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NAVAL COOPERATION AND GUIDANCE FOR SHIPPING: GIVING AN OLD TOOL A NEW ROLE IN CANADA'S MARITIME SECURITY

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**Naval Cooperation and Guidance For Shipping:
Giving an old tool a new role in Canada's Maritime Security**

A Thesis Submitted

To the Division of Graduate Studies of the Royal Military College of Canada

by

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À ma fille Emily, pour qui les heures de recherche se traduisent en temps à rattraper,
ensemble.

To my daughter Emily, for who research time for this paper is time we must catch up,
together.

Rappelons-nous de ceux qui ont servi

Remember those who served

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ABSTRACT

The requirement to control maritime trade in Canadian waters is as old as its Navy. As the world evolves, globalisation, technology and a myriad of factors affect how maritime forces assign assets to protect their merchant ships or defend against vessels that pose a challenge national security. From supply convoys sailing the Atlantic to interdicting oil smugglers in the Arabian Gulf, maritime trade affect the maritime operational environment.

The Canadian Forces, as do many coalition partners, leaves control of shipping issues to its Naval Cooperation and Guidance for Shipping capability (NCAGS, formerly known as Naval Control of Shipping (NCS)) embedded in the Naval Reserve. The Navy combined NCAGS with the Intelligence military occupation in 2004. The resulting dual-hatted Reserve officers have been an indubitable success story from the intelligence perspective, having since filled important roles in domestic and expeditionary operations. The NCAGS side of the equation however holds unexploited potential.

This paper outlines the origins of NCAGS, defines it, sets it in current Canadian Defence policy and illustrates its contribution to the maritime Contemporary Operational Environment (COE). It argues that further exploiting the navy-civilian collaborative skills and maritime trade expertise embedded in NCAGS would allow the Canadian Forces to optimise this asset for national security. Efficient use of NCAGS skills embedded in the reserve intelligence capability would further decrease the maritime commander's surveillance and reconnaissance requirement, and enhance Maritime Domain Awareness (MDA) at home and abroad.

Keywords:

Naval Cooperation and Guidance for Shipping (NCAGS), Naval Control of Shipping (NCS), Coopération et orientation navale de la navigation commerciale (CONNC), Maritime Trade Organisation, maritime security, commercial shipping, shipping industry, maritime community, Maritime Domain Awareness (MDA), White Picture, Whole of Government (WoG), surveillance, reconnaissance, collaborative work, Joint Interagency Multinational Public (JIMP), Naval CIMIC, Naval HUMINT

RÉSUMÉ

La nécessité de contrôler la navigation commerciale dans les eaux canadiennes date des origines de la Marine. En parallèle avec l'histoire mondiale, l'évolution de la technologie, la globalisation et une collection d'autres facteurs influencent l'affectation des ressources par les forces navales afin de protéger les navires commerciaux ou contrer la menace à la sécurité nationale provenant de ces vaisseaux. Que ce soit les convois traversant l'Atlantique ou les embargos contre l'Iraq, la navigation commerciale affecte l'environnement opérationnel maritime.

Les Forces canadiennes, tel que le font plusieurs partenaires de coalition, attribuent la responsabilité du contrôle de la marine marchande à la capacité de Coopération et orientation navale de la navigation commerciale (CONNC, mieux connue sous son acronyme NCS en anglais) à la réserve navale. La Marine a amalgamé le CONNC avec le Renseignement en 2004. Les réservistes à double responsabilité qui résultent de ce changement sont indéniablement reconnus comme une histoire à succès au point de vue Renseignement pour leur contribution aux tâches domestiques et expéditionnaires. Le côté CONNC demeure cependant une capacité au potentiel sous-exploité.

Ce travail illustre les origines du CONNC, le définit, démontre sa place au sein de la politique de défense nationale actuelle et illustre sa contribution à l'environnement opérationnel maritime contemporain. Il y est établi qu'une meilleure exploitation de l'expérience en collaboration civile-militaire et de l'expertise en commerce maritime déjà intrinsèque au CONNC apporterait à la Marine canadienne un atout simple mais essentiel contribuant à la sécurité nationale. Une telle optimisation d'outils existant dans la capacité de renseignement de la réserve diminuerait le besoin de surveillance et reconnaissance du commandant maritime, en plus de raffiner la connaissance du secteur maritime (CSM) chez nous et outre mer.

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GLOSSARY

AAP	Allied Administrative Publication (NATO)
AIS	Automatic Identification System
AOO	Area of Operation
AOR	Area of Responsibility
ARA	Authority-Responsibility-Accountability
ATP	Allied Tactical Publication (NATO)
AWNIS	Allied Worldwide Navigational Information System
AXP	Allied Experimental Publication (NATO)
BB99	Exercise BELL BUOY 1999
BCE	Balanced Command Envelope
BDA	Battle Damage Assessment
C2	Command and Control
CANADACOM	Canada Command
CAR	Competence - Authority - Responsibility
CBSA	Canada Border Services Agency
CDI	Chief of Defence Intelligence (Canada)
CDR	Concept Development Record
CEFCOM	Canadian Expeditionary Force Command
CENTCOM	US Central Command
CF	Canadian Forces
CFFS(Q)	Canadian Forces Fleet School (Québec)
CG	Coast Guard
CIMIC	Civil-Military Cooperation
CIS	Communications and Information Systems
CJ2	Chief Joint Intelligence (HQ ISAF, Afghanistan)
CLS	Chief of the Land Staff (Canada)
CMF	Combined Maritime Force
CMO	Civil-Military Operations (US)
CMS	Chief of the Maritime Staff (Canada)

COA	Course of Action
COE	Contemporary Operational Environment
COIN	Counter-Insurgency
COP	Common Operating Picture
COTS	Commercial Off-the-shelf
CRG	Communications Reporting Gate (NCAGS Tool 103)
CRR	Combat Readiness Requirement
CTF	Combined Task Force
CTF	Commander Task Force
CRS	Crisis Response Shipping
DFO	Department of Fisheries and Ocean
DMPOR	Directorate of Maritime Policy, Operations and Readiness
DND	Department of National Defence
DoD	US Department of Defense
DoT	US Department of Transport
DPC	Defence Planning Committee (NATO)
DRDC	Defence Research and Development Canada
EU NAVFOR	European Union Naval Force
EXTAC	Experimental Tactic (publication)
FE	Force Employment
FG	Force Generation
FSO	Full-Spectrum Operations
G-20	Group of 20 Nations
GOA	Gulf of Aden
GMDSS	Global Maritime Distress and Safety System
HoA	Horn of Africa
HQ	Headquarters
HUMINT	Human Intelligence
ICC	International Chamber of Commerce
ICC	International Cooperation Committee
IED	Improvised Explosive Device

IMB	International Maritime Bureau
IMINT	Imagery Intelligence
IMO	International Maritime Organisation
IMSWG	Interdepartmental Marine Security Working Group
Info Ops	Information Operations
IPB	Intelligence Preparation of the Battlespace
IO	Information Operations
IO	International Organisation
IRTC	Internationally Recommended Transit Corridor
ISAF	International Security Assistance Force (Afghanistan)
ISR	Intelligence, Surveillance and Reconnaissance
IT	Information Technology
J2	Joint Intelligence
JIMP	Joint, Interagency, Multinational, Public
JTF	Joint Task Force
LIO	Leadership Interdiction Operation
LNG	Liquefied Natural Gas
LO	Liaison Officer
LRIT	Long-Range Identification and Tracking
MARAD	Maritime Administration (US DoT)
MARLO	Maritime Liaison Officer
MARS	Maritime Surface and Sub-Surface Officer
MCC	Maritime Component Commander
MDA	Maritime Domain Awareness
MIO	Maritime Interdiction Operation
MONI	Migration of NCS to Intelligence project (Canada)
MOU	Memorandum of Understanding
MSCHOA	Maritime Security Centre Horn of Africa
MSI	Maritime Safety Information
MSOC	Marine Security Operations Centre
MSPA	Maritime Security Patrol Area

MTO	Maritime Trade Operations (UK, Australia, NZ)
N2	Naval Intelligence
N3	Naval Operations
NAC	North Atlantic Council
NATO	North Atlantic Treaty Organisation
NCAGS	Naval Cooperation and Guidance for Shipping
NCS	Naval Control of Shipping
NCS	Naval Control Services
NEO	Network Enabled Operations
NEO	Non-Combatant Evacuation Operations
NORAD	North American Aerospace Defence Command
NOTSHIP	Notice to Shipping (Transport Canada)
NMP	National Maritime Picture (unclassified)
NOTMAR	Notice to Mariners
NRD	Naval Reserve Division
NSA	National Shipping Authority
NSC	NATO Shipping Centre
NSWG	NATO Shipping Working Group
NTTL	Naval Tactical Task List
OAE	Operation Active Endeavour (NATO)
OOS	Operation Ocean Shield (NATO)
OPP	Operational Planning Process
OPTASK	Operational Tasking
OSIP	Occupational Structure Implementation Plan
OSINT	Open Source Intelligence
PACIOSWG	Pacific and Indian Ocean Shipping Working Group
PIM	Position and Intended Movement
PRes Int-Sea	Primary Reserve Intelligence - Sea
PRT	Provincial Reconstruction Team
Psy Ops	Psychological Operations
RCMP	Royal Canadian Mounted Police

RMP	Recognised Maritime Picture
RNW	Radio Navigational Warning
ROE	Rules of Engagement
SA	Situational Awareness
SAR	Search and Rescue
SCP	Shipping Co-operation Point
SHADE	Shared Awareness and Deconfliction conferences
SI	Shipping Information
SLOC	Sea Line of Communication
SOP	Standing Operating Procedure
SRA	Shipping Risk Area
SSR	Security Sector Reform
TC	Transport Canada
UAE	United Arab Emirates
UK	United Kingdom
UK MTO	UK Maritime Trade Operations (UK NCAGS)
UN	United Nations
USA	United States of America
USCG	US Coast Guard
USMC	US Marine Corps
USN	US Navy
VOI	Vessel of Interest
WFP	World Food Program
WWII	Second World War
WWNWS	World Wide Navigational Warning System

INTRODUCTION

“In 1939, the RCN was a small coastal defence force (...) it formed part of an imperial navy, a worldwide network of British naval communications, intelligence and trade defence.”

No Higher Purpose Vol II, Part I. Douglas, Sarty and Whitby¹

With the end of the Cold War came the end of a solid role for the Canadian Naval Control Service. Naval Control of Shipping (NCS) officers, mostly reserve, were responsible to track, route, deconflict and implement measures to reduce the risk to commercial shipping, mainly through the mechanism of convoys protected by naval escorts.² Convoys, considered the centre of gravity of the Second World War (WWII), transported vast amounts of goods and troops that were needed through organized and controlled ship movements.³ Intelligence would feed NCS U-boat reports with positions and enemy intent that would directly influence convoy routes and schedules.⁴ In return, NCS staff would collect, analyze and disseminate commercial shipping information, feeding the surveillance portion of the intelligence picture at the Maritime Component Commander (MCC) or Joint staff level.⁵

With historical ties between NCS and Intelligence dating from the early days of the Canadian Navy, it would seem less of a surprise that on December 2002, the Chief of the

¹ Douglas, Sarty and Whitby, *No higher Purpose*, Toronto: Vanwell Publishing (2002), 27.

² “Deconflict” is common military jargon that refers to avoiding interference and disruption, in this case between civilian shipping and military activities.

³ John Roach, *Trade Protection and Intelligence, Royal Canadian Navy 1920-1968*, Thesis presented for the completion of a Master’s degree, University of Ottawa, 2005, 1-2.

⁴ Roach, 47.

⁵ Canada, Chief of the Maritime Staff, *NCS Problem Definition Paper*, approved by NCS Branch Advisor and Intelligence Branch Advisor, 12 June 2002.

Maritime Staff approved the initiative to amalgamate NCS with intelligence, creating an intelligence capability within the Canadian Naval Reserve. The Naval Cooperation and Guidance for Shipping (NCAGS) officers, the Navy's commercial shipping experts, were deemed to have specialist skills vital enough to preserve Canada's NCAGS commitment to NATO, but insufficient to be a stand-alone military occupation.⁶ Instead of merging NCAGS with Maritime Surface and Sub-Surface (MARS), an existing reserve occupation in naval operations (N3) based on the navigation of naval vessels, the Navy focused on the information management and analysis skills of NCAGS officers and opted to re-train the small existing force and form a naval intelligence (N2) capability. This was in part motivated by the change in operational environment, the evolving source of threat, and the perceived lack of purpose for a capability dedicated to the protection and control of merchant vessels in a post-9/11 era. There was a recognition that the maritime threat was as, or more, likely to originate from the commercial shipping sectors -- for which NCS officers were the Navy's Subject Matter Expert (SMEs) -- as it was from "grey hulls." The assumptions remained that "strategic shipping [identification]-tracking-control [would] remain, for the foreseeable future, a fundamental task of any regional or international Navy."⁷ The Naval Reserve had much to prove to demonstrate the usefulness of NCAGS as something else than convoy organisers. The establishment for a Primary Reserve Intelligence-Sea (PRes Int-Sea) occupation was approved.

⁶ By MOSART definition, NCS (R86) was a "job" vice an "occupation". Source: Canada, Department of National Defence, NDHQ/DMHRR 5505-10-3/00 (NAV OPS OA/MOSART) 26 Feb 01, and Canada, Department of National Defence, Occupational Structure Implementation Plan (OSIP), 2004, 11. Following the change in NATO doctrine, Canada adopted the appellation of NCAGS from NCS (with Regional NCS in the interim years 1999-2000). Usage of NCAGS in Canadian training document was mostly established in 2001-2003, although the military occupation was still referred to as NCS.

⁷ Canada, Department of National Defence, *Briefing note to A/CMS*, providing an executive summary of the decision brief prepared on the R86 MOC Review, Lieutenant-Commander Kubeck DMPOR 3-7, 10 December 2001.

The decision to create this increased intelligence capability was timely. Defence Intelligence requirements were quickly growing with operations in Afghanistan, Arabian Gulf, and other theatres. Similar pressures were also emerging in the Canadian Forces (CF) at home with the creation of new headquarters (HQs), domestic operations at sea, and the creation of Marine Security Operations Centres (MSOCs). The quick and solid gains in credibility for the new Reserve Intelligence officers were enhanced by Canadian Forces Fleet School Québec (CFFS(Q)) mirroring the Regular Force instruction standard at CF School of Military Intelligence (CFSMI) to train these officers, and acquiring an enviable reputation in delivering the Basic Intelligence Officer Course (BIOC).

In parallel with the new opportunities offered through the association with Intelligence, the Naval Reserve retains the mandate of maintaining the NCAGS capability, responsibility which requires a fair share of effort for the small team of full-time PRES Int-Sea staff.⁸ Training is accomplished within the Navy's Combat Readiness Requirement (CRR) cycle, mainly at CFFS (Q) and through exercises. Canadian NCAGS doctrine is kept current through participation in interoperability organisations, sending representatives to North Atlantic Treaty Organization (NATO) Shipping Working Group (NSWG) meetings, Pacific Indian Ocean Shipping Working Group (PACIOSWG) meetings, a collection of NCAGS exercises around the world, and more recently, operational deployments at the NATO Shipping Centre (NSC). Regardless of mandate or mission, some of the original NCAGS officers opted not to take part in intelligence training to remain 'pure' NCAGS. On the other end of the spectrum, others continue to question why NCAGS still exists.

⁸ OSIP, 11.

In the context of this brief background, the following pages will not provide sensational figures to describe the wonders of NCAGS. This paper argues that NCAGS remains a specific yet essential skill set to the Canadian Navy and a valuable contribution to Canadian maritime security.

To substantiate this contention, NCAGS will first be put in historical context, illustrating its early ties to intelligence, outlining its crucial role as merchant shipping expert, and function as liaison with Joint, Interagency, Multinational, Public (JIMP) partners. Current Canadian security policies will be reviewed, as pertaining to NCAGS and the requirement for commercial shipping experts and civil-military cooperation specialists in the Canadian Navy. International definitions of NCAGS, otherwise known as Maritime Trade or Naval-Civil Affairs, will be compared, centring on NCAGS' role as the interface between the Navy and civilian shipping. Chapter 2 will present NCAGS through four conceptual blocks emanating from the definitions. Doctrine and theories will illustrate previous, current and potential application of the capability. The paper offers a few NCAGS particularities applicable to the COE that could be further exploited, and recommendations to make better use of the Navy's maritime trade expertise.

CHAPTER 1 – NCAGS CONCEPT DEFINITIONS

NCAGS Origins and the Evolution of the Threat Environment

NCAGS is generally recognised through its historic roots as WW II maritime trade protection and Naval Control of Shipping (NCS). The distribution of knitted sweaters and magazines to mariners in Halifax harbour has disappeared along with Convoy Commodore Conferences. In Canada and many NATO and partner countries, NCAGS has since regularly faced the challenge of substantiating skills seldom used or used with little visibility, generating a knowledge gap, a navy with limited exposure to the capability.⁹ Who can blame them for being doubtful, with such an acronym!¹⁰

Not too many years after Sir Wilfrid Laurier was successful in Parliament to pass the Naval Service Act in 1910, Canada was brought into the Great War. At first providing only soldiers to help Great Britain, Canada inevitably had to fend for itself, “protecting Canadian sovereignty and defending commercial shipping.”¹¹ The threat of German submarines had expanded the requirement for patrols beyond the capacity of HMC Ships RAINBOW and NIOBE, augmented by ships borrowed from other government

⁹ OSIP, 11-12. In addition, Cmdre Gardam, Director General Plans at Strategic Joint Staff in the Department of National Defence, indicated in a personal discussion on 21 Oct 2009 that in his opinion there is no doubt NCAGS is a capability Canada needs to maintain. He supported this by referring to the success of NCAGS during OPERATION APOLLO. He was quick to follow by cautioning that there is a severe lack of understanding of NCAGS in the Canadian Navy.

¹⁰ LCdr Manu-Popa, Canadian Head of Delegation to the NSWG NCAGS Review Sub-Group (NNRSG) states NCAGS (the acronym and name) as one of 8 issues at the source of the visibility problem with this military occupation. *The Future of NCAGS in NATO and Around the World*. June 2009.

¹¹ Douglas, Sarty and Whitby, *No Higher Purpose: The Official Operational History of the Royal Canadian Navy in the Second World War, 1939-1943*, Volume II, Part 1 (St. Catharines: Vanwell Publishing, 2002), 28.

departments. The Royal Navy (RN) proved in no position to fulfil her promise to protect Canada, initiating the requirement for naval shipbuilding. Britain needed help herself to counter shipping losses. Convoys from Halifax and Sydney, then Québec, Saint John and Montréal became a point of dispatch for merchant shipping bringing supplies across the Atlantic. The collision of the MONT BLANC and the IMO in Halifax harbour on 6 December 1917 is a stark reminder of the merchant vessels' assistance with the Great War effort. Convoys became an essential war-winning tool based on the requirement to control shipping, and tight cooperation between naval vessels and merchant ships.

Following the Great War, Commodore Hose, understanding the political requirement to defend Canada with Canadians and limitations of scarce resources, created the naval reserves.¹² This organization would be the main workforce behind the set-up and organisation of convoy in the Second World War (WWII). The convoys evolved from the vulnerable coastal North American waters where ships could be more easily detected, to the full typical trans-Atlantic journeys. The teams behind the planning of such endeavours had to adjust convoy preparations according to the technology available affecting the transit (steam ships, defence and communications systems) and the intelligence on the latest enemy tactic.

Linkages between control of shipping and naval intelligence take their origins in the early evolution of the Royal Canadian Navy (RCN) through Signal Intelligence.¹³ The RCN's Great War role was coastal communications and protection of trade, and the RN had a

¹² The Royal Canadian Naval Reserve and the Royal Canadian Naval Volunteer Reserve composed the reserve force, officially created in 1923. Douglas et al, 30.

¹³ For a historical perspective, see John Roach, *Trade Protection and Intelligence, Royal Canadian Navy 1920-1968*, Thesis presented for the completion of a Master's degree, University of Ottawa, 2005.

“keen interest in direction finding” (D/F) where radio communications were tightly linked to control of shipping around Canadian coasts.¹⁴ Communications security was a pillar in convoy planning, hinged on specialist skills in both fields of qualification. To this day, communications between the Navy and the merchant ships it endeavours to protect remain a challenge due to technology and the need for trust and collaboration.

In 1922, D/F stations were transferred back to the Department of Marine and Fisheries, and afterwards Transport, however still incorporated in the RN’s control of shipping organisation, generating a requirement for inter-departmental cooperation. With a growing German Navy and a small but fearful history of German commerce raiders in Canadian waters, there was a high incentive for effective cross-jurisdiction contingency planning.

To each their function: the RCN, the Reserve (RCNR) and the Volunteer Reserve (RCNVR) manned and equipped convoy escorts to protect merchant shipping, provided intelligence to assess the route and conditions ahead, and personnel to tightly plan such commercial shipping in organised groups of controlled ships. The Naval Control Service (NCS), in wartime, was to “route merchant ships, report ships movement and organise convoys.”¹⁵ The NCS Organisation, part of the Mercantile Intelligence Section of the Naval Intelligence Division, was responsible to assemble the convoy in ports, a lengthy process causing the Admiralty to hesitate before adopting the method, outweighed by the

¹⁴ Douglas et al, 32.

¹⁵ Roach, 19.

advantages: convoys increased security of the supplies and gave “confidence to the Merchant Navy and to the nation as a whole of incalculable value.”¹⁶

As the war ended and the Cold War set in, the threat was clear and the Navy held steadfast to its NATO doctrine and commitments, including control of shipping and maritime trade protection in the requirement for Canadian defence.¹⁷ DND’s NCAGS commitments include four NCAGS Units for NATO, NCS manning commitment of strategically important or shared ports and waterways for continental defence, and NCS units to support the defence of Canada in crisis and war.¹⁸

In the post-Cold War period, and exponentially after the 2000 attack on the USS COLE and the 2001 attacks by Al Qaeda, the threat from conventional military targets - grey hulls and submarine - was supplanted by the much more ambiguous threat from foes in civilian disguise. Simultaneously, the requirement for control of shipping, hence NCS, lost its foundation with a low probability that convoys would again be required. At the same time, public pressure required a decrease in the visibility of defence in national policy in favour of national security, relying increasingly on partner agencies such as the Coast Guard (CG), Transport Canada (TC) and the Royal Canadian Mounted Police (RCMP) to serve as the main maritime security tool, rather than DND.

