenario as one that did not uniquely call upon any of the specific ALSC capabilities that were being studied; therefore, concluded that, for this study, ALSC did not have a specific role to play in scenario 7.

SC 8 – NATIONAL SOVEREIGNTY/INTERESTS ENFORCEMENT

**SCENARIO 8**                      **National Sovereignty/Interests Enforcement**

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
Resource Surveillance	Ambuscade	Canada	Georges Banks	8	1993	31
Spanish Fishing	Ocean Vigilance	Canada	Grand Banks	8	1996	31
Resource Surveillance	Grouse	Canada	Grand Banks	8	1997	31

<b>SCENARIO 8</b>				
FOR PERIOD 90-99				
There was one occasion when an ALSC capability might have been employed:				
<table> <tr> <td>Operation</td> <td>Duration</td> </tr> <tr> <td>OP Ocean Vigilance</td> <td>31</td> </tr> </table>	Operation	Duration	OP Ocean Vigilance	31
Operation	Duration			
OP Ocean Vigilance	31			
Therefore, we postulated:				
<ul style="list-style-type: none"> <li>- a mean rate of occurrence of 1 in 10 years</li> <li>- a duration in the range of 14-42 days</li> </ul>				

SC 9 – PEACE SUPPORT OPERATIONS (CHP 7)

**SCENARIO 9**                      **Peace Support Operation (Chp 7)**

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
Desert Shield	Friction	Middle East	Kuwait	9	1990	239
Desert Storm	Scimitar	Middle East	Kuwait	9	1991	47
Desert Shield	Flag	Middle East	Kuwait	9	1991	34
UNITAF	Deliverance/Relief	Africa	Somalia	9	1992	227
OP ALLIED FORCE	Echo	Balkans	FRY	9	1999	439
OP ALLIED HARBOUR (AFOR)		Balkans	FRY	9	1999	439
KFOR	Kinetic	Balkans	FRY	9	1999	384

**SCENARIO 9**  
**FOR PERIOD 90-99**  
 There were two occasions when an ALSC was employed: 1 in an AOR role and 1 in an STFA role:

Operation	Duration
Op Friction	239
OP Deliverance	227

There were two other occasions when an ALSC might have been employed as a three ship sealift force:

Operation	Duration
OP Kinetic	384
OP Friction	239

Thus, for a 10 yr period, the mean of the number of all scenario 9s involving one or more of the ALSC roles was 3/10.

Therefore, we postulated:

- a mean rate of occurrence of 3 in 10 years
- a duration in the range of 150-210 days

SC 10 – DEFENCE OF CANADIAN/US TERRITORY

**SCENARIO 10**

**Defence of Canadian/US Territory**

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
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**SCENARIO 10**

FOR PERIOD 90-99

There were no occasions when an ALSC capability would have been employed.

Scenario 10 arguably has a very low probability of occurring in the foreseeable future. Based on the 1962 Cuban Missile Crisis one might speculate that there could be a requirement for an ALSC in an AOR role 1 in every 40 years.

We, therefore, postulated:

- a mean rate of occurrence of 1 in 40 years
- a duration in the range of 14-42 days

## SC 11 – COLLECTIVE DEFENCE

**SCENARIO 11**                      **Collective Defence**

<i>Common Name</i>	<i>CF Op Name(s)</i>	<i>Region</i>	<i>Location</i>	<i>Sc</i>	<i>Start Year</i>	<i>Dur (Days)</i>
Year 2000 Computer Bug	Abacus	Canada	Canada	10	1999	12

**SCENARIO 11**  
**FOR PERIOD 90-99**  
 There were no occasions when an ALSC capability would have been employed.

Scenario 11 is defined as an attack on a NATO country and involves a full, Article 5, commitment of a Vanguard Battalion and the MCF to that NATO country. However, it has a very low probability of occurring in the foreseeable future. Nonetheless, based on the occurrence of two major European wars in the past century one might postulate that Scenario 11 might occur on an average of 1 in every 50 years.

Thus for a 50 yr period the mean of the number of scenario 10's that might occur is 1/50.

Therefore, we postulated:

- a mean rate of occurrence of 1 in 50 years
- a duration in the range of 150-210 days

Here again the low duration is a force minimizing assumption.