Contemporary Operational Environment

¹⁶ Douglas et al, 45. Convoys as a Centre of Gravity for WWII: Roach, 2. USN Admiral King did not share the enthusiasm for convoys and dedicated little resources to them.

¹⁷ NATO doctrine and commitments: Peter Haydon, *Why Canada Needs a Navy*, Maritime Security Working Paper No.1 - 2007, Centre for Foreign Policy Studies, 9. http://centreforforeignpolicystudies.dal.ca/pdf/marsec_working/WhyCanadaNeedsaNavy.pdf; Internet; accessed 8 April 2010.

¹⁸ Source: Decision Brief to CMS, *R86 MOC Review*, Chair R86 MOC Review Working Group, 10 December 2001, and NATO, Allied Administrative Publication (AAP) 8.

Along with smuggling, pollution and sovereignty infringements, maritime security issues that are of particular defence concern include terrorism and conventional threats.

Terrorism requires a higher level of expertise and effort for contingency planning since terrorists will do their most to blend into the environment until the very last moment, aiming for an impact that will cause sufficient damage to life, economy or infrastructure to grab media attention. A terrorist threat will not always be a concern of the maritime domain. However, the global aspect of asymmetric threat makes it a constant item in a naval commander's readiness schedule.¹⁹

In a post-9/11 maritime terrorism framework for contingency planning, Parfomak and Frittelli argue that although many of the potential incidents seem unlikely, no scenario is too far fetched to be discounted.²⁰ Maritime threat scenarios are categorised in five dimensions, presented in Table 1, including Perpetrators (who), Objectives (why), Locations (where), Targets (what), and Tactics (how).²¹ Each dimension offers a plethora of options and sub-categories easily translatable to the Canadian context.²²

Table 1 - Five Dimensions of a Terrorist Attack

<u>Characteristics</u>	<u>Spectrum of Considerations</u>
------------------------	-----------------------------------

¹⁹ In O'Neil, LCol R.H. *Canada's Principal Economic Hub Ports in the Maritime Security Domain*. Master in Defence Studies thesis. Canadian Forces College. JCSP 33. Reference from Hoffman and Tangredi, *Characteristics and Requirements of the Evolving Security Environment*.

²⁰ Paul W. Parfomak and John Frittelli, *Maritime Security: Potential Terrorist Attacks and Protection Priorities* CRS Report for Congress, Order Code RL33787, January 9, 2007.

²¹ *Ibid.*, CRS-2 to CRS-6 with brackets added by the author.

²² Although their audience is the American Government, similar discussions are taking place at home in many think tanks. The Canadian Forces Maritime Warfare Centre (CFMWC) Professional Digest, Dalhousie University's *Canadian Naval Review* journal and Centre for Foreign Policy Studies, Canadian Defence Academy's *Canadian Military Journal* are but a very few examples pursuing such research.

<u>Characteristics</u>	<u>Spectrum of Considerations</u>
Perpetrator	<ol style="list-style-type: none"> 1. Highly organized and well funded 2. Ad-hoc, reactionary movement 3. Disgruntled union workers
Objective	<ol style="list-style-type: none"> 1. Devastation of Infrastructure 2. Loss of Life 3. Economic disruption or benefit 4. Environmental catastrophe
Location	<ol style="list-style-type: none"> 1. Major city centre ports 2. Maritime chokepoints
Target	Attractive Maritime Targets include: <ol style="list-style-type: none"> 1. Port infrastructure and facilities 2. Cargo vessels/Cruise ships/Tankers 3. Straits 4. Bridges 5. Storage facilities
Tactics	Desired ends, ways and means will dictate tactics which may include: <ol style="list-style-type: none"> 1. Piracy 2. Hijacking 3. Containerized explosive device 4. Fast boat borne explosive device 5. Intentional collision of ships

Source: Parfomak and Frittelli, *Maritime Security: Potential Terrorist Attacks and Protection Priorities*, CRS-2 to 6.

It has been contended that the model above is powerful enough that, if intelligence was able to identify Perpetrators, they could narrow down the potential scenarios sufficiently to determine the other four characteristics.²³ Canada's long coastline, thawing Arctic, multiple ports, cruise ships and ferries, infrastructure and busy in-land waters offer many Target possibilities that have a high potential of attracting terrorist (Perpetrator) interest. As the five dimensions of terrorism are based on the common Who-What-Where-Why-How questions, the table can be also translated to other maritime security issues such as smuggling, over-fishing or illegal immigration.

²³ LCol O'Neill, p. 34.

Maritime terrorism may be in support of terrorism on land, such as ferrying people, money and arms. A terrorist attack in Canada, even with minimal or no loss of life, would lead to a successful media campaign for the perpetrator. Possible, potential, and probable can be qualifiers to many elements of the Spectrum of Consideration for each of the five Characteristics, generating multiple options that could be mitigated by intelligence, augmented by NCAGS maritime trade expertise.²⁴ Intelligence draws its power out of the strength of allocated resources. Without the benefit of merchant trade experts, maritime intelligence loses part of its collection and analysis capability, with the challenge of legislation hindering the collection of intelligence on Canadians. Investing in maritime domain analysts increases the possibility of finding the Perpetrator as he “hides in plain sight.”²⁵

Conventional Threat

Prospects of conventional threats have been mentioned in relation to security in the Arctic in view of the requirement to protect national sovereignty - the Arctic Off-shore Patrol Ships being a prime illustration of defence and inter-agency collaboration requirements within the current Government’s Northern Strategy. The increasingly open seaways above the 60th parallel have started a race to access natural resources uncovered as the ice melts. The accessible north attracts tourist cruise ships, requires protection against environmental disasters, emergency response, and prevention of drug, arms and human smuggling.

²⁴ Parfomak and Frittelli, CRS-27, indicate that “improved gathering and sharing of maritime terrorism intelligence (...) may increase the efficient deployment of maritime security resources.”

²⁵ USN Lieutenant Mark Munson, “Looking for Anomalies in All the Wrong Places”, *Proceedings*, 135/7/1.277 (July 2009), 36.

Journals and academia are hinting of conventional activity in the Arctic, and newspapers regularly report on Canadian and international efforts to diplomatically resolve northern issues. Russia planted a symbolic flag on the ocean bottom near the North Pole in August 2007, formalizing claims under the United Nations to parts of the continental shelf. Russia has also increased flights, presence and exercises in the Arctic region.²⁶ China is known to be developing under-ice submarine capability with air-independent propulsion in view of their Arctic research program, and its presence in the counter-piracy effort has demonstrated that China is willing to sail away from homeland if it serves domestic interests.²⁷ Collaboration between the eight Arctic nations and other stakeholders through forums such as the Arctic Council will provide an opportunity for such partners to voice their concerns and hopefully keep the prospects of conventional threats within the limits manageable by diplomacy.²⁸

The debates about the Arctic also bring forward a possibility for NCAGS involvement, with an area of merchant shipping expertise that will require further development to support the surveillance effort, white picture management and inter-agency collaboration.²⁹ Consideration could be given to establish a Marine Security Operations

²⁶ Commander (ret) John Patch, "Cold Horizons: Arctic Maritime Security Challenges", *Proceedings*, 135/5/1,275 (May 2009), 49. A parachute drop of Russian soldiers to "commemorate the end of the Cold War" is planned for 2010 (at the time of writing). Randy Boswell, "Russia Plans Polar Parachute Drop", *The National Post*, 30 July 2009, <http://www.nationalpost.com/news/canada/story.html?id=1842751>; Internet; accessed 31 March 2010.

²⁷ Cmdre (ret) Eric Lehre, *Broadsides*, Post to Doug Thomas' article, on-line from <http://naval.review.cfps.dal.ca/forum/view.php?topic=2>; Internet; accessed 29 December 2009.

²⁸ Franklin Griffith, *Towards a Canadian Arctic Strategy*, <http://www.canadianinternationalcouncil.org/publicatio/foreignpol/towardsaca~2>; Internet; accessed 28 March 2010.

²⁹ Navigation and maritime activities in the Arctic encompass a specific area of expertise, as illustrated in the multiple books and journals addressing the issue, and debates surrounding the Government's Northern Strategy. A few are listed in the bibliography.

Centre (MSOC) North in addition to the three existing MSOCs.³⁰ Experts agree that the north brings about specific challenges for MDA due to weather, difficulty of access, and the mere size of the area of operation. Canada's sovereignty over its islands in the Arctic is no longer put into question.³¹ However, sovereignty in and over the water presents interesting challenges, and political motivation is high to demonstrate a presence in the Arctic. Other countries or organisations may move in to fill the gap if Canada demonstrates an inability to maintain security in the north.

The Arctic is becoming of increasing interest for various reasons such as tourism, research, resource exploitation, and environmental protection. As the ice melts, allowing shipping to navigate longer periods during the year, Canada will be increasingly required to protect maritime trade routes such as the Northwest Passage, provide SAR services and sovereignty patrols. The Navy's role in the Arctic is primarily linked to sovereignty protection.³² The new Coast Guard heavy icebreakers will keep seaways open to navigation, providing "critical transportation and environmental disaster response services in the Arctic."³³ Surveillance data for the Canadian AOR is obtained through a balance of remote, autonomous and manned sensors from various agencies.³⁴ To each their role: as the government decides on priorities and allocates scarce resources,

³⁰ MSOCs East, West and Great Lakes. To date, this suggestion gets very little support from the intelligence community due to the Arctic's limited maritime surveillance requirements for the foreseeable future and for only part of the year. The suggestion has been received with more enthusiasm from the operator community.

³¹ Coates, Lackenbauer, Morrison and Poelzer. *Arctic Front: Defending Canada in the Far North*. Thomas Allen Publishers, Toronto. 2008.

³² Martin Shadwick, "Due North", *Canadian Military Journal* (on-line) 14 July 2008, <http://www.journal.dnd.ca/vo8/no1/shadwick-eng.asp>; Internet; accessed 29 December 2009.

³³ Cmdre (ret) Eric Lehre, *Broadsides*, Post to Doug Thomas' article, on-line from <http://naval.review.cfps.dal.ca/forum/topic2.php>; Internet; accessed 29 December 2009.

³⁴ USN Rear Admiral David Gove, "Arctic Melt: Reopening a Naval Frontier?" *Proceedings*, February 2009 (135/2/1272), 16-21.

collaborative work will increase in the Arctic as the Navy continues to support partner agencies. Although currently, MSOC East looks over the Arctic, a MSOC North (should it ever become reality) could equally benefit from NCAGS expertise in collaboration, shipping expertise and enhancement of MDA.

In the present security environment, maritime operations can be characterised as taking place in neither-war-nor-peace situations, e.g. current Maritime Interdiction Operations (MIOs), counter-narcotics and counter-piracy operations. Legitimate civil shipping activities occur amidst active naval operations. Merchant ships have become both providers of national economic health to be protected and potential foes. The need to protect merchant shipping occasionally reoccurs in the COE, with limited ability to control and re-route.³⁵ There is a constant and complex interaction between merchant shipping and naval forces that requires Navy expertise in merchant-civil maritime operations to ensure cooperation and deconfliction.

Definition

NCAGS in Canada is “the operational interface between the Navy and commercial shipping.”³⁶ NATO’s ATP-2(B) Volume I, the main source of NCAGS doctrine, defines it as “the provision of (...) military co-operation, guidance, advice, assistance and

³⁵ The January 2010 crisis in Haiti prompted the US Navy to activate NCAGS around the island, requesting that shipping sailing in the designated area report to the Shipping Coordination Centre in Virginia. This effort assisted the surveillance effort for Sea Control and Force Protection around US ships anchored near Haiti and providing assistance. The commercial vessels were under no legal obligation to do so. Department of Transport (DoT) notice available from http://www.marad.dot.gov/news_room_landing_page/maritime_advisories/advisory/2010-02.htm; internet; accessed 12 April 2010.

³⁶ Presentation by LCdr Dan Manu-Popa to Pres Int-Sea officers during annual readiness training, *Strategic Overview: Canada’s Naval Cooperation and Guidance for Shipping (NCAGS) Capability*, February 2009.

supervision to merchant shipping to enhance the safety of participating merchant ships and to support military operations.”³⁷ Norway, referencing NATO on a public website, further qualifies NCAGS activities as providing “support to military commanders and civilian shipping in peacetime, tension, crisis and conflict.”³⁸ Although not part of NATO, close cooperation with United States (US), United Kingdom (UK) and Canada’s navies has steered Australia to adopt a similar doctrine, terminology and concepts. The Royal Australian Navy (RAN), which actively employs NCAGS officers in homeland defence, contrasts the previous concept of NCS “positive naval control of merchant ships” with NCAGS relying on cooperation with and advice to the commercial shipping community.³⁹ The UK, Australia and soon New Zealand forces refer to NCAGS as Maritime Trade Operations.⁴⁰

US Navy (USN) doctrine presents a simple, straightforward definition of NCAGS: “to enhance the safety of merchant ships and to support military operations.”⁴¹ Rather than protecting shipping, the Navy is to assist merchant captains with keeping their ship, cargo and crew safe. This better reflects a merchant master’s responsibility in current legal terms. This statement also brings out the dichotomous role of the NCAGS officer. On one part, duties take place in an operations centre with military command and control

³⁷ NATO Standardization Agency, *ATP-2, Vol I*, page 1-2. Co-operation, guidance, advice, assistance and supervision refer to levels of naval intervention to commercial shipping through a set of doctrinal tools.

³⁸ Norway. www.ncags.com. This effort is recognized by the United States Department of Transport (Maritime Administration) who refers to the site in their Maritime Advisory 2007-01 dated 04 Dec 2008. These advantages are extracted from NATO’s ATP2 Volume II *Guide to Owners, Operators, Masters and Officers*, December 2006.

³⁹ Australian Navy. *Semaphore*, Issue No 15, 15 Nov 2007. “The History of the Radford-Collins Agreement” [http://www.navy.gov.au/Publication:Semaphore - Issue 15, 2007](http://www.navy.gov.au/Publication:Semaphore_-_Issue_15,_2007). Internet; accessed 13 Oct 2009.

⁴⁰ NATO, Allied Administrative Publication 8 (AAP-8), 2007.

⁴¹ United States. Department of the Navy. NCAGS Publication 117 *Naval Cooperation and Guidance for Shipping*, 2003, p. 8-3. This publication was replaced by NTTP 3.07-12.

(C2) systems, regimented briefs, and coordination with other warfare disciplines. The other aspect deals with the shipping community, port authorities, partner government agencies and international organisations with varying levels of familiarity with military acronyms and procedures, and having high expectations that the military will keep their ship safe where and when they need it.

Still south of the border, US Joint doctrine indicates in near-NATO wordiness that “in periods of crisis, conflict, national emergency or war, naval authorities may direct the movement of merchant ships (including routing and diversion) so that they may be better protected from hostilities and not interfere with possible active naval, joint, or combined military operations.”⁴² This explanation brings up the more likely scenario that NCAGS would be activated in an international environment but omits peacetime operations. US Sealift Support dedicates a chapter to the naval function responsible to “ensure the efficient management and safe passage of merchant ships that are not performing strategic lift.”⁴³ The US does integrate NCAGS as a tool for sea control, allowing national authorities to route or otherwise direct shipping in particular circumstances, although such direction is mitigated by the international right of freedom of navigation and legal responsibility of safe sailing remaining with the merchant captain.⁴⁴

Implementing NCAGS procedures in a maritime area increases the safety of shipping in transit, assists with the management of threats such as terrorism and piracy that could originate from said shipping, and deconflicts shipping from naval or maritime activities.

⁴² United States, Department of Defense, Joint Publication 4-01.2 *Sealift Support to Joint Operations*, 31 August 2005, xvi and xvii.

⁴³ Ibid., Chapter VII “Defining NCAGS.”

⁴⁴ The USN activated NCAGS in support of its effort in response to the crisis in Haiti. http://www.marad.dot.gov/news_room_landing_page/maritime_advisorics/advisory/2010-02.htm; Internet; accessed 29 March 2010.

In the current socio-political environment where an issue with a merchant captain could bring about legal reprisals (and unwanted media attention), the Navy has a duty to understand jurisdictions, rights, responsibilities and the business motivation pertaining to maritime trade. Given these legal requirements, and the likely presence of merchant shipping in a naval area of operation in the COE, there should be little doubt that the availability of a merchant shipping expert imbedded in the naval commander's staff would be a valuable asset.

Maritime Security Policies

National Policy is the main authority establishing the government position on issues and allocation of resources. *Canada First Defence Strategy*, Prime Minister Harper's Defence direction for the next 20 years, refers to globalisation as a phenomenon that allows activities abroad to bring security challenges home.⁴⁵ This concept of fighting the enemy in other parts of the world to keep the nation safe is a tough sell for politicians and defence advisors who aim to gain support for CF activities from an audience who tends to view issues as important only if they occur in their backyard. As has been repeatedly demonstrated, globalisation has increased interdependency between states and their economies. Cooperating with partner nations on security issues improves the protection of national interests.

Canada First tasks National Defence to be ready to act at home and abroad to:

- Conduct daily domestic and continental operations, including in the Arctic and through NORAD,

⁴⁵ Canada, Department of National Defence, *Canada First Defence Strategy* (Ottawa, June 2008), 7; http://www.forces.gc.ca/site/pri/first-premier/June18_0910_CFDS_english_low-res.pdf; Internet; accessed 26 Sep 2009.

- Support civilian authorities during a crisis in Canada such as a natural disaster,
- Support a major international event in Canada such as the 2010 Olympics,
- Lead and/or conduct a major international operation for an extended period,
- Respond to a major terrorist attack, and
- Deploy forces in response to crises elsewhere in the world for shorter periods.⁴⁶

Each of these six core CF missions imply a maritime defence aspect, where the CF are called upon as the force of last resort when civilian authorities are no longer able to answer the requirement and fulfil their regular services to the Canadian population. Dr. Gimblett illustrates this by stating, in his post-9/11 observations related to port security, that weapons of mass destruction had been “a threat that until recently had been considered too remote to consider seriously. Suddenly it was only too real.”⁴⁷ The danger of thinking that threats are too remote to affect our daily lives is understood through a thin collective memory - Canadians repeatedly learn the hard way.

In its role as the force of last resort, the reality of limited resources pushes the CF to choose between spreading itself thin in many areas or making major investments in specific capabilities. The evolution towards flexible, modular, adaptable and interoperable forces able to protect Canadian interest, work with coalition partners and preserve security throughout the spectrum of operations has become the rhetoric to optimise the mix of defence capabilities.

⁴⁶ Ibid, 10.

⁴⁷ Richard Gimblett, *OPERATION APOLLO: The Golden Age of the Canadian Navy in the War Against Terrorism* (Ottawa: Department of National Defence and Magic Light Publishing, 2004), 14.

Dr Haydon has now written twice to substantiate Canada's need for a Navy.⁴⁸ It is therefore less of a surprise that within the Navy, capabilities such as NCAGS are regularly required to prove their 'undeniable' role in achieving Defence policy objectives. Statistics support the requirement for a national maritime domain expertise: 243,772 kilometre coastline, 97 percent of Canadian non-US trade moving through ocean highways, around 1700 ships in Canadian waters at any time, over 225 major ports and water facilities, and jurisdiction shared with at least four major maritime security-related partner agencies.⁴⁹ Meeting the requirements identified in *Canada First, Leadmark*, and *Securing an Open Society*, NCAGS is an adaptable maritime capability, flexible, interoperable, and rapidly deployable for domestic and international contingencies. As the Navy's maritime trade expert, the NCAGS capability needs to be aligned with potential threats in relation to government directive. NCAGS does just that: integrating with the Navy's technology and human resources, adopting a different approach for domestic and expeditionary operations, preparing to efficiently face threats, and ready to achieve the mission.

⁴⁸ Peter Haydon, *Why Does Canada Still Need a Navy?* Maritime Security Working paper No.1, Centre for Foreign Policy Study, Dalhousie University (Halifax, 5 June 2007), http://centreforforeignpolicystudies.dal.ca/pdf/marsec_working/WhyCanadaNeedsaNavy.pdf; Internet; accessed 26 September 2009 and Peter Haydon and Fred W. Crickard, *Why Canada Needs Maritime Forces*, Naval Officers' Association of Canada, (1994).

⁴⁹ Sources include an MSOC East brief (slides) by LCdr Cook, Coordinator MSOC(E), DND's *Your Navy, Your Security*, Statistics Canada's Transportation Infrastructure, number of ports as of 2007 at <http://nats.sct.gob.mx/nats/sys/tables.jsp?i=3&id=24>, and Captain (N) Peter Avis' "Surveillance and Canadian Maritime Domestic Security" http://www.navy.forces.gc.ca/cms_strat-issues_e.asp?id=287; Internet; accessed 26 September 2009.

CHAPTER 2 – NCAGS CONCEPTUAL BLOCKS

“This convoy, manned and escorted by more than a thousand seamen, assembled and equipped and directed by staff who even now are plotting its position in operations rooms on both sides of the Atlantic, represent a significant portion of the wealth of the free world, the end-result of millions of dedicated man-hours and a triumph of organizing genius.”

James B. Lamb, *The Corvette Navy*⁵⁰

General Concept

As seen in the historical perspective and definitions above, NCAGS supports the military commander in “managing risk by providing situational awareness and near-real time clarity of the merchant ship picture to help ensure the safe passage of merchant shipping and the safety of naval vessels.”⁵¹ This statement illustrates four blocks representing NCAGS activities:

- protection of commercial shipping,
- advice to the commander on maritime trade,
- contribution to Maritime Domain Awareness (MDA), and
- achieving the mission.

The assumption, considering these blocks, is the presence of an NCAGS function amongst the staff when the Navy operates in an area involving commercial shipping activity. Post-WWII maritime operations have regularly involved some form of commercial shipping activity, such as patrolling the Atlantic during the Cuban Missile Crisis, sailing security patrols off British Columbia during Expo 86 or providing supplies and command and control from the sea in the busy waters around East Timor in 1999.

⁵⁰ James B. Lamb, *The Corvette Navy: True Stories from Canada’s Atlantic War*, (Scarborough: Macmillan-NAL Publishing Limited, 1979), 26.

⁵¹ US Navy, NTTP 3.07-12 *NCAGS* (Norfolk, Fleet Force Command, October 2003), 1-1.

Merchant ships are also present where the Navy sails in support of current operations, such as HMCS FREDERICTON protecting shipping from piracy off the coast of Somalia in OPERATION SAIPH in 2009, and HMCS VILLE DE QUEBEC patrolling the Mediterranean part of the Standing NATO Maritime Group 1 (SNMG1) in 2008. The contemporary operational environment (COE) makes shipping either the focal point of the naval mission (e.g. embargo enforcement, leadership interdiction, evacuation of non-combatants, World Food Program shipping) or background activity (e.g. surveillance, enhancement to and analysis of the Recognised Maritime Picture (RMP), MDA, Battlespace Management.) In either case, maritime liaison and commercial expertise, typical of NCAGS, can assist with white picture management requirements.

Protecting Merchant Shipping

Protection of commercial vessels is characteristic of the current understanding of the doctrine for which NCAGS became renowned as the Naval Control Service. In much of the traditional NCAGS community, protection of shipping is often portrayed as the main effort. Some may prefer “safe and timely passage of legitimate shipping”.⁵² NCAGS does not take sole credit for ships sailing safely through dangerous waters. Even in the convoy days, as illustrated in the quote at the beginning of this chapter, protection of commercial shipping is cumulative, where the transit of shipping is made less dangerous

⁵² Canada, Directorate of Maritime Policy, Operations and Readiness, *Strategic Update Brief*, Presented during NCAGS readiness training (February 2009). Available on the DMPOR Defence Information Network site.

through processes and cooperation between national authorities, shipping community stakeholders, and the military.⁵³

The concept of NCAGS protection can be seen as quite limited, especially since NCAGS owns no military assets to ensure such security and relies solely on effective interpersonal relations, liaison, information sharing and analysis, and optimising the exploitation of commercial shipping expertise to assist the commander in accomplishing the mission. Identifying a block of NCAGS activity as “protection of shipping” becomes somewhat of a misnomer, associating a cause-and-effect that is a bit stretched. However tenuous this link may be, there remains an essential part of civilian-military cooperation in the contemporary maritime domain that requires tackling by naval personnel with the appropriate skill set. Safe and timely passage of shipping deconflicted from military operations and diverted away from threats - one of the original intelligence aspects of NCAGS - remains a standing task in a naval commander’s mission.

In the same vein, NCAGS makes “optimum use of co-operation between military and civilian maritime authorities to support NATO’s and nations’ aim to maintain an uninterrupted flow of maritime commerce while minimising disruption to military activities.”⁵⁴ In a domain of warfare activity centred on people (vice equipment), the simplest protection tool is to provide participating merchant captains with focused and timely information regarding the nature of, and self-defence against, the threat in a crisis area. In more severe threat environments, however, protection may involve routing ships

⁵³ Some may argue that NCAGS is not about protecting shipping, but rather controlling its flow through reporting, routing, convoys and diversions. US DoD definition <http://usmilitary.about.com/od/glossarytermsn/g/n4230.htm>; Internet; accessed 30 December 2009.

⁵⁴ NATO Military Committee (MC) 376/2, 1 (September 2003), 3.

around danger, escorting them through it, and various levels in-between.⁵⁵ The advantages to participating in NCAGS for merchant ships are listed as:⁵⁶

- improved safety and security in crisis areas,
- minimized disruptions to passage through military areas of operation,
- maintenance of economic flow,
- improved threat response,
- enhanced understanding of military constraints,
- potential for reduced war-risk premiums,
- minimized disruption to commercial schedules,
- improved support to counter-terrorism, and
- improved support to counter-piracy.

NCAGS provides merchant captains and shipping operators with ships sailing through dangerous waters with information on the threat, the region affected, military measures implemented, call-in points, protection best practices, and contact for emergencies.⁵⁷ In exchange, ships provide position, movement, crew, cargo and communications details. Shipping voluntarily complies with naval routing and direction, unless ordered to do so by their National Shipping Authority (NSA).

In addition to keeping the ship, crew and cargo safe, motivation for commercial shipping operators to participate in NCAGS is business-related. Cooperation with military forces can lower insurance rates and avoid lengthy delays due to military activities such as naval

⁵⁵ These tools and responsibilities, in ATP 2(B) Volume I, will be described later in this section. NATO Shipping Centre provides information to ships sailing through the Mediterranean and the Gulf of Aden at www.shipping.nato.int.

⁵⁶ ATP-2(B) Vol I, 1-4.

⁵⁷ General information on naval activities is usually unclassified and transmitted through open communications. Less frequent situation will require particular shipping to receive classified information to enable participation in an escort, accompaniment or other activities involving careful coordination with specific naval forces.

boarding.⁵⁸ Cooperation with naval forces may seem an attractive free source of protection and information for a merchant captain sailing through pirate infested waters or embargo area. Understanding the ship as a commercial entity, the captain's foremost priority is the safe and timely arrival of ship, crew and cargo to destination. Time is money, and minimising delays is of prime importance, which affects the captain's decision to cooperate with naval forces and participate in NCAGS. A long list of industry and government organisations are involved in shipping operations, including inspection, repairs, licensing, loading, sailing, and unloading. This group of stakeholders intends on keeping business alive through the efficient transport of goods in maritime trade routes. Delays caused by cooperation with the military may be costly and may outweigh the benefits of increased safety.

As a business decision maker, increasing speed for a few hours will also increase fuel costs and affect profit. Pressures to remain competitive partly explain the propensity of some captains to be selective in the implementation of military guidance. They may increase their vulnerability to hijackings by deviating to a shorter route sailing outside the International Recommended Transit Corridor (IRTC) in pirate-infested areas, or keep their speed below the advised 15 knots to save on fuel costs. Some shipping companies will prefer providing their own security with armed guards, while others will not be willing to pay the high costs for such protection, in addition to increased insurance costs, and international and national legal restrictions of some countries not allowing armed

⁵⁸ As part of NATO's OPERATION ACTIVE ENDEAVOUR (OAE) in the Mediterranean, the NATO Shipping Centre (NSC) website invites shipping sailing through the area: "Provide NSC with your merchant ship voluntary movement report to avoid OAE hailing and boarding." From <http://www.shipping.nato.int/ActiveEnde>; Internet; accessed 29 March 2010.

merchant ships to sail in their waters or harbours.⁵⁹ In the Gulf of Aden (GOA), although speed is assessed as being a significant factor in determining the threat to merchant shipping, reported incidents often do not specify the speed at the time of the incident for risk of reprisal from insurance companies.⁶⁰ On the other hand, some captains and owners such as A.P. Moeller-Maersk A/S and Odfjell SE have chosen to sail the long way around Africa, avoiding the risk of being hijacked in the GOA, but increasing their cost substantially by adding thousands of nautical miles to their journey, with the associated time, fuel and crew costs.⁶¹ Ships may also make business decisions that generate threats to other parties, such as a ship dumping bilges to save pumping costs and creating an environmental disaster, or transporting illegal cargo to fill empty spaces onboard.⁶²

⁵⁹ The debate on armed guards onboard merchant ships, the impact on insurance, and the legal constraints attached to such decision is reflected in the IMO website, with an example in Kathryn Wescott, "'Pirate' Death Puts Spotlight on 'Guns for Hire,'" *BBC news* (24 March 2010) <http://news.bbc.co.uk/2/hi/africa/8585967.stm>; Internet; accessed 9 April 2010.

⁶⁰ United States of America, Office of Naval Intelligence, *Horn of Africa: Threat Factors for Commercial Shipping and Forecast of Pirate Activity through 2009* (September 2009). Obtained through email list "Current Shipping Industry news and events relevant to US NCAGS Det C mission (CENTCOM Focus)" Weekly Relevant News Notes 21-30 Sep 2009. Report available from http://www.register-iri.com/marinesafetyadvisories/MSAdvisory_45-09.doc; Internet; accessed 12 October 2009.

⁶¹ Alaric Nightingale and Hamsa Omar, "Pirates Attack Three Ships Off Africa," *Bloomberg News* (14 April 2009), <http://www.bloomberg.com/apps/news?pid=20601090&sid=ay.jvyxWOODQ>; Internet; accessed 9 April 2010 and CNN, "Norwegian Firm Takes Long Way to Avoid Pirates," 20 November 2008, <http://www.cnn.com/2008/WORLD/africa/11/18/pirates.norway/index.html>; Internet; accessed 9 April 2010.

⁶² Illegal cargo comes regularly in the form of drug and human smuggling, such as HMCS FREDERICTON participating in OPERATION CHABANEL, supporting the RCMP in a sizable drug seizure destined for Canada, in 2006 (in the *Maple Leaf*, on-line from <http://www.dnd.ca/site/commun/ml-fe/article-eng.asp?id=3601>; accessed 9 April 2010.) Examples of the IMO's regular hearings to implement regulations to prevent pollution and other environmental abuses from shipping are available from http://www.imo.org/newsroom/mainframe.asp?topic_id=1773&doc_id=11586; Internet; accessed 9 April 2010.

Understanding a ship as a business entity is a first step in enabling the Navy to protect merchant shipping. A ship's master with business impetus and safety of the ship in mind will take direction from the Navy only if ordered by his shipping company or country, or if he is reassured that it will increase the odds of getting his cargo safely to destination on time. In this view, NCAGS allows for the protection of shipping through liaison and the provision of sensitive information that enable master independence in balancing the risk.

Advising the Naval Commander

The commander's staff regularly includes political, legal and cultural advisors, depending on the mission and number of bunks available onboard. According to NCAGS doctrine the naval commander, or Maritime Component Commander (MCC), usually is the NCAGS commander.⁶³ NCAGS advisors are a less typical member of the team.

Intricacies of the commercial shipping community are translated by NCAGS staff into effects on naval activities in reports, briefs and other tools useful to the naval commander. For example, the military cannot tell merchant ships where and when to sail unless it has solid authority through national orders, permission from the ship's owner, operator or government, international sanctions, or proof that the ship is contravening laws or conventions. Freedom of navigation prevails.

Naval interaction with the merchant shipping community takes multiple forms depending on the mission, threat, geography of the region, and nature and quantity of shipping involved in the area. The activation of NCAGS in a theatre involves implementing

⁶³ In United Kingdom Joint Doctrine Publication (JDP) 3-70 *Battlespace Management*, NCAGS commander duties is an area of responsibility that can be delegated by the Joint Task Force Commander to the Component Commander (p. 2-9). ATP-2(B) Volume I associates the NCAGS Commander duties directly with the MCC.

specific tasks based upon the level of crisis, from simple communications and tracking of shipping up to the point of taking over civilian responsibilities and directing shipping routes as shown in the graphic below.

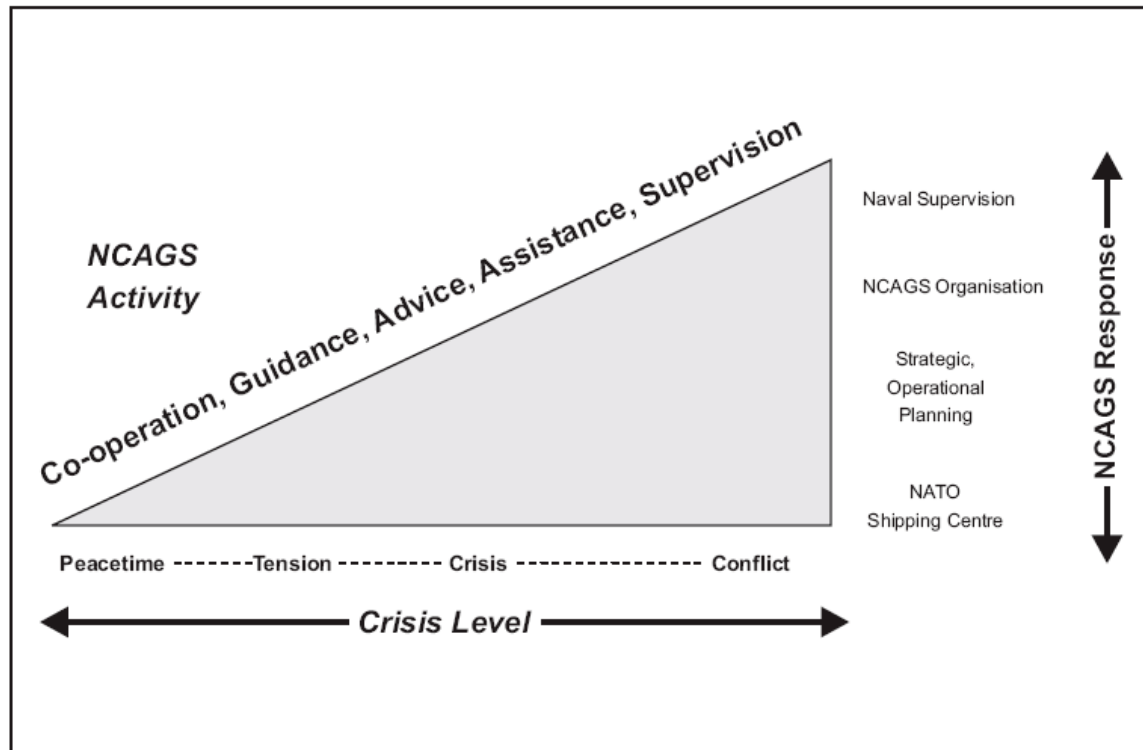


Figure 1 – NCAGS Concept⁶⁴

NCAGS augments the MCC's staff with individuals or teams at tactical and operational (campaign) level. Strategic NCAGS is seldom used, barely mentioned in doctrinal publications.⁶⁵ The requirement for staff is not illustrated in Figure 1; staff integration varies with each mission and the impact of merchant shipping activity on the mission at hand.

⁶⁴ NATO, Allied Tactical Publication 2(B), Volume I *Naval Cooperation and Guidance for Shipping*, Change 2 (2008), 1-2.

⁶⁵ NATO strategic NCAGS paper is the Military Committee (MC) 376/2 *NCAGS*, 26 September 2008, a 6-page document that mentions 'strategic' on page 4.

At the operational level, a “Staff Officer NCAGS,” being the senior NCAGS officer and main theatre advisor, usually supervises NCAGS activities from a position on the Commander’s staff.⁶⁶ This staff officer may be supported by a NCAGS Watch if the tempo warrants it. In some settings, the NCAGS contribution is a single officer on the battle staff onboard a ship or ashore, tracking shipping, searching and analysing related information.⁶⁷ The NCAGS staff on the Commander’s team recommends management and communication policies pertaining to commercial shipping, analyses shipping information for the AOR, and liaises with other warfare disciplines. The NCAGS officer then either recommends means to deconflict shipping from military activities, or suggests areas wherein shipping would benefit from direct, active naval support, depending on the operational scenario.

The tactical level can be setup in a multitude of formats usually including Shipping Cooperation Points (SCPs) manned by a NCAGS unit. A SCP is a local maritime coordination centre, somewhat of a Naval Forward Operations Base (FOB), from which the direct liaison between the Navy and commercial shipping staff actually occurs. The SCP may be situated on board a ship, in a port, co-located with other military tactical units ashore, or housed in civilian offices (government or other). A central location is picked for easy access to ships in the case where face-to-face meetings with captains are required, liaison with partner governmental agencies and other shipping stakeholders, or

⁶⁶ NATO describes the various positions available to the NCAGS Commander in Allied Administrative Publication (AAP) 8 *NCAGS*, 2007. The Chief of the Maritime Staff’s *Pres Int Sea Concept of Employment 2009* indicates Canadian NCAGS functions.

⁶⁷ This latter example was the case in OPERATION APOLLO in 2002-2003, supporting the Maritime Interdiction effort. A description of Lt(N) Brad Sweet’s experience as one of these deployed officers is available from *The Naval Reserve Link*, 14, http://www.navy.forces.gc.ca/cms_images/navres_images/e-link/2003-04-link.pdf; Internet; accessed 15 April 2010.

access to observation posts, depending on the duties assigned by the Commander.

Communication Reporting Gates (CRGs) are established where ships transiting an “area dangerous to shipping” are requested to call in to the SCP, initiating contact with military forces or obtaining updates on the threat situation, central to the NCAGS civil-military interface role.⁶⁸ SCPs become remote operations centres which broadcast messages, link with particular shipping as it sails in and out of the AOR, and provide selected participating ships with information on their transit.⁶⁹

Briefing Teams organic to such SCPs travel for face-to-face meetings with ships’ captains, get first hand information (such as imagery) on a ship’s status in a port or canal, and maintain liaison with port authorities and shipping agents. During WWII, Boarding Teams made of “carefully chosen individuals instructed in investigation and psychology” would be sent onboard ships awaiting their convoy departure to fight rumours and propaganda amongst seamen who would sabotage their ship to delay departure.⁷⁰

Another role of Briefing Teams is to collect information on suspicious activities observed by seafarers after their voyage through dangerous waters or areas of interest.⁷¹ This practice of “having reporting officers in major ports” takes its source in shore-based

⁶⁸ CRGs are a latitude or longitude point set for shipping to call approximately 36 hours prior to sailing the dangerous area, leaving time for NCAGS staff to assess the route provided by the ship, check the details against the shipping database to verify previous contacts, and compare with indicators that could identify the ship as potential suspect or vessel of interest. Tool 103 in ATP-2(B) Vol I explains.

⁶⁹ Participation in NCAGS is voluntary for merchant captains, or directed by National Shipping Authorities. Freedom of navigation prevails. Shipping choosing to contact the NCAGS organization provides details on ship, voyage, crew and cargo, and in return, receives personalized threat information pertaining to the particular route indicated by the ship’s master.

⁷⁰ Current doctrine refers to Briefing Teams to avoid confusion with Naval Boarding, associated in the COE with MIO and at-sea inspection of vessels. In WWII, over 50,000 such boarding occurred in Canadian ports by the NCS’ Boarding Services. Roach, 21.

⁷¹ The format for Sailing Information (Tool 117) invites merchant captains to report suspicious activities to NCAGS authorities. On its web page, the NSC invites merchant ships and shipping companies to support anti-piracy by reporting “any details of (perceived) suspicious activity”. <http://www.shipping.nato.int/SUSPICIOUS>; Internet; accessed 28 March 2010.

intelligence gathering since 1893, where “human intelligence sources such as customs officials, ships’ agents and pilots” would provide “coastal defence programs, details of trade routes, and disposition and movements of foreign ships.”⁷² The practice was pursued heavily in the Great War, WWII and Cold War, where boarding officers on the East and West coast would interview masters of merchant ships that “had visited Red Bloc waters.”⁷³ The information was analysed to assess potential hostile capability and intent, taking root in peace time as an established practice continuing during crises. This practice could benefit from a modernized approach to enhance MDA.⁷⁴ Australia currently uses NCAGS daily shipping reports sent by part-time reserve officers to feed homeland defence, highlighting vessels of interest by last port of call or cargo.⁷⁵ In domestic situations, Transport Canada collects such information from foreign-flagged vessels sailing to Canada through the Pre-Arrival Information Report (PAIR).⁷⁶ Where Briefing Teams are manned, reports are sent back to the Commander’s NCAGS staff through military systems for collation and distribution.

Unlike other warfare disciplines, NCAGS does not have characteristic equipment.⁷⁷ The definitions in paragraphs above show NCAGS as a flexible concept that the commander adapts to the mission by varying the number of personnel, NCAGS Tools used,

⁷² Roach, 8.

⁷³ Roach, 52.

⁷⁴ Briefing Team members are not trained for HUMINT or Conduct after Capture and have little to no Force Protection. The information exchange is more in line with collaboration rather than HUMINT. Unlike HUMINT operators, Briefing Teams are meant to operate in uniform in a relatively welcoming environment

⁷⁵ Author’s experience during EXERCISE BELL BOY 2004 in Sydney, Australia. Australian NCAGS officer had, for civilian employment, duties within the merchant shipping industry.

⁷⁶ Source: Mr. Jacques Vallerand, Transport Canada, email 11 April 2010.

⁷⁷ During the June 2009 NATO Shipping Working Group (NSWG) meeting, the lack of recognition of NCAGS in the other warfare areas was discussed. In his presentation, the Canadian head of delegation to the NSWG, LCdr Manu-Popa, defined the “Problem Space” of NCAGS with 8 elements, one of which is the absence of particular characterizing equipment.

communication systems, location of staff ashore or on board, and the level of integration of NCAGS (tactical, operational, strategic.) Other warfare disciplines are familiar capabilities associated to some form of hardware regularly employed by commanders (such as submarine tactics, naval boarding, mine sweeping, diving, or aerial reconnaissance.) In its original concept, NCS was intimately linked with some of these traditional capabilities, such as counter-mine operations and lead-through, applicable to the threat environment of WWII and the Cold War.⁷⁸ The maritime COE, with a prominence of merchant vessels, brings upon opportunities to link NCAGS capabilities with activities such as naval boarding in support of Maritime and Leadership Interdiction Operations (MIOs and LIOs,) especially in view of its close links with intelligence.

NCAGS expertise centres on commercial shipping (civilian matters) and has traditionally used stand-alone systems and procedures that did not link easily with other warfare disciplines for unclassified communications. This parallel operation has generated its own terminology and message formats, aggravated by the physical separation from the Battle staff with SCPs ashore. The use of these parallel methods marginalised NCAGS for many years, mainly due to the requirement for different (unclassified) communication tools for liaison and networking with the commercial shipping community.

This trend has reversed since the change from NCS to NCAGS. Steady staff work from the small international NCAGS community is showing positive results, especially the effort to integrate and use tools common with the rest of the maritime forces. Likely, this trend will intensify again with the on-going adaptation required by the Gulf of Aden

⁷⁸ Portions of doctrine were linked to pre-established naming of cleared channels, Q-Routes, and the Allied Worldwide Navigation Information System (AWNIS) in SECRET NATO publications.