DOCUMENT CONTROL DATA (Security classification of title, body of abstract and indexing annotation must be entered when the overall document is classified)		
1. ORIGINATOR (the name and address of the organization preparing the document. Organizations for whom the document was prepared e.g. Establishment Sponsoring a contractor's report, or tasking agency, are entered in Section 8). <b>Operational Research Division Department of National Defence Ottawa, Ontario K1A 0K2</b>	2. SECURITY CLASSIFICATION (overall security classification of the document, including special warning terms if applicable)  <b>UNCLASSIFIED</b>	
3. TITLE (the complete document title as indicated on the title page. Its classification should be indicated by the appropriate abbreviation (S, C or U) in parentheses after the title) <b>Afloat Logistics And Sealift Capablity: Determination Of The Frequency And Duration Of Employment (U)</b>		
4. AUTHORS (last name, first name, middle initial)  <b>Massel, P.L.</b>		
5. DATE OF PUBLICATION (month Year of Publication of document)  <b>MAY, 2003</b>	6a. NO OF PAGES (total containing information. Include Annexes, Appendices, etc.)  <b>29</b>	6b. NO OF REFS (total cited in document)  <b>4</b>
7. DESCRIPTIVE NOTES (the category of document, e.g. technical report, technical note or memorandum. If appropriate, enter the type of report e.g. interim, progress, summary, annual or final. Give the inclusive dates when a specific reporting period is covered.)  <b>Research Note 2003/05</b>		
8. SPONSORING ACTIVITY (the name of the department project office or laboratory sponsoring the research and development. Include the address).  <b>Nil</b>		
9a. PROJECT OR GRANT NO. (if appropriate, the applicable research and development project or grant number under which the document was written. Please specify whether project or grant.)  <b>Nil</b>	9b. CONTRACT NO. (if appropriate, the applicable number under which the document was written.)  <b>Nil</b>	
10a. ORIGINATOR's document number (the official document number by which the document is identified by the originating activity. This number must be unique to this document.)	10b. OTHER DOCUMENT NOS. (Any other numbers which may be assigned this document either by the originator or by the sponsor.)	
11. DOCUMENT AVAILABILITY (any limitations on further dissemination of the document, other than those imposed by security classification.) <input checked="" type="checkbox"/> Unlimited distribution <input type="checkbox"/> Distribution limited to defence departments and defence contractors; further distribution only as approved <input type="checkbox"/> Distribution limited to defence departments and Canadian defence contractors; further distribution only as approved <input type="checkbox"/> Distribution limited to government departments and agencies; further distribution only as approved <input type="checkbox"/> Distribution limited to defence departments; further distribution only as approved <input type="checkbox"/> Other (please specify):		
12. DOCUMENT ANNOUNCEMENT (any limitation to the bibliographic announcement of this document. This will normally correspond to the Document Availability (11). However, where further distribution (beyond the audience specified in 11) is possible, a wider announcement audience may be selected.)		

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As part of a larger study into the potential fleet size requirements for a platform that would provide an Afloat Logistics and Sealift Capability to the Canadian Forces, an effort was made to benchmark the frequency and duration of the force employment for such a capability. A record of all the operations that the Canadian Forces has been involved in over the recent post Cold war period of 1990-99 was obtained and used to determine how often and for how long an Afloat Logistics and Sealift Capability was or might have been employed. This information was, in turn, used to calculate the frequency and duration of employment of this capability across the eleven Canadian Forces Force Planning Scenarios. This research note documents this effort and reports on its results.

14. KEYWORDS, DESCRIPTORS or IDENTIFIERS (technically meaningful terms or short phrases that characterize a document and could be helpful in cataloguing the document. They should be selected so that no security classification is required. Identifiers, such as equipment model designation, trade name, military project code name, geographic location may also be included. If possible keywords should be selected from a published thesaurus, e.g. Thesaurus of Engineering and Scientific Terms (TEST) and that thesaurus-identified. If it is not possible to select indexing terms which are Unclassified, the classification of each should be indicated as with the title.)

Afloat Logistics, Sealift, Afloat Logistics and Sealift Capability, ALSC, Strategic Lift, AOR, Frequency of Employment, Duration of Employment

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#519503

CA022564