(GOA) piracy crisis and counter-terrorism operations in the Mediterranean Sea and Arabian Gulf.⁷⁹ As NCAGS continues to build trust with other warfare disciplines, it becomes a more familiar capability and regular participant in the Commander's team of advisors. Similar to the shipping community requiring military procedures, terminology and acronyms to be explained in plain language, the commander has access to a maritime trade 'translator' familiar with the shipping industry, understanding the impact of military decisions on commercial shipping, and contributing to the interpretation of the white picture.

Contribution to Maritime Domain Awareness

Most of the commercial shipping sailing around the world is simply getting cargo to destination. A small minority, however, is a major source of trouble for the Navy, smuggling goods and personnel, standing as a pirate support platform, or used for transportation and training for terrorist purposes. Maritime Domain Awareness (MDA) aims to understand activities, actors and main points of interest related to inland and coastal waters, or the high seas. NCAGS expertise is applicable to domestic and expeditionary MDA.

Definitions vary in scope and breadth, although none is formally approved yet. Some definitions simply relate MDA to an enhanced version of the Recognized Maritime Picture (RMP). The concept of Awareness should trigger those attempting to define

⁷⁹ LCdr Dan Manu-Popa (Editor), *INTSUM*, Fourth Annual Intelligence Newsletter, Vol 4, Issue 1, (Ottawa: 24 Feb 2010). The newsletter announced that NCAGS is considering a change of name and terminology, in line with UK MTO, which has led NCAGS operations in Dubai since the terrorist attacks of 2001 and acquired a solid reputation in this regard.

MDA to emphasise the evolution of data and information into understanding.⁸⁰ Simple trends and actions (or lack of) in the maritime domain are filtered by analysts whose experience allows them to translate such information into a greater understanding of the environment, and provide actionable advice to decision makers. Many suggested definitions forget about the ‘people factor’ -- the requirement for staff to take in information, absorb it, and analyse it through the ‘so what’ process common to military planning, and typical of the intelligence analysis process.

The US Coast Guard (USCG) defines MDA as “the ability to detect, classify and identify vessels at sea.”⁸¹ While accurate, this definition limits MDA to a technological surveillance and reconnaissance capability. This elaboration does not include the aspect of analysis and predictive assessment of the maritime environment. It seems to point to a simple requirement to collect moving contacts on the RMP and associate values based on two technology pillars (the International Maritime Organisation’s mandated Automatic Identification System (AIS) and the Long-Range Identification and Tracking (LRIT).)

Going beyond this focus on technology, a definition that emphasises the cognitive aspect of MDA is that found in *Securing Canada’s Oceans*, the follow-on to *Leadmark: The Navy’s Strategy for 2020*: “MDA is the effective understanding of anything in the maritime environment that could adversely affect the CANUS security, safety, economy

⁸⁰ This evolution towards awareness refers to the pyramid of knowledge, explained in the CF Joint Intelligence Doctrine as the hierarchy from data to intelligence, in Dr. James Martin’s presentation to the 2009 MIT Symposium on Engineer Systems (<http://esd.mit.edu/symp09/submitted-papers/martin-paper.pdf>; Internet; accessed 13 March 2010), and J. Hey’s 2004 thesis on the DIKW chain available from (http://best.berkeley.edu/~jhey03/files/reports/IS290_Finalpaper_HEY.pdf; Internet; accessed 13 March 2010).

⁸¹ USCG, <http://www.uscg.mil/comdt/blog/2009/04/maritime-domain-awareness-whole-is.asp>; Internet; accessed 11 Nov 2009.

or environment.”⁸² The definition that will be used for this paper is currently considered as the Government of Canada definition: “MDA is the effective understanding of everything on, under, related to, adjacent to, or bordering a sea, ocean or other navigable waterway, including all maritime-related activities, infrastructure, people, cargo, vessels, or other conveyances.”⁸³

Even if technology was to provide a perfect RMP, with every submarine, ship and threat being represented and fully identified by a dot on the screen in the operations centre, it is still up to the commander to interpret the information, pass it through the filter of his experience and instinct to enable him to make decisions towards achieving the mission. The staff in his Task Force shares the RMP and brings a level of granularity to the analysis according to their area of responsibility such as surface, subsurface, mine, air and intelligence. Knowing where a ship is located is only the first step. What is most important is to know whether or not it is a threat and the level of threat it poses. This is the vital Intelligence-NCAGS function. Most ships are legitimate and of little interest to Navies unless they are sailing in an area of operation. The ships with threatening intent or dangerous cargo are those of concern from an MDA perspective.

Merchant shipping impacts these warfare areas in different ways. NCAGS (also referred to as maritime trade or Naval-civil affairs) does not always have a box in the Canadian commander’s traditional task force organization chart. Navies such as the UK and the

⁸² Canadian Naval Review, Dalhousie University, 21 June 2005, available from <http://naval.review.cfps.dal.ca/pdf/securingcanadasoceans.pdf>; Internet; accessed 11 November 2009.

⁸³ Canada, IMSWG, *Strategy for National MDA* (Draft Feb 2010), 1.

US include NCAGS with other maritime operational assets.⁸⁴ This inclusion provides a maritime trade expert to analyze merchant shipping activities and enhance MDA for the commander.

MDA and RMP

As a section of MDA, the RMP is generally understood as the “plot that compiles maritime activity”⁸⁵ such as fishing, tourism, exploitation and research, and related elements such as infrastructure, weather and geography.⁸⁶ The RMP gathers input from various sources: shipping reports, surveillance by ships, aircrafts, satellites and radar from a variety of organizations that have different jurisdictions and responsibilities. The Recognition aspect of RMP originates from the commander’s evaluation of “volume, location and nature of shipping activity and provides a background for deeper analysis of trends and vulnerabilities.”⁸⁷ Such evaluation considers a conceptual limitation: the RMP will only ever be as complete as the information provided by surveillance systems, open source research and other factors affecting the portrayal of the vessels sailing the area of responsibility.⁸⁸

Within the RMP, the attribution of red for threat or enemy and blue for friendly is an accepted CF plotting convention. The Navy has firmly integrated the concept of white

⁸⁴ Both UK and US navies have NCAGS officers deployed in the current counter-piracy effort in Bahrain and Dubai. Federation of American Scientists, “Introduction - US Navy Ships” <http://www.fas.org/man/dod-101/sys/ship/intro.htm>; Internet; accessed 30 December 2009. On this web page, NCAGS is referred under its previous acronym NCS.

⁸⁵ Cmdre (then Capt(N)) Larry Hickey, *The Recognized Maritime Picture* presentation to the Senate Standing Committee for National Security and Defence, Ottawa, (16 June 2003) <http://www.parl.gc.ca/37/2/parlbus/commbus/senate/Com-e/defe-e/witn-e/hickey2-e.htm>; Internet; accessed 21 November 2009.

⁸⁶ Email discussion with Capt(N) Josh Barber, Director Intelligence Capabilities, Chief of Defense Intelligence, 12 November 2009.

⁸⁷ Cmdre Hickey, *Background brief – The Recognized Maritime Picture*.

⁸⁸ Notes from Capt(N) Barber, 8 April 2010.

picture, or white Situational Awareness (SA), with white generally referring to civilian shipping (commercial, fishing, tugs, ferries, and so on not involved, and trying to remain uninvolved, in a conflict.) The Land Forces uses brown SA to include environmental variables, including the civilian population, meteorology and terrain.⁸⁹

MDA and White SA

In the COE, the civilian population - merchant shipping for the Navy - can be a substantial variable for operations such as MIOs and LIOs, non-combatant evacuation operations (NEOs) and counter-terrorism. White picture management is largely left to the intelligence community, part of the Enemy, Weather, Terrain assessment. Various technology feeds are generally accepted as a reliable source of data as input to the Canadian maritime white picture. Examples include weather elements, charts or satellite images from Environment Canada, radar input from the Coast Guard, and Automatic Identification System (AIS) transponder information received from various sources such as shore antennae, patrol aircraft, and in the future, satellites.⁹⁰ In contrast, human interaction as a source of information analyzed into intelligence (HUMINT), or Civil-military Cooperation (CIMIC) to augment the RMP are seldom used. NCAGS officers could contribute to MDA by refining white SA using a variety of practiced tools to obtain data (open source information research, or OSINT, briefing merchant masters, liaison

⁸⁹ Department of National Defence, B-GL-357-001/FP-001 Intelligence Field Manual (Ottawa: DND Canada, 2000) 2. Major General (US) Flynn's *Fixing Intel* paper suggests that land operations such as those in Afghanistan are lacking in their appreciation of the white picture. Canadian intelligence staff indicates, however, that multidisciplinary and multi-layered GEOINT maps have been used for many years, although doctrine manuals have yet to catch up.

⁹⁰ Source: Mr. Doug Bancroft, Director General, Canada Centre for Remote Sensing, Natural Resources Canada.

with maritime industry).⁹¹ As seen in Chapter 1, such duties would not be new, bringing NCAGS back to its early days of Naval Control Services within the Naval Intelligence Division. The analysis of schedules, networks and stakeholders refines the RMP and improves the predictability of the white picture. It allows for the identification of potential sources of trouble, such as smugglers or pirates originating from maritime trade. The following paragraphs will illustrate aspects of this suggestion.

Domestic MDA

Domestic MDA is acquired through the compilation of national and international sources of varying effectiveness and confidence. It is part of the intelligence function to assess the value of these sources and make assessments accordingly. The Canadian Navy has a limited two-part mandate in domestic MDA related first to contributing to sovereignty by monitoring maritime activity, and to supporting other federal and provincial government authorities in their mandate.⁹²

Commodore Hickey, then Assistant Chief of Staff Plans and Operations (Maritime Forces Atlantic), indicated that “(...) building a plot of maritime activity is (...) one of several activities that contribute to the Protection of Canada mission.”⁹³ The domestic RMP is compiled from at least nine national and international sources.⁹⁴ The large area to cover and limited technology and patrols leave Intelligence, Surveillance and Reconnaissance

⁹¹ Some of these tools such as OSINT are used by PRes Int Sea officers filling Intelligence analyst positions in MSOC East and West.

⁹² Cmdre Hickey, *Background brief – The Recognized Maritime Picture*.

⁹³ Ibid.

⁹⁴ These sources listed in the Hickey brief to Senate include reports from HMC ships and military aircrafts, from Coast Guard ships and aircrafts, electronic reports emitted from fishing and merchant ships’ automated beacons, mandatory 96- and 24-hour Pre-Arrival Information Report (PAIR), merchant vessels voluntary weather reporting, reports from NATO sites, reports from US sites, national technical sensors, and commercial internet sites.

(ISR) gaps, unidentified contacts on military radars while patrolling Canadian waters and approaches. These gaps reduce the ability to prevent incidents such as drug and human smuggling. An example is the OCEAN LADY that was detected and tracked until she was boarded in Canadian waters with her cargo of 76 Sri Lankan refugees in October 2009.⁹⁵ Finding the OCEAN LADY was a collaborative effort among federal government agencies.⁹⁶ Such collaboration is not always possible, and often only occurs as a reaction to national emergencies.⁹⁷

Canadian law prevents the collection of intelligence by Canadian agencies on Canadians and limits information sharing. As indicated on the Justice Canada web page, “the *Privacy Act* provides citizens with the right to access personal information held by the government and protection of that information against unauthorized use and disclosure.”⁹⁸ It is generally recognised that information sharing efforts are hindered by legislation, putting privacy before national security. Protection of privacy and the *Privacy Act* have been at the source of denied cooperation initiatives in the effort to develop domestic MDA.

⁹⁵ National waters are 24 NM from the baseline for immigration cases.

⁹⁶ Transport Canada (TC) confirmed with its MSOC West partners that that it had not received the required Pre-Arrival Information report (PAIR), and therefore, the vessel was in contravention of the Marine Transportation Security Regulation, pursuant section 5 of the *Marine Transportation Security Act*. Following many high-level ministerial discussions, various federal departments requested the Minister of Defense to dispatch assets to intercept the vessel and neutralize the threat. Source: Mr Vallerand, TC, Senior Security Inspections Vessels, email 11 April 2010.

⁹⁷ Interviews with Mr. Darin Bertrand, TC Marine Security expert, and Capt(N) Mulholland, DMPOR, illustrated how internal information sharing is one of the main challenges to establishing a more accurate, up-to-date and complete RMP of Canadian waters to enable each authority to have visibility over shipping activities in Canadian waters.

⁹⁸ Justice Canada, *Privacy Act*, from <http://laws.justice.gc.ca/eng/UpdateNotice/index.html?rp14=%2Fen%2FP-21%2Findex.html>; Internet; accessed 13 Mar 2010.

Without information sharing, the same information is collected multiple times from shipping companies by different government agencies.⁹⁹ Collaborative initiatives between federal government departments for analysis and contingency planning take place in controlled environments often under the supervision of lawyers to ensure that information collected for one purpose by a federal department is not disclosed to another department for a different purpose without approval. Still, “Canada undertakes to share data with as many other maritime agencies as security considerations and legislation allow.”¹⁰⁰ The integration of NCAGS with Intelligence during the 2004 Migration of NCS to Intelligence (MONI) project posed some challenge to justify domestic information collection on shipping since the law prohibits the collection of intelligence on Canadians.¹⁰¹

Limitations to the domestic use of NCAGS are also organisational. Although there is a belief that NCAGS duplicates existing Defence and partner agencies efforts, challenges to information sharing are reversing this trend, increasing the value of an in-house Defence capability. Limiting one’s understanding of NCAGS to filling gaps in the RMP leaves out many MDA aspects and merchant traffic management tools NCAGS brings as the interface between the Navy and maritime trade community.

⁹⁹ A ship sailing to a Canadian port must provide information on ship (e.g. owner, operator, IMO number, last port of call, licenses, communications systems), crew (e.g. nationality, number, qualifications), and cargo (e.g. bill of lading) mainly to Transport Canada to ensure that the ship meets Canadian regulations. Although tracking a ship does not infringe the Privacy Act, since there is sufficient detail to know who is on board, tracking the ship can be linked to tracking its passengers, which then is in contravention of the law.

¹⁰⁰ Cmdre Hickey, *Background brief – The Recognized Maritime Picture*.

¹⁰¹ Unless authorized by Parliament under specific conditions, such as during the preparations for Y2K. Information is unprocessed data that can be used in the production of intelligence. Data that has been collated and objectively analyzed is referred to as intelligence. Department of National Defence, *Joint Intelligence Manual*, Ottawa (2003) 1-2.

In contrast, some senior members of the Canadian Navy find the merchant shipping expertise sufficiently valuable to consider training selected aspects of NCAGS to Regular Force members of naval Intelligence.¹⁰² The ability to recognise a bulk cargo carrier has become as important as recognising a foreign nation's destroyer. White picture analysis requires the Navy to be conversant with the role and motivations of ship owners, operators, harbour authorities, cargo handlers, ship pilots, vessel traffic officers, inspectors and insurers amongst a few. This aspect of white picture management relates to the "activities, infrastructures, people, cargo, vessels and other conveyance" element of the MDA definition.

Regardless of information sharing challenges, a MDA-enhancing inter-agency collaboration initiative is currently pursued by maritime security partners to establish a National Maritime Picture (NMP).¹⁰³ The main difference with the RMP is that the NMP is unclassified, displaying only civilian shipping, leaving out sensitive intelligence, naval ship positions and related information to allow a broader dissemination and easier access. Technology and information sharing issues still need to be resolved, with the aim of using existing government network (controlled access rather than the open Internet) as the baseline for the NMP.

¹⁰² Interview with Commander Shawn Osborne, Commandant, Canadian Forces School of Military Intelligence, 6 November 2009. Interview with Capt(N) Barber, March 2009, where he indicated that the development of merchant shipping expertise is required in the Navy in general to meet the needs brought on by the COE.

¹⁰³ Interview with Mr. Darin Bertrand, TC Chief Marine Security Operations, 13 November 2009. A draft AOPS document refers to the Interdepartmental Maritime Integrated Command, Control and Communication (IMIC3) as a "Government of Canada inter-departmental unclassified situational awareness network which gathers data from various shipboard sensors. The data is shared to form a Common Maritime Picture (CMP), which is in turn fed into shore based infrastructure for the creation and dissemination of the NMP." Directorate of Maritime Ship Support (Draft September 2010): 5; [http://www.forces.gc.ca/aete/documents/DRAFT%20-%20AOPS%20Naval%20Information%20System%20\(NavIS\)%20Interface%20Control%20Document%20\(ICD\).pdf](http://www.forces.gc.ca/aete/documents/DRAFT%20-%20AOPS%20Naval%20Information%20System%20(NavIS)%20Interface%20Control%20Document%20(ICD).pdf); Internet; accessed 21 April 2010.

MDA - Efficient Information Sharing

Unlike the domestic AOR, developing and maintaining MDA in expeditionary operations is not as restrictive for issues such as jurisdiction or information disclosure. The challenge becomes information sharing with coalition partners and other organisations. The effectiveness of information sharing in both domestic and expeditionary environments is based on three basic components: regulatory, technical, and procedural.

Regulatory aspects involve national and coalition laws, policies and directives governing the disclosure and handling of information such as information security, classification, storage and transmission. For example, unclassified data, imagery, and databases are easily shared between participating nations (while controlled for non-participants).¹⁰⁴ Friendly positions (blue SA), intelligence (red SA), and other sensitive information is classified with strict disclosure rules. The Consolidated Secret Network Infrastructure (CSNI) and similar protected networks allow the sharing of classified information up to a given level, but severely limits which coalition partners can access such information, in this case “SECRET Canada-US eyes only.” On-going efforts aim to develop multi-national agreements to enhance information sharing or sensitize participants to the requirement to “write to release” and avoid over-classifying information.¹⁰⁵ Furthermore, there remains legal and policy issues on whether non-military agencies can have access to military information network, and vice versa, if the military should have access to agency

¹⁰⁴ While unclassified, information on such networks is still controlled with access restricted by security safeguards, preventing the use of the Internet.

¹⁰⁵ NATO and the American, British, Canadian, Australian and New-Zealand Armies Standardization Program (ABCA) are conducting such write-to-release initiatives. ABCA is one of multiple interoperability organizations (in this case, 5-eyes Armies) striving to improve collaboration between participating nations. Its Sense Capability Group oversees issues related to intelligence and has written many reports, publications and documents on write-to-release and related topics. www.abca-armies.org.

classified information. These issues are based on the legal differences between “defence” and “security” mandates of the CF and government partner agencies.

The technical aspect of information sharing is mostly information technology (IT) related. Connectivity, bandwidth, range, networks, hardware, cryptographic, and architectures are the focus of research and experimentation efforts by private industry and defence stakeholders. The requirement for separate but compatible systems to share classified and unclassified information between military, government and private participants remains a NCAGS challenge in its role as the interface between the Navy and the merchant shipping community.

The importance of procedures to synchronize activities such as information handling is obvious through the existence of Standing Operating Procedures (SOPs) in military organisation, NCAGS being no different. NCAGS SOPs describe duties, scheduled reports and workflow, and liaison requirements with the merchant trade community.¹⁰⁶

The NCAGS effort would be lost if coalition and agency partners did not agree on methods to store reports and databases on merchant shipping activity. Common message formats minimise errors in the interpretation of messages, and can enable automatic processing by IT.¹⁰⁷ NCAGS Tools, such as Shipping Cooperation Point (SCP) setup and shipping database composition, are mission-specific depending on the nature of the

¹⁰⁶ Exercise Bell Buoy 2004 SOPs has four out of five NCAGS duties linked to information. Coastal Watch 2001 and Bold Master 2006 have all exercise objectives linked to information. Terminology include cooperation with civilian organizations, briefing ship masters and operators, reports to higher headquarters, internal and external handling, archiving, and file naming (reports, imagery, etc).

¹⁰⁷ Such as message formats included in NATO’s APP-11.

mission, coalition partners, and available technology.¹⁰⁸ Hence, procedures depend on the particular operation's C4 (command, control, communications and computers.)

MDA - Trust and Collaboration

Many would argue that a fourth category affecting the effectiveness of information sharing should be added to cover the intangibles. In coalition operations, impediments to information sharing are often resolved as a result of collaboration and building trust. Trust that commercially sensitive information will be handled appropriately by the military is built through long-term relations. Examples of cooperation in maritime theatres abound. The monthly Shared Awareness and Deconfliction (SHADE) meetings in Dubai, U.A.E., between the nations, industry and organisations active in the Gulf of Aden theatre illustrate the success of collaboration. SHADE is composed of two dozen countries fighting against piracy, coordinating activities to avoid interference between their initiatives.¹⁰⁹ Such initiatives require a substantial effort to coordinate and are essential to integrate often disparate parties to a single focus of making the open seas a safer place to sail.

NCAGS activities, unlike other naval warfare areas, focus on the constant integration of civilian actors into its military activities. Intangibles hindering cooperation include the stigma linked to the military perceived by civilians, cultural differences, and military terminology confusing the English language for a community whose mother tongue usually is not. Without trust between partners, regulatory, technical and procedural

¹⁰⁸ The shipping database contains details of ships in transit (maritime trade, tourism) or operating (fishing, ferries, research) in the commander's area of responsibility. The format would be set in NCAGS SOPs.

¹⁰⁹ SHADE information is available on the Allied Maritime Command web page <http://www.manw.nato.int/>.

aspects of information sharing seen above would be to no avail.¹¹⁰ International relations take time, diplomacy, cultural awareness, and understanding of JIMP partners' agenda and political restrictions, essential for MDA.

MDA - Ports, Harbours, Anchorages, Canals

Pursuing the dissection of the MDA definition brings infrastructure. Port and harbour activity is not a traditional part of NCAGS ship tracking since, once in port, ships would be considered out of the danger area, having safely arrived and no longer a concern for tracking and monitoring.¹¹¹ This premise changes substantially when ships are potentially contravening international embargoes or may be used as a terrorist tool.

Ports, harbours and anchorages can be the hub of activity for the naval contribution to humanitarian or non-combatant evacuation operations. They can also be the launching point for maritime threats. Commercial ships have to refuel, load and unload cargo, get personnel ashore, perform maintenance and repairs, which usually take place in a port, anchorage or docking facility. Similarly, illegal passengers and cargo usually get onboard at these facilities, rarely being hoisted by air or boarding at sea while the ship is enroute.

Major cities such as New York, London, Vancouver and Mumbai are often built around ports. The proximity to large bodies of population and potential for disaster have

¹¹⁰ Other cooperation initiatives can be found on the internet http://www.manw.nato.int/page_news.aspx#NATO_EUNAVFOR_and_Coalition_Task_Force_Commanders_coordinate_counter-piracy_fighting_off_the_coast_of_Somalia; Internet; accessed 29 November 2009.

¹¹¹ It should be noted that in the CF, the Naval Reserve is assigned responsibility for port security (PS). Similarly to NCAGS-Intelligence Senior Staff Officers (SSO), PS SSOs are responsible for Combat Readiness Requirement (CRR) training of these teams. National Naval Reserve CRR exercises have on occasion involved players from both capabilities.

generated many maritime security studies to counter doomsday scenarios.¹¹² NCAGS uses port and canal information for white picture management and traffic forecasting in the area of operations.¹¹³ SCP briefing teams can be sent to ports and canals for confirmation of vessel arrival and departure, obtain imagery and observe harbour activity.

This aspect of NCAGS operations could be further exploited to contribute to MDA; thus far its limited use has proven successful. During EXERCISE BELL BUOY 1999 (BB99), a Canadian NCAGS team deployed ashore in Bahrain identified vessels of interest (VOIs) being repainted and re-named operating in the Arabian Gulf. The team, embedded with UK, US and Australian officers, demonstrated that NCAGS adds a qualitative aspect to merchant ship tracking much appreciated by the RMP manager and naval intelligence. The BB99 NCAGS reports and pictures were sent to feed on-going US-led naval operations and are credited with uncovering five VOIs.¹¹⁴ The US Navy Admiral in charge of the operation was impressed with the quality of shipping information brought forward by a handful of NCAGS officers deployed ashore.¹¹⁵

By having teams on land, observing and confirming legitimate shipping or pointing out potential suspects, surveillance and reconnaissance are refined, and effort can be transferred to boarding and interdiction of shipping with a higher potential of

¹¹² The explosion of the *Mont Blanc* in Halifax Harbour in 1917 has inspired many safety planners. Parfomak and Fritelli's 2005 *Report to Congress* on port security, mentioned in Chapter 1, is a well quoted study of terrorist threat.

¹¹³ Information takes form of faxed reports from port, harbour or canal authorities, in-person visits or internet searches on these facilities' official websites.

¹¹⁴ Global Security Website, *Bell Buoy Exercises* <http://www.globalsecurity.org/military/ops/bell-buoy.htm>; Internet; accessed 13 Oct 2009, and interview with LCdr Dan Manu-Popa, DMPOR 6-3, 9 October 2009.

¹¹⁵ Lieutenant-Commander (retired) Darin Bertrand was Intelligence officer supporting BB99 in Bahrain at the time. Interview notes, 13 November 2009.

contravening embargoes, or posing a threat to safety.¹¹⁶ A potentially vital NCAGS role is supporting naval boarding operations and MIO in general since the “target” of interest for such operations are civilian vessels - for which NCAGS personnel are the theoretical SMEs.

Unlike the shore-based activities of BB99, the NCAGS contribution to OPERATION APOLLO in 2002-03 was in the form of an officer onboard with the Commander’s staff, who was often confused with Intelligence.¹¹⁷ NCAGS was used to “undertake a long-term analysis of regional maritime traffic patterns. From this it was possible to identify any developing anomalies and react accordingly.”¹¹⁸ Regardless of the confusion, building a database with ship data, pictures, PIM, boarding reports, impressions on the crew and captain’s cooperation became an invaluable tool, saving the Commander precious ISR resources for the conduct of his maritime interdiction operation. A ship that was repeatedly cooperative was left to sail without time-consuming boarding and inspection, allowing the merchant captain to be at destination as planned, and avoiding financial penalties.

MDA and Fishing

Although fishing vessels are an intrinsic part of the contemporary threat, and doctrine dedicates a chapter to this topic, NCAGS training and exercises rarely include fishing

¹¹⁶ This BB99 contribution is further detailed in <http://www.eaglespeak.us/2005/02/naval-cooperation-and-guidance-for.html>; Internet; accessed 13 October 2009. Rather than NCAGS, trained HUMINT personnel in civilian clothing may be better positioned for particular operations where Force Protection could be an issue, or personnel in uniform would not be welcome.

¹¹⁷ OPERATION APOLLO is the Canadian contribution to the post-9/11 attacks in the US. HMC Ships were sent to the Arabian Gulf to assist with Maritime Interdiction Operations (MIO). See Lt(N) Brad Sweet’s experience at http://www.navy.forces.gc.ca/cms_images/navres_images/e-link/2003-04-link.pdf; Internet; accessed 15 April 2010.

¹¹⁸ Dr. Richard Gimblett, 78.

activities as part of the scenario.¹¹⁹ The particular operations of fishing vessels make this a specific area of expertise yet to be developed. Traditionally, NCAGS activities are concerned with commercial shipping transiting a region. Participation of fishing vessels in NCAGS is a national decision, similar to other commercial shipping.

Fishing activity is normally attached to a port and sails out to the same area to repeatedly collect its cargo.¹²⁰ The time of sailing and area of fishing is considered proprietary information, thus sensitive and not shared easily with the military.¹²¹ Monitoring fishing activity is within the purview of the bordering nation, along other national jurisdictions, such as protection of natural resources and national fishing quotas.

It complicates naval battlespace management when the best fishing waters are in close proximity to military areas. To illustrate such complexity, fishing vessels are known to have been used in the GOA as mother ships to allow pirates to launch their attacks further from the shore.¹²² In the Arabian Gulf in 2003, fishing vessels and tugs were potentially used as minelayers.¹²³ A large number of fishing vessels operating in a broad maritime

¹¹⁹ The piracy crisis in Somalia is partly due to fisheries issues, with fishing vessels complicating white picture management and fishing vessels being used as mother ships, a platform from which pirates launch their attacks. A chapter is dedicated to fishing vessel activities in the ATP-2(B) Volume 1.

¹²⁰ Some merchant shipping such as oil tankers have comparable regular schedule to pre-set ports, occasionally on ballast, part of a just-in-time delivery mechanism. The IRVING ESKIMO brought various types of fuel (aircraft and automobile) from Saint John, New Brunswick, to Boston, Massachusetts, and Portsmouth, Maine, on a one-week schedule. (Author's personal experience from 2 weeks on-board this ship, August 2003.)

¹²¹ NATO MC 376/2, p.4 mandates the requirement to protect "commercially sensitive information."

¹²² Examples of fishing vessels used as pirate mother ships or launching platforms are found at <http://news.yahoo.com/s/ap/piracy>, <http://www.canada.com/ottawacitizen/news/story.html?id=095b4c08-95fa-45ab-825f-365d20b65bec>; and <http://www.aolnews.com/world/article/nato-sinks-pirate-mother-ship-off-somalia/19378445>. The NSC also posts such piracy warnings on its web page <http://www.shipping.nato.int/>; Internet: accessed 29 March 2010.

¹²³ Richard Gimblett, *Operation Apollo*, p.119 provides details and pictures illustrating how fishing vessels, tugs and other ships were involved in complicating the MIO.

operational area may permit smugglers and terrorists to have access to supplies or to hide, increasing the difficulty for limited naval assets to achieve proper visibility on such activities in the AOR.¹²⁴

There is still work to be done to refine the fishing aspect of NCAGS doctrine and training. Even at a time where fishing activities are influencing GOA operations, the latest NCAGS exercises LOYAL MIDAS 2009 (LM09) and BOLD MASTER 2008 (BM08) did not include a fishing scenario.

MDA and Small Boats

An area not mentioned in NCAGS doctrine is small boats, pleasure craft and other non-SOLAS vessels.¹²⁵ Although they may be less likely to require naval protection for their transit, small vessels have been the source of threat and undoubtedly are a factor in MDA. The attacks on USS COLE and the French tanker LIMBURG are at the extreme end of the spectrum of the use of small vessels as active threats to naval and merchant shipping.

Emergencies involving small boats occur regularly although get less media attention than those involving large ships.¹²⁶ In view of the piracy crisis off the coast of Somalia, small

¹²⁴ The challenges related to the presence of fishing vessels in an AOR are illustrated in on-going GOA operations and in counter-terrorism efforts on NATO and EU NAVFOR sites.

¹²⁵ Safety of Life at Sea (SOLAS) is the 1974 International Convention regarded as one of the most important for safety of commercial shipping. SOLAS specifies the minimum standards for the construction, equipment and operation of ships. It is the responsibility of the flag state to ensure ships registered in the country meet the requirements. http://www.imo.org/Conventions/contents.asp?topic_id=257&doc_id=647; Internet; accessed 25 October 2009.

¹²⁶ Examples include Iran taking five civilian UK sailors allegedly in Iranian water early December 2009 <http://www.guardian.co.uk/commentisfree/2009/dec/01/yachtsmen-persian-gulf-iran-bbc>; Internet; accessed 27 December 2009, and pirates abducting Paul and Rachel Chandler off their yacht in Somali waters in November 2009 <http://www.thespec.com/article/672410>; Internet; accessed 27 December 2009.

craft are being warned against sailing these dangerous waters.¹²⁷ In a given area of operation, such as the Great Lakes on a sunny summer afternoon, the number of sail boats and yachts can clutter the RMP, increasing the requirement for surveillance and Force Protection. In Canadian waters, small boats would affect Defence operations in situations such as search and rescue (SAR) and assistance to other government departments.¹²⁸ In both expeditionary and domestic cases, understanding the manner and extent to which small vessels impact naval activities is an intricate part of white picture management and MDA accomplished through threat assessments and operational planning.

MDA - Searching for What Is Missing

Developing the predictive picture in MDA aims in part to determine legitimate activities and stakeholders in the area of interest. An experienced officer will have a good idea of such activities and concentrate efforts on suspicious events. The more difficult part of picture analysis requires the detection of threats that blend in with lawful activity.

Looking solely for indicators such as unusual routes, cargo or passengers may leave out dangerous situations and miss operational objectives. History shows that pirates, terrorists and other perpetrators try to avoid detection by using similar means and

¹²⁷ The NSC webpage prominently displays a warning to "the yachting community intending passage through the Gulf of Aden", strongly advising to avoid the region. <http://www.shipping.nato.int/> Internet: accessed 29 March 2010.

¹²⁸ Examples include support to RCMP counter-drug operations, such as HMCS FREDERICTON surprising the crew of FAIR EXCHANGE smuggling drugs off the coast of Nova Scotia (http://www.navy.forces.gc.ca/fredericton/2/2-s_eng.asp?category=147&title=3889 Internet: accessed 13 March 2010) and HMCS TORONTO's support to the CG in arresting the crew and captain of the FARLEY MOWAT (http://www.navy.dnd.ca/toronto/2/2-s_eng.asp?category=237&title=1554; Internet: accessed 14 March 2010.)

behaviours as law-abiding ship operators. They comply with regulations and use legal methods to be perceived as legitimate entities and “hide in plain sight.”¹²⁹

In the Arabian Gulf during OPERATION APOLLO, ships were repainted and renamed to smuggle oil with less chance of being detected. Other vessels are modified, false papers are generated and the ship is re-sold after being hijacked by pirates.¹³⁰ Ships could be sailing normally until sunk in a chokepoint, collided with another vessel or used as a floating bomb.¹³¹ “Some of the hijacked ships were used as practice platforms for learning navigation and pilotage. Further, some of the students at American merchant navigation schools have been arrested as terrorist suspects.”¹³²

This aspect of MDA is beyond any single naval warfare’s ability to master. NCAGS can contribute to such intelligence collection effort through staff keeping an alert eye during operations and interaction with government, civilian, and industry stakeholders. With vigilance and understanding of the maritime domain, successes such as the previously mentioned BB99 NCAGS team revealing five VOIs could reoccur.

Analysis and the ability to generate understanding require staff with experience and training. It has been stressed that the Navy should increase its investment in generating knowledge and expertise of the maritime domain, creating analysts “who deeply

¹²⁹ Lieutenant Mark Munson, US Navy, “Looking for Anomalies in All the Wrong Places,” *Proceedings* 135/7/1.277 (July 2009): 36.

¹³⁰ Capt(N) Peter Avis and Iain Grant, “Canadian Maritime Security and the Culture of Prevention,” *Canadian Military Journal* <http://www.journal.dnd.ca/vo5/no4/maritime-marine-eng.asp>; Internet; accessed 13 March 2010.

¹³¹ Parfomak, Paul W., and John Frittelli, “Maritime Security: Potential Terrorist Attacks and Protection Priorities,” *CRS Report for Congress*; (Updated May 14, 2007): CRS-6, 10 and 20; <http://www.fas.org/sgp/crs/homsec/RL33787.pdf>; Internet; accessed 13 March 2010.

¹³² Capt(N) Peter Avis and Iain Grant, “Canadian Maritime Security and the Culture of Prevention,” *Canadian Military Journal*; <http://www.journal.dnd.ca/vo5/no4/maritime-marine-eng.asp>; Internet; accessed 13 March 2010.

comprehend how the maritime world works (particularly its commercial component.)”¹³³ Human interaction (meetings, staff talks) and analysis training are entries in a budget difficult to substantiate. Dependence on technology is comfortable, and investing in the development of an officer’s analysis skills does not show a visibly quantifiable return on investment, compared to computers and armament. Technology allows shifting the blame to machines when things go wrong and observing the theatre at a distance from the comfort of the operations centre. Fortunately, there continues to be naval Exchange and Liaison positions in other countries, personnel on NATO, RIMPAC and other exercises, participation of foreign military and personnel from other government departments in naval schools and training activities. In other words, the Navy continues to support initiatives that allow naval personnel to develop and refine their understanding of the MDA components, generating staff with that a deeper comprehension of the maritime world.

MDA - Conclusion

This section has elaborated MDA through its definition and concepts with links to NCAGS’ contribution to the decision-making environment. To be an efficient participant in building the commander’s MDA, NCAGS requires opportunities to develop its understanding of the maritime domain, practice skills, develop expertise, and be integrated in operations and planning along with other warfare areas. NCAGS also needs to see beyond its current doctrinal comfort zone and develop those areas that will increase its flexibility, adapt to the COE and better assist the Commander with his tasks.

¹³³ Munson, 37. It is interesting to note that, in the Canadian Navy, the support for such investment in NCAGS expertise comes from the Regular Force component of Naval Intelligence.

Accomplishing the mission

This final NCAGS conceptual block is stating a rather obvious requirement; capabilities exist to enable the Commander to achieve mission success. Threat, geography, coalition partners and other factors are considered during the Commander's mission analysis through the Operational Planning Process (OPP). Allocation of resources and tasks along lines of operations achieves objectives, exploits vulnerabilities, defeats centres of gravity and fulfils the mission.¹³⁴ Missions can be as varied as maritime security is broad.

To list every potential mission and illustrate for each how NCAGS can assist would be a nugatory exercise. NATO doctrine suggests missions where an activated NCAGS capability brings a particular advantage: MIO, Non-combatant evacuation, crisis response operations, and surveillance.¹³⁵ NATO also requests from countries to indicate their NCAGS contribution to a crisis if it were to be activated.¹³⁶ Canada is currently committed to providing four NCAGS Units of 36 persons (24 officers and 12 ranks) in case of crisis, all of whom are reservists as is the case with most other providing nations. The doctrine is vague on the role of NCAGS in achieving the suggested missions. It details NCAGS Tools and cites the following benefits to the commander:¹³⁷

- More comprehensive picture of merchant activity in maritime portion of the (...) recognised maritime picture (RMP);
- Deconfliction of merchant shipping activity from military operations,
- Improved safety and security of merchant ships in a crisis area,

¹³⁴ Canada, Department of National Defence, B-GJ-005-500/FP-000 *CF Operational Planning Process* (Apr 2008).

¹³⁵ ATP-2(B) Volume I, 3-3.

¹³⁶ NATO. AAP-8 *NCAGS Organisation, Publication and Documents* (2007).

¹³⁷ ATP-2(B) Volume 1, 1-4.

- Improved effectiveness in supporting crisis response operations (CRO) and maritime interdiction operations (MIO),
- Better understanding of commercial constraints,
- More efficient and cost effective employment of military forces,
- Improved counter-piracy and counter-terrorism capability, and
- More opportunities for training with merchant ships in both planned and unplanned exercises arranged with forces on passage (PASSEXes).

Some commanders could argue that they have conducted many missions without NCAGS-qualified officers. The question then becomes how efficient was the NCAGS portion conducted, and what could be the improvement if it was conducted by an experienced NCAGS officer rather than directed to a staff member as a secondary duty. As listed, these benefits do not bring anything new to the commander; they offer improvements, unquantifiable advantages that ease the road to mission success.

Roles of the Navy

The COE affecting the commander's mission was described in Chapter 1 in terms of Full Spectrum Operations (FSO) including maritime trade and collaboration with JIMP partners.¹³⁸ Within this COE, the commander's mission analysis carefully considers orders received and a detailed evaluation of the roles of his forces. The three roles of navies presented in Booth's triangle "inter-relate across the spectrum of conflict, with the

¹³⁸The Canadian Land Forces' Directorate of Land Concept and Design (DLCD) examined the "tenets of effective command" in a Command Capability Development Record (CDR), describing factors affecting the operational commander such as FSO, JIMP and collaborative work seen in the MDA portion of this paper. CDR 1.8 (Draft) *Enabling Command for the COE* (Kingston: 8 September 2006.)

diplomatic and constabulary roles drawing from a solid military foundation,” illustrated in Figure 2.¹³⁹

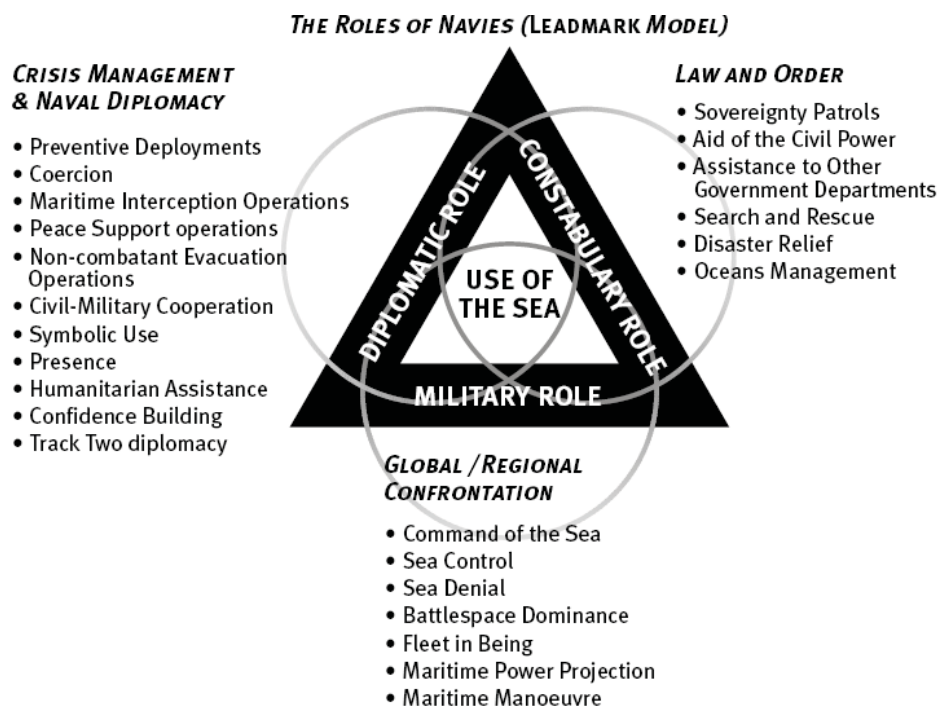


Figure 2 – Booth’s Triangle¹⁴⁰

The military role is the traditional use of military power as the tool of last resort to restore regional stability, for the defence of the homeland or “expeditionary crisis management missions.”¹⁴¹ The constabulary role has the navy acting in support of other government organisations to fill the gap in the enforcement of the law and respect of national sovereignty. As seen in counter-piracy operations, a criminal rather than a military activity, rules can be uncharted and are developed as the situation evolves, taking into consideration legal aspects of handling criminals and proof of wrongdoing. The

¹³⁹ Leadmark, 22.

¹⁴⁰ Ibid., 34.

¹⁴¹ Ibid., 23.

diplomatic role has the Navy in support of the government's foreign policy, assisting with crisis management.

An update to Booth's triangle for post-modern navies suggests five rather than three roles. A post-modern navy has merchant shipping at its centre as it "derives from the necessity of defending the global sea-based trading system either directly or indirectly."¹⁴² The five roles are:

- Preventing conflict,
- Maintaining sea control and the capacity to manoeuvre,
- Maintaining good order at sea,
- Projecting power ashore, and
- Maintaining the necessary maritime consensus.

This updated concept portrays an increased requirement for non-traditional naval operations. Although the COE evolves, many naval tasks survive the test of time, regardless of the conceptualisation model used for the analysis.

Regardless if naval tasks are based on three or five roles, as a command-support function, NCAGS concepts allows the commander the flexibility to adapt this capability to his mission requirements. Similarly to mine hunting or anti-submarine warfare, NCAGS would not necessarily be fully deployed every time the Navy is tasked. Management of the white picture and interface with the shipping community will have different priority levels depending on the task at hand. The Canadian NCAGS Concept of Operations 2009 elaborates these capabilities and links them with supported naval tasks. Some of these concepts are reviewed here.

¹⁴² Geoffrey Till, "Making waves – Naval power evolves for the 21st century," *Jane's* (17 November 2009); www.janes.com/news/security/jir/jir091117_1_n.shtml; Internet; accessed 24 November 2009.

In a command-centric setting, “commanders, aided by the staff, (...) assess the mission, articulate the intent and end-state, make decisions and direct the delivery of effects.”¹⁴³

The operations centre onboard a flag ship at the head of a naval task force exemplifies such command-support system. Figure 3 illustrates.

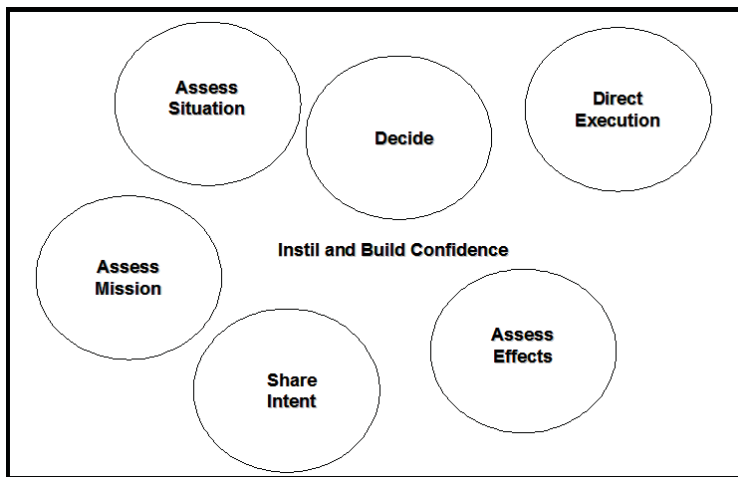


Figure 3 – Command Functions¹⁴⁴

Major enablers linking these command functions in the COE are social and technological networks. These networks are used to share information and for collaborative work. The command functions of the diagram have their effectiveness rooted in a requirement to “instil and build confidence.”¹⁴⁵ As these networks mature, JIMP partnerships generate effective outcomes in CIMIC, HUMINT, Information Operations and other critical tools for mission success.¹⁴⁶ Collaborative work, through long-term networking, builds trust and understanding of culture, intent, jurisdictions and limitations of COE partners. It is a

¹⁴³ Command CDR, 33.

¹⁴⁴ Ibid.

¹⁴⁵ Ibid., 5 and Figure 3.

¹⁴⁶ Ibid., 32.

wise investment in peace time to develop expertise and build a network of trusted contacts with whom to coordinate activities during crises.

Collaborative Work

The Navy is increasingly feeling the pressure of the importance of collaborative work. “At home and abroad, commanders will need to interact with other agencies and forces to achieve the desired effects and end-state.”¹⁴⁷ Domestically, MSOCs, the 2010 Vancouver Winter Olympics, and protecting our sovereignty and resources in the Arctic require collaborative work with partner governmental agencies and private stakeholders. On the expeditionary front, operations are largely done in coalition. International organisations scrutinize activities or provide humanitarian help along with the media, service contractors, private security, and so on. Collaborative work is defined as “the process by which the collective intellectual power, experience and knowledge of command and staff teams are applied to achieve a common intent.”¹⁴⁸ Collaborative work and knowledge sharing are at the base of building trust relationships between the Navy and JIMP stakeholders. Intent involves a particular way of understanding one’s environment and can only be shared efficiently through time, training and working together.¹⁴⁹

The Land Forces have to deal with international organisations, media, local authorities at every level of the chain of command in situations such as leading activities in support of Security Sector Reform (SSR). In contrast, the Navy commander at sea deals directly with civilian organisations mainly when going ashore, through a dot on the radar screen,

¹⁴⁷ Ibid., 9.

¹⁴⁸ Ibid., 16.

¹⁴⁹ Ross Pigeau and Carol McCann, “Redefining Command and Control,” *The Human in Command: Exploring the Modern Military Experience*, edited by Pigeau and McCann (New York: Kluwer Academic/Plenum Publishers, 2000): 165-7.

scratchy radio conversations and the loud hailer. In domestic operations, direct interaction with JIMP is common, such as multiple departments sharing an operations centre at the MSOCs. Working ashore, planning for national contingencies and visiting allied nations allows the commander to directly build trust relationships, bridge various cultural gaps, and strengthen the tenets for collaborative work.

Collaborative work involves setting up policies, procedures and technology for effective information sharing, allowing each partner to fulfil their responsibilities without overstepping another's jurisdiction. Experts indicate that JIMP, knowledge sharing, common communications systems and collaborative planning will be an increasingly important part of the FOE.¹⁵⁰ Commanders need to prepare now by maximising the use of naval liaison officers who are trained in being the interface with civilian organisations, the NCAGS capability, to reap the benefits of trust building when opportunities arise.

NCAGS Tools

As Figure 1 illustrated, and as referenced in the NCAGS Concept of Operations, doctrine provides the naval Commander with a range of flexible NCAGS Tools to perform maritime trade liaison duties and support MDA commensurate with the level of shipping activity and the nature of naval tasks. The geography, volume of shipping traffic, available communications technology, liaison requirements with other agencies, and whether the liaison is done in person will also have a direct effect on staff and Tool requirements.

¹⁵⁰ Chief of the Land Staff, *Future Force, Concepts for Future Army Capabilities*, Director - Land Strategic Concepts, 2003, pp. 186-187.

The commander is meant to select items from the Toolbox when activating NCAGS.¹⁵¹

NCAGS was partly activated for OPERATION APOLLO, and the tools have been practiced in training and exercises, adapted and re-defined to suit the mission at hand.¹⁵²

Some of the tool would be tackled by NCAGS staff upon activation (Tools 101, 102, 105, 109, and 111 in Annex B.) Other tools point to the traditional protection of shipping aspect of NCAGS discussed earlier, such as providing ships with Sailing Information (SIs) (117), and coordinating military accompaniment (118). NCAGS being the interface with maritime trade stakeholders, liaison with merchant shipping community (104), direct communications with merchant ships (107), and briefing masters (112) are implemented depending on the operational requirement for direct exchange between the Navy and participating merchant ships.¹⁵³

These Tools, procedural in nature, do little to illustrate the intangible benefits of having an NCAGS staff in the Task Force organization. The output complements the work done by the often undermanned N2 staff, substantiating further the decision to amalgamate NCAGS with intelligence. Benefits include interpretation of shipping activities in the AOR, cultural awareness of the maritime trade community, detection of anomalies, threat identification, recommendations for interdiction targets, and other force-multiplier aspects allowing the commander to better achieve his mission.

¹⁵¹ The ATP-2 Volume 1 NCAGS Toolbox is reproduced in Annex B.

¹⁵² In rare instances, these best practices were captured in Experimental Tactics (EXTACs) such as the post-OPERATION APOLLO NCAGS Support to MIOs.

¹⁵³ Unless ordered by their National Shipping Authority or owners, merchant ship captains voluntarily participate in NCAGS and retain the responsibility to keep ship, crew and cargo safe. These Tools affect the number of NCAGS Briefing Officers required in SCPs, especially in areas of heavy traffic, or if face-to-face meetings are required.

Collaborative work and Information Operations (Info Ops) aspect of the campaign are enhanced through liaison with merchant shipping community (Tool 104), communications with merchant ships (107), briefing masters (112), SCPs and Briefing Teams (114), and deployed NCAGS LOs (116). Although some aspects of naval Info Ops, CIMIC and collaborative work have been used in the past, they may currently be a bridge too far from the traditional naval commander's comfort zone to be an appealing option to exploit.¹⁵⁴

CIMIC and NCAGS

The Canadian Navy Strategy has included CIMIC in its lines of operation at least since *Leadmark*. This was outlined in Booth's triangle described earlier. CIMIC was stated under the diplomatic role, described as the "relationship between a military force and the government, civil agencies or civilian population (...)"¹⁵⁵ The concept may be easier to apply in the domestic context than to expeditionary operations.¹⁵⁶

NCAGS doctrine includes collaboration with shore-based organizations through SCP Briefing Teams at the tactical level. These teams meet with stakeholders such as port authorities, shipping agents, and harbour pilots to collect data of interest, and in exchange providing information on the threat or details that will allow partner organisation to keep

¹⁵⁴ Part of control of shipping and convoy preparation in WWII were NCS Boarding Teams who would visit merchant vessels to get a direct insight of the mood onboard the ships. Vandalism and other methods were used by crew to delay convoys. NCS officers were used for investigation and psychological operations. These positions were often filled by the Volunteer Reserve. Roach, 21.

¹⁵⁵ Canada, Department of Defence, *Leadmark: the Navy's Strategy for 2020* (2001), 38.

¹⁵⁶ Dealing with MSOC partners and support to partner government agencies are a regular part of naval activities for commanders in country. At a tactical level, Lt(N) Henry, Civil-Maritime Analyst at MSOC East, indicates that her duties involve regular collaboration with MSOC partners. The NMP and IMSWG are other prominent domestic examples of military-civilian collaboration.

shipping safe, better define the environment and deconflict activities. Their main task is briefing ship captains on the risk they are facing on their planned route, and confirming information previously received on the ship, crew and voyage to come. Resulting information and reports are forwarded to the battle staff, feeding the MDA and used to advise the commander on shipping and the mood of the maritime trade industry. Such tasks could be expanded to optimise information collection - tentatively closer to HUMINT - and collaborative work.

Collaboration has been explained as the foundation for trust building between military forces and civilian partners. “Well trained and suitable CIMIC operators are essential to interacting with civilians in the field and to promoting a unity of effort.”¹⁵⁷ Trust facilitates communications and can bring crucial elements of information on maritime domain activities (such as docks used by potential smugglers or reliable shipping companies) in an area partners may know better than the navy can ever expect to grasp. The NATO definition of CIMIC reads as “the coordination and cooperation in support of the mission, between the (...) commander and civil actors, including national population and local authorities, as well as international, national and nongovernmental organizations and agencies.”¹⁵⁸ Military collaboration with civilian organisations can build support for naval operations, shape activities to better fit the environment, and obtain information that may not otherwise be available.¹⁵⁹

¹⁵⁷ Stacey Douglas, “Toward a Comprehensive Canadian CIMIC Doctrine: Interagency Cooperation and the Influence of Allies in the Balkans,” *Canadian Military Journal*, (12 November 2002): 7; <http://www.cda-cdai.ca/cdai/uploads/cdai/2009/04/douglas02.pdf>; Internet; accessed 9 December 2009.

¹⁵⁸ NATO, AAP-6 *Glossary of Terms and Definitions* (2005).

¹⁵⁹ Canada, Chief of the Land Staff, Land Force Central Area, *Civil-Military Cooperation (CIMIC)*; <http://www.army.forces.gc.ca/atps/CIMIC.shtml>; Internet; accessed 9 December 2009.

The Army and NCAGS understand CIMIC with an important distinction. With its slant towards protection of shipping and current Tools needing much elaboration to allow for sustainable initiatives in maritime trade civil affairs, NCAGS hardly fits the contemporary understanding of CIMIC doctrine. Land CIMIC was adapted to requirements brought forward in the Balkans and shifted to those of the Afghan theatre.¹⁶⁰ It includes the deployment of specialist teams to assist or take over civilian functions that fail to provide expected services in the area of operation, where the military fills the void until the situation is sufficiently stable and safe, and civilian authorities can resume their activities. This type of collaborative assistance reflects the origins of CIMIC: US Civil Affairs often used reservists serving as expert advisors to governments, filling the “administrative vacuum resulting from emergencies.”¹⁶¹ At the general concept level, CIMIC is integrated at every level of headquarters, and brings collaboration at the forefront.

CIMIC not only helps to realize the commander’s mission and end state through the interplay of military forces and other agencies, but it also contributes directly to the achievement of the strategic end state. (...) CIMIC funding may come from government departments other than their defense establishment. Therefore, CIMIC for these nations does not necessarily support the military mission alone, but could contribute to broader national objectives.¹⁶²

¹⁶⁰ A general understanding of Land CIMIC is portrayed in Major Graham Longhurst, “The Evolution of Canadian Civil-Military Cooperation (CIMIC,)” *Canadian Military Journal* Vol 7, no 4 (Winter 2006-2007): 55-64; <http://www.journal.forces.gc.ca/vo7/no4/doc/longhurst-eng.pdf>; Internet; accessed 21 April 2010. Returning to CIMIC roots, a Balkan aspect of CIMIC can be found in Stacey Douglas’ *Toward a Comprehensive Canadian CIMIC Doctrine: Interagency Cooperation and the Influence of Allies in the Balkans*, submitted to the Canadian Military Journal, 12 November 2002. <http://www.cdai-cdai.ca/cdai/uploads/cdai/2009/04/douglas02.pdf>. Internet; accessed 9 December 2009.

¹⁶¹ Stacey Douglas, 5.

¹⁶² ABCA Armies’ Program, “Civil-Military Cooperation,” *Coalition Operations Handbook*, 4th ed. (2008): Chapter 12.

Maritime CIMIC has yet to be defined. It would need to be conceptualised with in mind the fact that in most cases, it would be in support of land activities.¹⁶³ Collaboration with the maritime community is a fundamental NCAGS role and has been since the early convoy conferences and Boarding Teams of the Great War. NCAGS has also filled a void left by civilian organisations, with world wide communications systems, a situation very specific and likely mitigated by technology.

Project and funding management implied in current CIMIC doctrine may require a re-definition of the role of Briefing Teams, SCPs and NCAGS staff involved in CIMIC at the tactical and operational level. Emphasizing the Cooperation aspect of CIMIC could apply to NCAGS since by definition, it is the interface between the navy and maritime trade community.¹⁶⁴ NCAGS may prove to be closer to collaborative work than CIMIC. With NCAGS being a skill set under intelligence in the Canada, careful crafting of the CIMIC, Info Ops, and HUMINT boundaries may prove onerous. To date, however, maritime CIMIC remains but a concept in a few staff officers' file.

NATO is considering such rapprochement. The NATO Shipping Working Group (NSWG) has stated that recognizing NCAGS as maritime CIMIC is "highly desirable."¹⁶⁵ It is certainly a commendable aim. However this identity re-definition will need careful and authoritative crafting to gain consensus from participating nations.¹⁶⁶ NSWG has a

¹⁶³ Documents such as the *CF CIMIC Manual*, while aiming to represent all services, indicate that CIMIC activities, involving JIMP partners, will "be focused on three central tasks: preventing further bloodshed, resolving an (armed) conflict and ensuring a lasting peace." B-GG-005-004/BF-023 (1999): 1-1.

¹⁶⁴ Current doctrine does include liaison with the merchant shipping community (Tools 104, 107, 112).

¹⁶⁵ NSWG minutes (25 June 2009,): 11.

¹⁶⁶ At the time of writing this thesis, the NSWG is re-writing NCAGS doctrine, ATP-2(B) Volume 1, to amend the terminology reflecting current operational use and introduce the function

sizeable challenge ahead to convince naval commanders of a requirement for CIMIC in the maritime environment, beyond current projects of repairing schools during shore time and port visits.¹⁶⁷ As the doctrinal authority, NATO has included CIMIC in the re-write of ATP-02(B) Volume I (draft). The NSWG may need to generate a Volume III to guide such cooperation with merchant community, in addition to changes to Volume II already released to maritime trade stakeholders through National Shipping Authorities (Transport Canada, in Canada's case).¹⁶⁸ Some NATO countries and authorities remain to be convinced, especially a mere decade after what was considered an overhaul from Naval Control of Shipping (NCS) and Regional NCS. Although the naval CIMIC portion of activities in the maritime battlespace requires more thought, the Navy is making commendable strides in collaborative work.

Maritime Collaborative Work Initiatives

NATO has taken formal steps towards successful collaborative work. “At home and abroad, commanders will need to interact with other agencies and forces to achieve the desired effects and end state.”¹⁶⁹ Direct Command involvement occurred in support to counter-piracy off the coast of Somalia,¹⁷⁰ in the Seychelles,¹⁷¹ and in Kenya.¹⁷²

of maritime CIMIC. There is reticence to change the name (NCAGS) again among NATO partner due to the ensuing marketing effort such change would bring. Source: LCdr Dan Manu-Popa, Canadian Head of Delegation, NSWG.

¹⁶⁷ NSWG minutes (25 June 2009): 10, indicate how NATO CC Maritime Naples understood CIMIC as being a Land responsibility and an NCAGS role limited to harbour.

¹⁶⁸ NATO's ATP-2 Volume II illustrates NCAGS reach and collaboration as the *NCAGS Guide to Owners, Operators, Masters and Officers* distributed by NSAs to shipping participating in NCAGS. The initiative is better related to the “protection of shipping” function, and can be perceived as a collaborative tool for potential CIMIC function.

¹⁶⁹ Command CDR, 9.

¹⁷⁰ NATO Press Release, *NATO, EUNAVFOR and Coalition Task Force Commanders coordinate counter-piracy fighting off the coast of Somalia*, (21 November 2009); [http://www.manw.nato.int/page_news.aspx#NATO, EUNAVFOR and Coalition Task Force Commanders coordinate counter-piracy fighting off the coast of Somalia](http://www.manw.nato.int/page_news.aspx#NATO,_EUNAVFOR_and_Coalition_Task_Force_Commanders_coordinate_counter-piracy_fighting_off_the_coast_of_Somalia); Internet; accessed 12 December 2009.

EUNAVFOR naval commanders have taken similar initiatives with the meeting of the Republic of Korean Naval Task Group Commander,¹⁷³ and coordination with CMF Commander of Combined Task Force (CTF) 151.¹⁷⁴

The previously mentioned Shared Awareness and Deconfliction (SHADE) meetings are likely the most successful navy-JIMP collaboration events, including over two dozen countries, three coalitions, and many civilian industry partners. Amongst its successes, it counts the creation of the IMO-endorsed Internationally Recommended Transit Corridor (IRTC), multiple thwarted pirate attacks, improved coordination with industry, the firm establishment of a military call-centre for merchant shipping, and shared communications systems.¹⁷⁵ These elements of collaborative work are well represented at tactical, operational and strategic levels throughout the JIMP partnership.

Measuring Collaborative Work - The NSC

It is interesting to see that, while most press releases boast about collaborative efforts and successful action against piracy and terrorism, periodic reports base their success on the

¹⁷¹ NATO Press Release, *CTF 508 Engagement With the Chief of Defence Forces of Seychelles*; http://www.manw.nato.int/page_news.aspx#NATO,_EUNAVFOR_and_Coalition_Task_Force_Commanders_coordinate_counter-piracy_fighting_off_the_coast_of_Somalia; Internet; accessed 12 December 2009.

¹⁷² NATO Press Release, *CTF 508 Engagement with the Commander of the Kenyan Navy*, (7 December 2009); http://www.manw.nato.int/page_news.aspx#NATO,_EUNAVFOR_and_Coalition_Task_Force_Commanders_coordinate_counter-piracy_fighting_off_the_coast_of_Somalia; Internet; accessed 12 December 2009.

¹⁷³ EUNAVFOR Press Release, <http://www.consilium.europa.eu/showPage.aspx?id=1567&lang=en>; Internet; accessed 12 December 2009.

¹⁷⁴ EUNAVFOR Press Release, http://www.consilium.europa.eu/App/Article/Article.aspx?article_id=302&page_id=1518&type=1&lang=en&id=1567; Internet; accessed 12 December 2009.

¹⁷⁵ 8th SHADE meeting report, (1 October 2009); <http://www.eunavfor.eu/2009/10/8th-shade-meeting-sees-largest-international-participation-so-far/>; Internet; accessed 12 December 2009.

number of escorts and tons of WFP cargo delivered.¹⁷⁶ There is no mention, and even less measure, of collaboration with or participation of the merchant community in naval operations, although it is clearly occurring.¹⁷⁷ Each tactical success contributes to overall maritime security, although each hijacking is a huge setback and clear indicator of the need to pursue the effort.

As the permanent NATO NCAGS establishment, the NATO Shipping Centre (NSC) holds maintaining the “links with the military, merchant shipping, National Shipping Authorities (NSAs) and international maritime agencies” as its *raison d’être*.¹⁷⁸ It is located with the Headquarters of the Allied Maritime Component Commander (MCC) in Northwood, UK. Since its inception, the NSC has gained authority in becoming NATO’s point of contact for shipping authorities and other maritime trade-related institutions, practicing JIMP and collaborative work daily.¹⁷⁹

The NSC’s main challenge is to become a trusted shipping crisis centre, where merchant shipping provides PIM information against access to safety advisories and direct 911-like service from participating NATO resources.¹⁸⁰ After a difficult start, awareness of the NSC’s purpose has increased in the maritime community, especially in view of current counter-piracy and counter-terrorism operations by CMF, SNMGs and EU NAVFOR.

¹⁷⁶ European Security and Defence Policy, <http://www.consilium.europa.eu/showPage.aspx?id=1521&lang=en>; Internet; accessed 12 December 2009.

¹⁷⁷ NSC, UK MTO, US CENTCOM and MSC HOA receive, daily, dozens of merchant ship and shipping industry emails, faxes, FORMAT ALFAS, and phone call, and have held meetings such as SHADE.

¹⁷⁸ ATP2(B) Volume I, 3A-1, and NSC website at www.shipping.nato.int.

¹⁷⁹ Of note, the Canadian Navy of WWII had its own NSC-like organization: Naval Intelligence would keep records of merchant vessels, oil and fuel supplies, and call signs for Canadian vessels through a standardized method of tracking ships movement called Vesca or Vescar. Roach, 21.

¹⁸⁰ Resources is where the difference between the NSC and the IMB lies, since the IMB is an information sharing institution without assets to respond to crises.

Trust that shipping information will be kept in confidence and that collaboration with NATO is a sound business decision has contributed to increase the visibility and credibility of the NSC.

Threats to safe navigation include a broad range of factors from piracy to Mother Nature. Captains of ships transiting risky waters are aware that bordering nations do not necessarily have reliable search and rescue, crisis response, or constabulary assets ready to react if they require assistance. Once an incident occurs, the responsibility to act usually falls upon the bordering nation. The current Somalia piracy situation and bordering nations' inability to control the threat has pushed nations of merchant ship crew, cargo or flag to initiate their own protective actions. The commitment of military assets to NATO initiatives with sufficient Rules of Engagement to react to danger and protect shipping is NATO's main maritime strength.¹⁸¹ The NSC participates in the maritime effort as the interface between NATO military commanders and the maritime trade community. The NSC has played its part in keeping multinational white picture management initiatives coordinated and promoting collaboration through information sharing. As demonstrated by the references to the NSC in related websites such as EU NAVFOR, CMF, UK MARLO and national sites such as US DoT MARAD, the NSC has become a solid partner in the contemporary JIMP environment.

Activities such as OPERATION ACTIVE ENDEAVOUR (OAE) have been supported by the NSC since October 2001. OAE naval ships sail the Mediterranean with the

¹⁸¹ The International Maritime Bureau (IMB) Piracy Reporting Centre has much notoriety, but lacks physical assets to assist ships in distress. IMO and NSC work in close collaboration. Available from <http://www.marisec.org/piracy/imb.htm>; accessed 14 April 2010. IMO links are on the NSC hope page at www.shipping.nato.int; accessed 14 April 2010.

primary goal to hinder terrorist activities and act against suspicious behaviours at sea to enhance the security of bordering nations.¹⁸² The NSC also supports OPERATION OCEAN SHIELD (OOS), NATO's anti-piracy mission initiated 17 August 2009 and Task Force 508.¹⁸³ In addition to conducting anti-piracy operations, OOS assists Horn of Africa countries wishing to participate to build their own counter-piracy capability.

The NSC requests merchant ships' voluntary participation in NATO exercises and operations.¹⁸⁴ Ships send a report called FORMAT ALFA, which includes ship and voyage data.¹⁸⁵ Participation in such initiatives is often positive, demonstrating an appreciation from the merchant shipping community of NATO's effort in preparation for crisis response and contingency planning. EXERCISE UNIFIED SPIRIT 2000 (Norfolk, Virginia) had close to half the merchant shipping sailing in the designated area respond to the invitation to participate.¹⁸⁶ In operations, the community awareness of the NSC's purpose are apparent in the substantial number of ships voluntarily sending FORMAT ALFAs, this number almost doubling in the last three years.¹⁸⁷ The monthly number, around 1,300 vessels reporting as of June 2009, is a respectable portion of the actual

¹⁸² NATO Shipping Centre (NSC) Website, <http://www.shipping.nato.int/>; Internet; accessed 18 October 2009.

¹⁸³ NATO, *Information Sheet*, <http://www.aco.nato.int/page208433730.aspx>; Internet; accessed 9 April 2010.

¹⁸⁴ <http://www.shipping.nato.int/> for OOS and OAE, and the announcement for Ex Loyal Mariner 2008 http://www.bsh.de/de/Schifffahrt/Sportschifffahrt/Berichtigungsservice_Karten/Nfs/Liste_der_Mitteilungen/Mitteilungen2008/Mitteilungen19-2008.pdf are examples.

¹⁸⁵ Lt(N) Jennifer Henry indicated from her experience at the NSC in 2009 that the NSC receives and compiles FORMAT ALFAs for the Mediterranean Sea while the co-located UKMTO compiles those for HOA shipping. FORMAT ALFA can be seen on the NSC site from <http://www.shipping.nato.int/Reportingf>.

¹⁸⁶ Author's participation in the exercise as NCAGS Watch Officer for the Maritime Component Commander (CC) at SAACLANT.

¹⁸⁷ NSC *Half-Year Report* (February-July 2009); http://www.shipping.nato.int/NATOShippi0/Halfyearly0/file/_WFS/Half%20yearly%20report%20Feb-Jul%2009.pdf; Internet; accessed 12 December 2009.

traffic in the Mediterranean considering that the reporting system is manual and somewhat duplicating what automated technology is already providing.¹⁸⁸ Ships are informed of the NSC's existence through one of numerous transmissions they receive on a regular basis.¹⁸⁹

Other NCAGS Organizations

In addition to NATO, nations cooperate to provide maritime security assistance to coastal nations through the European Union Naval Forces (EU NAVFOR), the Combined Maritime Forces (CMF), and Shared Awareness and Deconfliction (SHADE) conferences. OPERATION ATALANTA, the EU NAVFOR's effort to support World Food Program (WFP), has extended to piracy deterrence and prevention of armed robbery.¹⁹⁰ The Maritime Security Centre Horn of Africa (MSC HOA) is the EU NAVFOR white picture coordination centre in Dubai, protecting shipping through the provision of information and guidance to the maritime trade community with activity in the region.¹⁹¹

The United States has a similar national coordination centre (Maritime Liaison Office (MARLO)) in Manama, Bahrain, involving the US Department of Transport (DoT) and CENTCOM's NCAGS Charlie.

¹⁸⁸ At the peak of WWII, Canadian NCS Vesca reports, resembling FORMAT ALFA for Allied shipping, would average 1,200 per week. Roach, 49.

¹⁸⁹ Considering that the Mediterranean sees about 15% of world shipping with 13,000 ships making 252,000 port calls (including ferries and cruise ships with a recurring transit), NSC's expected 14,000 reports for 2009 seems a reasonable achievement.
http://www.iucn.org/about/union/secretariat/offices/iucnmed/iucn_med_programme/marine_programme/maritime_traffic/; Internet; accessed 13 December 2009

¹⁹⁰ EU NAVFOR, <http://www.eunavfor.eu/>; Internet; accessed 11 December 2009.

¹⁹¹ MSC HOA, <http://www.mschoa.eu/>; Internet; accessed 11 December 2009.

The UK Maritime Trade Operations (UKMTO), in Dubai since 2001, was re-named from NCAGS.¹⁹² It initially linked the Royal Navy, UK Government and the merchant shipping community, imaging the NSC's initiative for UK ships, and now extending to "shipping of all flag registry and ownership."¹⁹³ It bases part of its activities on a Merchant Vessel Voluntary reporting scheme coordinated with NATO and other naval assets active in the Arabian Gulf, Red Sea and Indian Ocean (north of 5S).

The Combined Maritime Forces (CMF) are housed with US Fifth Fleet in Bahrain. CMF involve 24 international navies with a common aim against piracy in the GOA, extending to the Indian Ocean, the fight against terrorists, and improving maritime safety and stability. CMF countries contribute to Combined Task Force (CTF) 150 (support to OPERATION ENDURING FREEDOM (OEF)), CTF 151 (counter-piracy effort), and CTF 152 (maritime security in the Arabian Gulf).¹⁹⁴

The International Maritime Bureau (IMB), established in 1981, is an initiative of the International Chamber of Commerce (ICC) whose main tool is collaboration with stakeholders and sharing information to suppress piracy and armed robbery against ships.¹⁹⁵ The IMB's Piracy Reporting Centre in Kuala Lumpur is a piracy incident call-centre, an information-based service collaborating with government and private

¹⁹² UK MTO, https://www.rncom.mod.uk/uploadedFiles/Pages/Maritime_Operations/0001-UKMTO.pdf; Internet; accessed 27 March 2010.

¹⁹³ Ibid and UK Maritime Safety Advisory, <http://www.ukho.gov.uk/ProductsandServices/MaritimeSafety/AnnualNm/03.pdf>; Internet; accessed 11 December 2009.

¹⁹⁴ US Department of Defense; <http://www.cusnc.navy.mil/articles/2009/089.html>; Internet; accessed 11 December 2009.

¹⁹⁵ ICC, IMB; http://www.icc-ccs.org/index.php?option=com_content&view=article&id=38&Itemid=15; Internet; accessed 11 December 2009.

organisations to raise awareness on piracy and armed robbery issues. Although the aim seems similar to the NSC's, the IMB has no ships or constabulary tools to take action.

Collaboration and Communications

The implementation of maritime security and collaboration initiatives relies at the tactical level on communications technology between maritime domain partners. Merchant shipping communications are transmitted through the vessel's radio, fax or satellite systems. The Internet's increased reach has made it a reliable source of information, where ships' crews can access NSC, IMO and other websites, and contact these organisations through email.¹⁹⁶

Safety information comes in the form of Notice to Shipping (NOTSHIP), Notices to Mariners (NOTMAR), Maritime Advisory, World-Wide Navigational Warning Service (WWNWS), and Radio Navigation Warnings (RNW).¹⁹⁷ National authorities are responsible to publish maritime warnings, changes to navigation aids, and other similar information in their designated area of responsibility.¹⁹⁸ Ships obtain the publications through their national government or shipping company.

¹⁹⁶ Lt(N) Jennifer Henry would receive dozens of emails from ships daily during her 2009 tour at the NSC (email 8 March 2010.)

¹⁹⁷ WWNWS is part of Maritime Safety Information (MSI) through the Global Maritime Distress Safety System (GMDSS).

¹⁹⁸ Transport Canada (TC), for its stakeholders, will publish a TC Marine Safety Bulletin or the TC Marine Security Operational Bulletin. Normally, the content of these bulletins are sent to Canadian Coast Guard Maritime Communication and Traffic Services (CCG MCTS) to be broadcast under a NOTSHIP (Notice to shipping) on an emergency case basis. If the effect of the situation lasts for several weeks, the information may be broadcast on a NOTMAR (Notice to Mariners). The CCG publishes once a year the Radio Aids to Marine Navigation (RAMN) which contains information for foreign flagged ships' masters on general information (traffic lanes, etc) on the coast but also specific information on procedures/protocols upon entering Canadian territorial waters. Source: Mr. Jacques Vallerand, email (11 April 2010).

Requesting shipping to report to the military is done through a NOTSHIP, NOTMAR, RNW, WWNWS or a national message.¹⁹⁹ Reporting to military authorities is optional unless the flag nations or ship owners mandates it. There may be extreme circumstances where the military should need, as the force of last resort, to take over or add to the civilian warning broadcast responsibility. In a NATO operation, warnings would be sent by activating the Allied Worldwide Navigational Information System (AWNIS).²⁰⁰ AWNIS uses classified and unclassified methods of communications through systems parallel to military channels to setup a “navigational information service” similar to WWNWS in an area of operation.²⁰¹

NCAGS and Naval Deterrence

Collaborative work is not always possible with merchant shipping organisations; naval deterrence is the reverse side of the maritime collaboration coin. Interdiction, embargoes, counter-terrorism and other non-kinetic ship targeting missions involve trying to find a contravening merchant vessel *needle* in the water *haystack*. They contrast with the traditional NCAGS shipping protection efforts, but substantiate the need for control of shipping (although limited by international law.) Scarcity of resources continues to prevail, with coalition partners unable to bring sufficient naval platforms, people and

¹⁹⁹ The January 2010 Haiti crisis prompted the US to request ships to report. A MARAD Advisory was broadcasted from February to March 2010, available from http://www.marad.dot.gov/news_room_landing_page/maritime_advisories/advisory/2010-02.htm and on the NSC site.

²⁰⁰ ATP2(B) Volume I, 3-6. NATO is reviewing the AWNIS doctrine, currently out-of-date. The UK MTO maintains the ability to deploy an AWNIS capability (<http://www.ukho.gov.uk/Defence/AWNIS/Pages/Home.aspx>; Internet; accessed 5 December 2009.)

²⁰¹ Ibid.

technology to fully perform a Commander's task list. Tasks reported by the NSC, CMF and EU NAVFOR involving naval deterrence include:²⁰²

- Presence, deterrence, surveillance of pirate activity,
- Providing warning to commercial shipping of potential pirate locations,
- Group transit plan for commercial shipping,
- Boarding suspected vessels,
- Intervening against pirate attacks in progress,
- Providing surveillance, communications support after ships have been taken,
- Detention of pirates,
- Interception of illegal shipping for arms, drugs, human smuggling,
- Embargo enforcement,
- Terrorist movement interdiction, and
- Response to terrorist attack.

Most of these tasks involve a combination of NCAGS Tools that assist the Commander with preventing the waste of naval resources on cooperative ships, and pointing out areas of vulnerability exploitable by terrorists, pirates and smugglers. The efficiency of white picture management and quality of shipping-related advice rests on an NCAGS expertise enhancing the maritime trade component of the commander's MDA.

Maritime trade liaison takes a different angle when the Navy's role is deterrence. Some stakeholders may fear reprisals if seen collaborating with military authorities, hinder cooperation during naval boarding, or ignore requests to stay clear of maritime patrols

²⁰² Combined Maritime Force, *Counter Piracy Operations, Challenges, Shortfalls and Lessons Learned*, (4 June 2009): 5; <http://www.nato.int/structur/AC/141/pdf/PS-M/Combined%20Maritime%20Forces%20Ops.pdf>; Internet; accessed 11 December 2009. Also Mohmoud Habboush, "UAE Takes Control of Gulf Naval Task Force," *The National* (10 November 2009); <http://www.thenational.ae/apps/pbcs.dll/article?AID=/20091110/NATIONAL/711099863/1018>; Internet; accessed 11 December 2009.

policing an area. NCAGS' role as the interface with commercial shipping, and conversely, the merchant community's link to the military, takes its strength in the importance of information sharing, and the ability to contact military forces when the situation warrants it. The ongoing counter-piracy efforts in the GOA provide an appropriate illustration.

NCAGS Support to Counter-Piracy

The merchant ships themselves provide the best first line of defence against piracy.²⁰³ “Vigilant action by a well-informed merchant crew is the most effective method in preventing a hijacking attempt.”²⁰⁴ In most cases, naval forces will be too far away to take direct action to deter the threat. Naval counter-piracy activities include the Maritime Security Patrol Area (MSPA) and the International Recommended Transit Corridor (IRTC). They are implemented in the GOA for individual or group movement of shipping through risky waters; MSPA and IRTC are traditional NCAGS protection and control of shipping concepts presented with a contemporary terminology.²⁰⁵

Providing merchant ships with best tactics against pirates enables them to prepare their own means of defence: keeping watch, sailing evasive manoeuvre, using the fire-hoses,

²⁰³ US Navy, Office of Naval Intelligence, *Horn of Africa: Threat Factors for Commercial Shipping and Forecast of Pirate Activity through 2009*, obtained through mailing list “NCAGS Shipping Industry SME; Weekly Relevant News Notes 21-30Sep2009,” email from USN Commander Kurt Birkhahn. US Navy, “CMF Issues New Alert to Mariners,” *Defence Talk*, (8 April 2009) <http://www.defencetalk.com/combined-maritime-forces-issues-new-alert-to-mariners-17437/>; Internet; accessed 11 December 2009. US DoT, *Maritime Advisory* http://www.marad.dot.gov/documents/MARLO-Bahrain_Press_Release_1-8-09.pdf; Internet; accessed 11 December 2009.

²⁰⁴ US Navy, Maritime Liaison Office (MARLO), *MARLO Newsletter* Volume 1, Issue 3 (Bahrain: October 26, 2009) www.cusnc.navy.mil/marlo.

²⁰⁵ The MSPA resembles a Shipping Risk Area (Tool 115), and the IRTC is equivalent to a NCAGS route or area for accompaniment (Tool 118) as per ATP-2 Volume 1.

barbed-wire, and warning flares.²⁰⁶ This information is made available by reaching out to the civilian shipping organisations, government and other stakeholders to raise awareness, gain support, inform of the latest threat, and recommend preventive measures.

Shipping companies are increasingly recognizing the value of thorough pre-sailing preparation and cooperate with the military by reporting positions to NCAGS organisations.²⁰⁷ Security and financial considerations are carefully weighed against the shipping contract.²⁰⁸ In general, shipping companies prefer not to use escorts or private security companies, but would rather have military personnel on board than group transits (escorts), and do make the effort of regularly training their crew on security measures before sailing in risk areas.²⁰⁹ In January 2010, Danish shipper Moller Maersk hired a warship from a local country to protect its ships.²¹⁰ The information posted on Internet sites by military organisations is read by the maritime trade community and remains a

²⁰⁶ These best practices are on the IMO website at http://www.imo.org/includes/blastDataOnly.asp/data_id%3D25976/1334.pdf; Internet; accessed 14 March 2010.

²⁰⁷ As mentioned by Lt(N) Henry, the NSC receives dozens of FORMAT ALFAS and ship email daily. The Maritime Executive. “Updates on Seafarer Training” (10 December 2009) <http://www.maritime-executive.com/pressrelease/updates-seafarer-training-uk-user-meeting/>; Internet; accessed 11 December 2009. In addition to Intertanko, the French shipping company Louis Dreyfus Armateurs also requires its ships to register with UKMTO and MSCHOA, as indicated in the NSWG Minutes (25 June 2009): 7.

²⁰⁸ Piracy has had an impact on shipping contracts, as illustrated in Intertanko’s initiative to share a piracy clause with other shipping companies to allow for delays in reaching the destination in case of using military escort, changing route to avoid a risk area, adjusting speed and course to avoid pirate attacks, or using personnel for piracy prevention, which may slow down normal operations. *Intertanko Provides Model Piracy Clauses*, Press Release, (5 February 2009) www.intertanko.com/upload/P'rlse%20piracy%20clauses%202.09.doc; Internet; accessed 11 December 2009.

²⁰⁹ NSWG Minutes (25 June 2009): 8.

²¹⁰ US CENTCOM, NCAGS Det C, *NCAGS Shipping Industry SME Relevant News Notes 28 December 2009 to 4 January 2010*, email from USN Commander Kurt Birkhahn.

powerful method for keeping ships safe, building trust and enhancing cooperation for the naval commander.²¹¹

Achieving the Objective and Mission Success

Continued exercise deployments with NATO and PACIOSWG, creation of permanent intelligence positions at the MSOCs using NCAGS skills, and sending Canadian personnel to the NSC in support of NATO and Canadian operations appears to indicate that NCAGS is gaining some momentum as a maritime capability.²¹² Although Canada is committed to providing four NCAGS units were NATO to activate NCAGS, the implementation of traditional NCAGS to a pure doctrinal level is unlikely.²¹³ The on-going efforts to update the doctrine, modernise the terminology, make the Toolbox more flexible and, most telling, the lack of activation of NCAGS in view of the on-going piracy crisis using NCAGS tools in everything but in name, are a indication that the capability lacks visibility and requires further adaptation to meet the requirements of commanders managing threats and situations brought upon by the COE.

Refining NCAGS as a Resource

Ensuring the adequate level of competence in a staff is an individual responsibility and that of leadership. Investment in people demonstrates confidence in one's staff, provides them with the tools to be flexible and to make the correct decision on their own when required. "The time to learn is not when the trigger is about to be pulled, but during the countless hours invested in mastering skills and honing their use in a broad and ever-

²¹¹ SNMG2, *News Release* (16 March 2010).

²¹² In addition to the 2009 deployments, the confirmation of NCAGS operational deployments added to the Canadian Forces Task Plans and Operations (CFTPO) as of summer 2010 was provided by LCdr Manu-Popa in an interview 25 March 2010.

²¹³ Canada's commitment to NATO is elaborated in AAP-8, 2B-4 - 6.

expanding number of situations and scenarios.”²¹⁴ Leadership shapes the capability and allocates funding and resources; the same authorities are responsible to take the time to verify that the outcome meets their expectations and requirements.

The NCAGS capability, as a contributor in a balanced naval effort, takes its strength from the expertise of its personnel through analysis skills, knowledge and experience, and less on assigned equipment such as submarines and helicopters. Investment in the NCAGS capability takes many forms:

- in-class instruction,
- sea time onboard merchant ships or military platforms,
- lectures by subject matter experts,
- familiarisation visits with maritime security partners,
- port visits,
- deployments to the NATO Shipping Centre (NSC),
- deployments to MSOCs and other military organisations, and
- participation in national, NATO and PACIOSWG exercises.

The challenge becomes finding the most efficient means to keep the NCAGS tool sharp and ready to use when government requires such services. The quality of training and resulting professional skills of Canadian NCAGS officers are praised by NATO and PACIOSWG partners. The Canadian NCAGS Advanced course has attracted foreign participation, and has been taught for the US Navy by Canadian NCAGS officers.²¹⁵

²¹⁴ USN Commander (retired) Kirk Lippold, former Commanding Officer of the USS Cole during the attack in Yemen, “Leadership Saves Lives” *Proceedings* Vol 135/5/1,275 (May 2009): 40.

²¹⁵ In March 2010, LCdrs Manu-Popa, Barnett and MacDougall were invited by the US Navy to conduct the Canadian NCAGS Advanced course for USN officers at the Global Maritime and Transportation School (GMATS) in Kings Point, New York, on the US Merchant Marine Academy campus.

Full time employment opportunities in the NCAGS sub-specialty are scarce but proportional to the small number of PRes Int Sea officers.²¹⁶ These include allocated training positions at CFFS(Q) (up to six), and staff officer positions at CMS (one), MARLANT (two) and MARPAC (two).²¹⁷ There are few part time employment opportunities within the 24 Naval Reserve Divisions (NRD), and the NCAGS/Int Senior Staff Officers, Regional Readiness, responsible for CRR training of PRes Int-Sea personnel in their area.

Using the NCAGS Skills in Operations

Although organizations such as the US MARLO and UKMTO have been providing NCAGS services to their navies since the 9/11 events, the requirement for protection of merchant shipping in a given risk area was given a tremendous visibility by the 2008 increase in hijackings. Canada did participate in the NATO NCAGS counter-piracy effort in small increments due to sizable staff work on the part of the permanent PRes Int-Sea staff. In October 2008, Lieutenant-Commander Nicholas Smith, already on-site at the NSC for a NATO exercise, was authorized to extend his stay in Northwood by a week to assist in drafting NCAGS concept of operation and other fundamental documents initiating the NCAGS portion of OPERATION ALLIED PROVIDER. Later, in spring 2009, Commander Margaret Therrien, then MARLANT Staff Officer NCAGS, was able to send four officers to the NSC in varying timeframes as augmentation for OPERATION

²¹⁶ The 2009 PRes Int Sea Concept of Employment details employment opportunities as approved by the Chief of the Maritime Staff. On a total of 209 PRes Int Sea Officers, 133 are NCAGS qualified and 117 are Basic Intelligence Officer Course qualified. Source: Lt(N) Claude Cormier, Naval Reserve Headquarters, N11 Staff, Career Manager Intelligence Logistics, Music, Padre.

²¹⁷ A PRes Int-Sea position existed at NORAD until summer 2009 when the position at was closed.

ALLIED PROTECTOR. “It was a major challenge back here in Canada.”²¹⁸ Canada was the only nation to initially answer the request and was “highly praised for this response.”²¹⁹ This successful operational participation is still largely unknown within the Canadian NCAGS community. With this lack of awareness at the stakeholder level, it would be difficult to expect Canadian naval leadership to recognize these commendable performances illustrating the successful exploitation of NCAGS capabilities.

In the UK, NCAGS has been renamed Maritime Trade Operations (MTO). One can only agree that NCAGS does little in the way of marketable acronyms.²²⁰ This re-baptism came along with strong coordinated initiatives to reach out to the maritime shipping industry with a consistent message of government cooperation across departments (mainly Transport, Justice and Defence).²²¹ Information sources, contact details to reach government officials, and an invitation to provide shipping data are widely disseminated on these government websites, cross-referenced, and regularly reviewed for consistency and accuracy. The UK initiative was given a boost in December 2009 when, during a SHADE meeting, UKMTO was chosen as the central ship reporting authority for every organisation and nation involved in the Somalia counter-piracy effort. The UK centre

²¹⁸ Jurisdictional issues between the Force Generator (Chief of the Maritime Staff) and Force Employer (Canadian Expeditionary Force Command) generated confusion and delays for this unconventional request. Commander (retired) Margaret Therrien, Interview notes (7 December 2009).

²¹⁹ Canada’s recognition appears in a June 2009 NSC Newsletter, http://www.shipping.nato.int/NATOShippi0/ArchivedNe/NSCMonthly1/file/_WFS/NATO%20Shipping%20Centre%20June%2009%20monthly.pdf; Internet; accessed 28 March 2010. Also, Commander (retired) Margaret Therrien, Interview notes (7 December 2009).

²²⁰ Australia and New Zealand are also re-naming their NCAGS organizations to MTO (Source: AAP-8).

²²¹ Some of these websites presented include an example from the shipping industry (Chamber of Commerce): <http://www.british-shipping.org/British%20Shipping/liaison> from the Navy: <http://www.pomorci.com/Propisi/80-100/UKMTO%20-%20Merchant%20Vessel%20Voluntary%20Reporting%20Scheme.PDF> and from Hydrographic Offices: <http://www.ukho.gov.uk/Defence/AWNIS/Pages/Home.aspx>; Internet; accessed 24 January 2010.

receives over 200 ship reports (FORMAT ALFA) daily, which are shared with other international organisations whose jurisdiction also cover the Arabian Gulf, Red Sea, Horn of Africa and Iraq.²²² The UK MTO/NCAGS effort in the Middle East has endured since October 2001 and is recognised as a growing success.

The US has an active reserve NCAGS component, full and part time, with detachments around the country, involved at CENTCOM, with CMF, NATO and other shipping-related efforts. To protect humanitarian shipping in Haiti and control shipping in the vicinity of naval vessels, the US launched a NCAGS maritime deconfliction efforts in February and March 2010.²²³ In addition to DoT MARAD, USCG, US Navy and other information initiatives to reach out to commercial shipping (again mainly through websites and *communiqués* to the industry), there has been noted national investments in technology (such as AIS) to improve the RMP and government-to-ship communications, and the initiation of major collaborative organisations.²²⁴

Conclusion

For a naval commander tackling a crisis in his AOR, understanding the intricacies of commercial shipping is not necessarily the top priority. Carrying on with the mission,

²²² United Kingdom, Royal Navy, *Merchant Vessel Voluntary Reporting Scheme*, UKMTO Information leaflet, <http://www.pomorci.com/Propisi/80-100/UKMTO%20-%20Merchant%20Vessel%20Voluntary%20Reporting%20Scheme.PDF>; Internet; accessed 24 January 2010.

²²³ The MARAD advisory, in a fairly doctrinal language, indicated that NCAGS “may direct the movement of merchant ships (...) [to protect them] from hostilities (sic) and not interfere with (...) naval, joint or combined military operations.” The advisory language is weighted more on military operations than protection of shipping, somewhat of a contrast with the NSC’s counter-piracy advisories. There is no mention that mariners would receive information in exchange for their report, as per traditional NCAGS procedure. http://www.marad.dot.gov/news_room_landing_page/maritime_advisories/advisory/advisory2010-01.htm; Internet; accessed 25 January 2010.

²²⁴ USCG, DoT and US Navy websites have many examples of technology and collaborative outreach initiatives.

out-smarting the enemy, allocating resources to tasks, and keeping his own ship and crew safe use much of his energy. Container carriers, pleasure crafts, fishing vessels, ferries, tugs and so on are that many more tracks to deconflict in the RMP. Although reliance on technology for threat detection may suggest that finding the target is as simple as watching the red dot on the radar, those who have worked in such positions understand that it seldom is. Considering the potential economic and political repercussions of incidents involving civilian shipping, and the preponderance of maritime trade in the COE, one may think that the commander would have on his team of advisors a resident maritime trade expert. In the Canadian Navy, few commanders have had the opportunity to use this capability first hand.

This chapter illustrated the NCAGS contribution to maritime security through four components. First, the traditional aspect of *Protecting Merchant Shipping* concluded that regardless of the threat and resources available, ships are business entities willing to take risk and preferring to revert to their own means to provide security. Naval-merchant shipping cooperation intrinsic to NCAGS allows ships to sail through a crisis area safely and on schedule, catering to the commercial incentive. Self-protection best practices tailored to the threat available through the Internet and other popular communications methods often remain the best means of protection for merchant shipping. NCAGS' exchange of information with merchant ships is a force multiplier recognised by coalitions and nations involved in NATO, MSC HOA and other operations involving maritime trade.

Second, *Advising the Naval Commander* illustrated that a NCAGS officer on the commander's staff complements expertise from other capabilities by adding a translator who can explain the intricacies of the commercial shipping community. The NCAGS capability brings an understanding of merchant shipping and a set of management Tools to deconflict legitimate shipping from military operations, and decrease the resource requirement to pinpoint the shipping threat. The NCAGS operational integration in other navies was highlighted along with the slow but steady gains in credibility NCAGS is making in Canada.

Third, *MDA* was defined with its components, highlighting the advisory staff's contribution in analysing specific facets of information and building the commander's battlespace visualization. JIMP partnerships and collaborative work are trust-building tools increasing information-sharing efficiency in the maritime domain. Building trust multiplies the number of merchant ships voluntarily participating in NCAGS, providing ship and voyage data, and reporting suspicious information, decreasing the navy's ISR requirement. NCAGS as the "interface between the navy and the maritime trade community" has been suggested as a start point for maritime CIMIC, emphasizing collaborative work (vice current land theatre concept) and information sharing. Developing an in-depth understanding of the maritime domain components through its maritime trade expertise enable NCAGS staff to detect anomalies and threats hiding "in plain sight."

Finally, *Accomplishing the Mission* looked internally at the importance of going beyond the limited doctrine for a flexible implementation of NCAGS Tools coordinated with

other warfare areas to support the Commander's tasks. The significance of collaborative work with JIMP partners in achieving mission success was outlined, along with the importance of providing venues for keeping skills sharp and ready to respond when required. Maritime collaborative work was illustrated through current examples, along with white picture management efforts in on-going operations and international successful practices to date.

The Booth Triangle defines three naval roles that stand the test of time: navies defend their nation, keep their people safe from threats; navies protect their country's economy and living conditions by keeping sea lanes of communications (SLOCs) open and safe; and navies are the force of last resort ready for action around the world when civilian powers can no longer handle the situation. Where the Navy is present, there will most often be merchant ships and a requirement to collaborate with the maritime trade industry. Generating an understanding of such maritime trade activities and being an active contributor to MDA in an area of interest becomes the main focus of NCAGS. Such trained staff is the Commander's source of expertise on shipping issues when comes the time to route ships around piracy zones, evacuate civilians out of a crisis area by contracted sealift, prevent ships smuggling goods or people out of a interdicted region, or simply participating in the monitoring of activities to assist in the prevention of environmental, sovereignty, criminal or commercial infringements. NCAGS has promoted collaboration between the navy and merchant shipping since its inception; it is well positioned to be at the forefront of naval JIMP collaboration in the COE.

CONCLUSION

“As for trade protection, it was partially severed from naval intelligence in 1950 when it was relocated in to the Directorate of Naval Plans & Operations (DNPO) (...). After unification in 1968 trade protection would continue as a responsibility of the operations staff within Maritime Command and continued to rely on naval reservists as the basis of a wartime organization.”

Trade Protection and Intelligence: Royal Canadian Navy 1910-1968. John Roach²²⁵

This paper demonstrated, through selected definitions, theories and case studies, that Naval Cooperation and Guidance for Shipping (NCAGS), although not fully exploited in Canada, is a small and relevant capability contributing to national maritime security. Incidents and issues such as the melting Arctic and piracy in Africa are getting navies regular press around the world, gaining momentum in public awareness. Such events are also presenting new opportunities to optimise the use of NCAGS' commercial shipping expertise within the Navy.

The Canadian Navy has led and contributed to activities such as the 2010 Vancouver Winter Olympics and the Marine Security Operations Centres (MSOCs) at home, protected humanitarian aid ships in East Timor, and hunted terrorists and pirates with organisations such as Combined Maritime Force's (CMF) CTF 150 and 151. These contributions to maritime security are collaborative efforts alongside government agencies, coalition partners, industry stakeholders, and various participants in the Joint, Interagency, Multinational, Private (JIMP) team. The navy-maritime trade collaboration requirement of the Contemporary Operating Environment (COE) has evolved from that

²²⁵ John Roach, 54.

of the First and Second World Wars and post-Cold War period. It has highlighted new angles for trade protection and military-civilian cooperation and surveillance, bringing back aspects of the original association between NCAGS and intelligence and refining its contribution to contemporary operations.

Historic origins of Trade Protection in the Canadian Navy are illustrated in Chapter 1.

The Royal Canadian Navy (RCN), from its inception in 1910, was charged with protecting sovereignty and defending trade. Within a few years, shipping would gather in harbours such as Montréal and Halifax to sail as convoys escorted by naval vessels and bring vital resupply cargo and personnel for the Great War. Naval Control Services were tightly linked with intelligence to plan routes and schedules of up to a hundred ships at a time, endeavouring to predict U-boat positions and intent. As technology and procedures evolved, the intelligence-trade control information gathering and analysis cycle was refined and solidified. The end of the Second World War and Cold War brought changes to the COE that impacted the priority given to Naval Control of Shipping (NCS) in naval operations, with the probability of convoys and the legal ability to control shipping decreasing, and NCS being transferred under Operations.

Defining NCAGS highlighted the preponderance of collaboration between naval and civilian stakeholders of the maritime environment, with NCAGS as an enabler.

Participation in surveillance and translation of merchant trade intent into effects in the COE for the maritime commander were additional benefits to the employment of this capability. The elements of the definition meet the requirements set in *Canada First*, *Leadmark*, and *Securing an Open Society*, describing NCAGS as an adaptable maritime

capability, flexible, interoperable, and rapidly deployable for domestic and international contingencies. Current legislative challenges for information exchange and jurisdiction definition between government departments have created challenges to proactive security initiatives for domestic operations. DND and partner agencies work efficiently together in crises in the domestic theatre, but the law hinders many aspects of contingency planning due to restrained information sharing to protect privacy. Regardless, collaboration continues at its own pace through initiatives such as the National Recognised Picture and the Marine Security Operations Centres under the mandate of national policy. The use of Primary Reserve Intelligence Officers with NCAGS skills in expeditionary and domestic operations allows exploring new means of exploiting the merchant shipping expertise to fulfil defence and security missions.

Chapter 2 illustrated that NCAGS as the “interface between the Navy and merchant shipping” goes further than complementing RMP data. Through four conceptual blocks, facets of NCAGS traditional and emerging capabilities were presented. First, protection of shipping illustrated NCAGS’ lack of assets available for show of force, using instead information exchange to keep participating merchant ships safe. The information provided enable captains to be prepared for the threat at hand when sailing dangerous waters. Current multinational operations have demonstrated the success of this method, as military escort and patrol assets are hardly in sufficient numbers to cover the area of responsibility and provide safety against the threat. The exchange of information provides merchant captains with valuable details to prepare for the voyage. It also provides NCAGS, hence naval forces, with details of shipping transiting the area of operation that may not otherwise be available through the surveillance and data gathering

effort feeding the Recognized Maritime Picture (RMP) and contributing to Maritime Domain Awareness (MDA).

Second, advising the commander illustrated how providing the maritime commander with an enhanced understanding of his operational environment requires a variety of advisors with a breadth of expertise covering the many aspect of MDA. White picture management is a crucial part of naval operations, where NCAGS contributes in bringing answers to the *why* rather than simply the *who* of maritime activities. Bringing accurate translations of maritime trade behaviours enhancing the commander's MDA is the fruit of years of practice. Experience is developed through collection, research and interpretation of a range of maritime trade information, and then refined through training, exercising and cooperating with international NCAGS partners. The Awareness aspect of MDA raises information to a greater understanding of the maritime theatre's multiple components. Confusion of MDA with RMP by those less familiar with NCAGS can result in the association of the capability solely with tracking ships.

Third, there will always be a need for human eyes to qualitatively evaluate and interpret the data provided by sensors and other sources, and for a breadth of expertise to filter such interpretation into contribution to MDA. Although it uses little military technology, NCAGS also relies on its role as civilian-military liaison for its information collection. Collaboration with civilian actors was described as a considerable factor in achieving the mission in current and future operations. The January 2010 Haiti earthquake, on-going counter-terrorism efforts and Gulf of Aden piracy crisis illustrate this almost constant presence of maritime trade stakeholders in the COE. Information skilfully filtered

through experience to assist in white picture management make NCAGS a potential partner along other warfare areas assisting the commander in accomplishing the mission.

Finally, in accomplishing the mission, the NCAGS capability was illustrated through its adaptation to better fit objectives and requirements, bringing valuable maritime trade advice, translating shipping patterns into effects on naval operations, and assisting in unmasking vessels “hiding in plain sight” before a crisis arises. NCAGS has to earn its bunk on the ship. NCAGS liaison with the merchant shipping community and collaboration with JIMP partners were illustrated as an intricate part of already set doctrinal duties and requirements. The NCAGS Shipping Cooperation Points (SCPs) and Briefing Teams were established as the tactical foot on the ground who accomplish much of the required collaboration with port and canal authorities, ship owners and operators, shipping agents, pilots, and other stakeholders who find interest in working with naval representatives. The implied suggestion for maritime civil-military cooperation (CIMIC) through NCAGS, although somewhat blurred with information collection such as HUMINT, takes root in the original general concept vice the understanding of the doctrine currently linked with the land theatre.

EXERCISE BELL BUOY 1999, OPERATION APOLLO (2002-2003), deployments to the NATO Shipping Centre and some of the positions in the MSOCs have demonstrated the potential force-multiplying effect of NCAGS. Asymmetric and conventional threats influence acquisition, the Navy’s organizational structure, and skills required to ensure effective participation in Canadian maritime security and defence.²²⁶ Maintaining the

²²⁶ Chapter 1 suggested the establishment of an MSOC North in view of growing activities in the Arctic.

momentum brought by the humble successes of years past has proven a challenge to the small staff in trying to convince the leadership of NCAGS' worth.

The NCAGS capability is cheap, deployable in a blink to meet CMF and other international commitments, and brings praises during international NATO and PACIOSWG exercises. US, Australia, UK, Norway, Sweden, Spain and Singapore - to only name a few - are using NCAGS in domestic and expeditionary operations in support of maritime policy and have for many years. The Canadian Navy's humble strides in domestic and expeditionary NCAGS complement existing security capabilities, fit in national security policy and help keeping Canadians safe. As Dr. Gimblett wisely reminds us, no threat is ever "too remote to consider seriously."²²⁷ Pursuing the current development of NCAGS by further exploiting its potential is sure to provide Canadians with a contribution to maritime security from which partner nations are already benefiting. Although not a favourite topic in many naval circles, trade protection and shipping control have substantially changed through the last decades while remaining part of the naval missions, in one form or another, dealing with good and bad ships.

The quote at the start of this conclusion illustrates an interesting return to historical roots where for decades, trade control and intelligence both evolved in close tie to support naval requirements. As NCS was detached from intelligence (N2) and increasingly associated with operations (N3), its usefulness was questioned, especially after the Cold War, when the threat was redefined from traditional grey hulls and submarines to a variety of potential foes that included the civilian vessels which until then were a precious assistance to re-supply the war effort. As military partners around the world

²²⁷ Gimblett, OPERATION Apollo, p. 14.

were restructuring under social, economic, technological and political pressure, every single capability was carefully measured as per its contribution to the effort in the COE. On this side of the Atlantic, Canadian military leadership had the wisdom to re-link NCAGS with intelligence sometime around 2000. The progress to date, illustrated in this paper, has proven the concept. Much work remains to be done.

ANNEX A - SOURCES CONSULTED

The following personnel contributed to this paper through interviews (face-to-face and telephone) and email exchanges. The title indicated is that at that time of interview.

Captain (Navy) Josh Barber	Director Intelligence Capabilities, Chief of Defence Intelligence
Captain (Navy) Dermot Mulholland	Director of Maritime Policy, Operations and Readiness, Chief of the Maritime Staff
Commander Shawn Osborne	Commandant, Canadian Forces School of Military Intelligence
Commander Ted Parkinson	J2X, Chief of Defence Intelligence
Mr. Douglas Bancroft	Director General, Canada Centre for Remote Sensing, Natural Resources Canada (also Commander Bancroft, N34 Special Advisor Formation Operational Readiness, Naval Reserve Headquarters)
Commander (retired) Margaret Therrien	Senior Staff Officer NCAGS, Maritime Forces Atlantic
Lieutenant-Commander Dan Manu-Popa	Staff Officer NCAGS-ISR, Directorate of Maritime Policy, Operations and Readiness, Chief of the Maritime Staff
Lieutenant-Commander Donna Barnett	Commander, NCAGS Unit 1, Fifth Maritime Operations Group
Lieutenant-Commander David Mercer	Intelligence Division Commander, Canadian Forces Fleet School (Québec)
Lieutenant-Commander Nicholas Smith	Operations Officer, NCAGS Unit 3, Fifth Maritime Operations Group and member of the intelligence staff for OP PODIUM
Lieutenant-Commander Ian Cook	Coordinator, MSOC East
Lieutenant-Commander (retired) Darin Bertrand	Chief Marine Security Operations, Transport Canada (and Intelligence Officer during EXERCISE BELL BUOY 1999 ashore in Bahrain.)
Lieutenant Navy Jennifer Henry	Civil Maritime Analyst, MSOC East
Lieutenant Navy Claude Cormier	Naval Reserve Headquarters, N11 Staff, Career Manager Logistics, Intelligence, Music, Padre
Mr. Jacques Vallerand	Senior Security Inspector Vessels, Transport Canada

ANNEX B - NCAGS TOOLBOX

101	Issue OPTASK NCAGS
102	Establish NCAGS Area
103	Establish Communications Reporting Gates (CRG)
104	Liaise with merchant shipping community
105	Conduct Open Source information collection
106	Conduct focussed information collection
107	Establish communications with merchant ships
108	Collect merchant ship information and voyage data (Format A)
109	Submit merchant ship data to the RMP
110	Spare
111	Assist in the deconfliction of merchant ship movement and military operations
112	Brief merchant ship masters
113	Establish NCAGS Unit
114	Establish Shipping Co-operation Points (SCP)
115	Establish Shipping Risk Areas (SRA)
116	Deploy NCAGS Liaison Officers (LO)
117	Provide merchant ships with Sailing Information (SI)
118	Recommend and facilitate accompaniment of merchant ships
119	Facilitate dispersal and emergency movement
120	Provide NCAGS services to Crisis Response Shipping (CRS)
121	Recommend and facilitate lead-through
122	Generate routes for NCAGS purposes
123	Produce navigational safety warnings using WWNWS or AWNIS
201	Mandatory routing for merchant ships
202	Conduct convoy operations

Source: NATO ATP-02(B) Volume I²²⁸

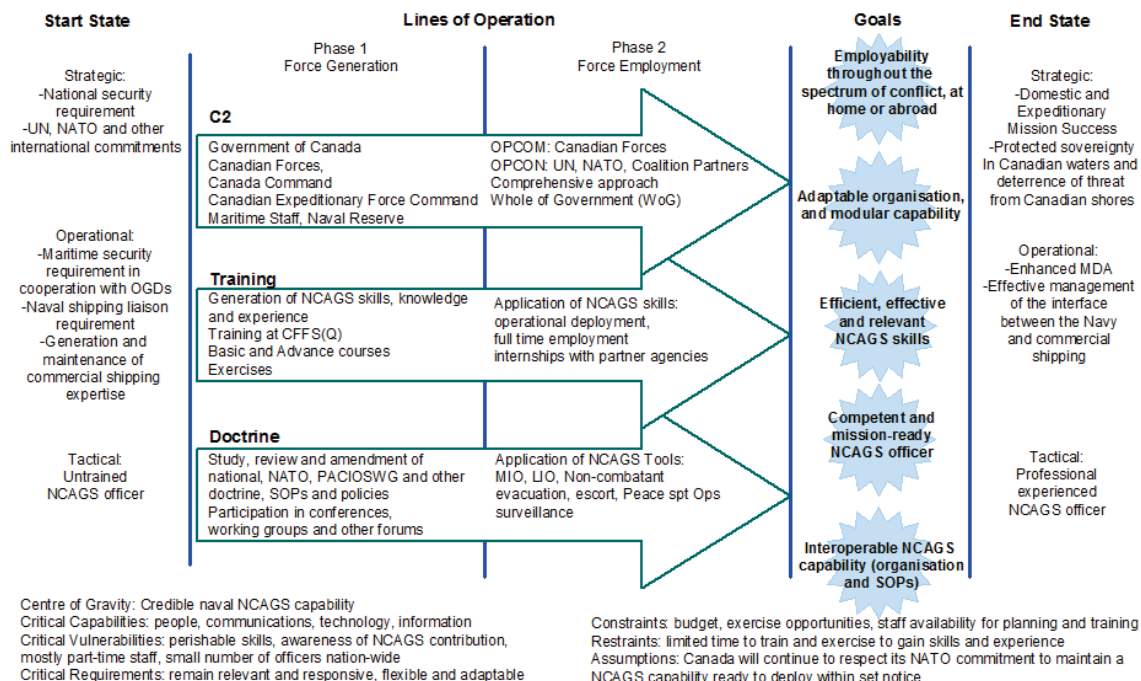
²²⁸ The 100-series tool can be implemented by the commander while the 200-series require North Atlantic Council (NAC) and Defence Planning Committee (DPC) authority when operations are under a NATO mandate. Tools and capabilities directed by the commander would be implemented through the NCAGS OPTASK formatted message (APP-11).

ANNEX C - NCAGS CAMPAIGN PLAN

The campaign plan illustrated below is a recommended view to generate and maintain NCAGS skills within the PRes Int Sea military occupation.

NCAGS Campaign Plan

Mission: The Canadian Naval Reserve is to generate a competent, adaptable and relevant NCAGS capability to provide augmentation for domestic and expeditionary CF operations across the range of conflicts



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