AUSTRALIAN MARITIME DOCTRINE

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RAN DOCTRINE 1 2010

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Foreword

Australian Maritime Doctrine is the Royal Australian Navy's (RAN) capstone work of doctrine. It is a guide to understanding the unique nature of the RAN's contribution to Australia's national security and how the Navy goes about its business. This book brings together the key concepts and themes of sea power, places them in an Australian context and explains them in a clear and straightforward fashion. Equally important, it lays out the ways in which the RAN operates as part of a joint and integrated Australian Defence Force (ADF) to accomplish the maritime security goals set by the Australian Government.

Much has happened in the maritime domain over the decade since the first edition of *Australian Maritime Doctrine* was released. There is now far greater awareness of the need for international cooperation when it comes to dealing with the complex threats facing the operation of the global system of commerce and security. The launch of the United States led Global Maritime Partnership concept and the introduction of the Proliferation Security Initiative are just two recent examples of this trend.

Notwithstanding these changes, the RAN's doctrinal principles as established in *Australian Maritime Doctrine* are enduring. This second edition builds on the solid reputation established by the first and seeks to refine rather than rewrite. It has been written to appeal to the widest possible audience, not only those within the Navy and the ADF, but also to all those who have responsibilities for or are interested in Australia's national security and its instruments. The high quality of the discussion provides further evidence that the RAN has developed a deep understanding of global maritime affairs and that its doctrinal development remains of an international standard.

Australian Maritime Doctrine provides an authoritative guide to current naval thinking and is thus a vital component of the training and education of all the RAN's men and women. It is fundamental to improving our knowledge of ourselves and our Service, and likewise a key element in our work to ensure that all Australians understand better the continuing importance to their nation of the sea and sea power. I expect all the members of the RAN to read *Australian Maritime Doctrine*, and I urge them to discuss its contents with each other, with other members of the ADF and with the Australian public. The better informed we all are, the better able we will be to confront the strategic, social and technological challenges of the future.

I commend this second edition of *Australian Maritime Doctrine* to you, but just as our Service evolves to meet new challenges, so too will our doctrine continue to change and develop. Your thoughts on how these changes should be incorporated into future editions of this book are extremely important, and I encourage every reader to take advantage of the invitation to contribute provided on the last page.

Navy - Serving Australia with Pride.

VICE ADMIRAL Russ Crane, AO, CSM, RAN

Chief of Navy

1 March 2010

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Executive Summary

The first edition of *Australian Maritime Doctrine* was published in 2000 and immediately initiated widespread acceptance of the strategic precepts it contained. This second edition aims to build on the achievements of the first, but like its predecessor it still seeks to describe the importance of the sea to all Australians and sets out the Royal Australian Navy's (RAN) unique place within a joint and integrated Australian Defence Force (ADF).

Australian Maritime Doctrine is designed to be read in logical progression. First, it provides the theoretical background to the nature and potential of sea power. It then demonstrates the linkages between this broader maritime foundation and our shifting national strategic circumstances and evolving strategic policy. By the final chapter the reader should be familiar with how the RAN thinks about, prepares for and operates across the possible spectrum of operations. At a fundamental level this book explains what the RAN does and why or, more prosaically, how maritime operations contribute to the overall ADF effort to protect Australia's sovereignty, interests and values.

At the philosophical level, the key strategic concepts of *Australian Maritime Doctrine* continue to be sea control, sea denial and maritime power projection. These concepts are defined and explained in Chapter 8, while the unique characteristics of sea power, which enable these strategic concepts to be applied in maritime operations, are then discussed in Chapter 9. These operations, in turn, will reflect one or more of the wide range of maritime roles and tasks which are described in Chapter 10. The 'triangle of sea usage' first appeared in the 2000 edition of *Australian Maritime Doctrine*, and is reproduced here in an amended form as Figure 10.1. The diagram remains as an extremely useful means to describe the interrelationship between the three key roles of maritime forces: military, diplomatic and constabulary. It should nevertheless be remembered that these roles and their subordinate tasks are illustrative only, and are not intended to reflect every situation or operation that may be encountered.

Throughout *Australian Maritime Doctrine* much emphasis is placed upon ways in which naval forces support and enable operations ashore, just as air power and land forces contribute to the Navy's efforts at sea. One of the most important elements of the text, however, is the continuing prominence given to the absolute dependence of RAN capability upon the people who serve in and support the Navy.

Chapter 1:

Understanding Maritime Doctrine explains the origins and nature of Australian maritime doctrine. It demonstrates that doctrine is a key element of Navy's capability, derived from hard-won national and international experience. It shows how the RAN's doctrine fits within that of the ADF as a whole and how it complements the doctrine of the other services.

Chapter 2:

The Human Factor explains the dependence of all naval capabilities upon the men and women who make up the RAN and its supporting organisations. This chapter explains the elements of naval command and leadership. It describes the unique nature of service at sea and the mechanisms by which personnel are prepared for the challenges they face, both as individuals and as the members of a ship's company. It explains the way in which mission readiness is achieved and maintained and combat stress is managed. It reiterates the importance of the RAN's core values and how these contribute to the Navy's professionalism and effectiveness.

Chapter 3:

The Sea describes the physical, economic and social factors which define Australia's relationships with the maritime environment. It illustrates how Australia is an island continent in a maritime region. It explains the importance of the sea for access and transportation for the Asia-Pacific region as a whole as well as making clear Australia's economic dependence upon seaborne imports and exports. It demonstrates the extent to which our national security is affected by unique problems of distance and scale and at the same time highlights the need to preserve and protect our natural environment. This chapter also explains the need for knowledge of the environment and the ways in which hydrography, oceanography and meteorology function as enablers for the operations of maritime forces.

Chapter 4:

The Legal Context describes the vital relationship between maritime affairs and international law. It illustrates the extent of our maritime jurisdiction and the complexities and anomalies inherent to maritime regions. It introduces the general principles of the Law of Armed Conflict and naval warfare.

Chapter 5:

Strategic Policy outlines the nature of Australia's national security policy and proceeds from this to explain Australia's strategic environment and its abiding strategic interests. Australia's strategic characteristics and the influence of history on our national outlook are described. The importance of naval capabilities in achieving all the aims of Australia's maritime strategy is emphasised.

Chapter 6:

The Spectrum of Operations explains the concept of the Spectrum of Operations and the ways in which changes in the nature of conflict are affecting maritime operations. It shows how effective navies must possess balanced forces and be prepared to face a wide range of contingencies.

Chapter 7:

The Features of Armed Conflict details the character of armed conflict in the modern world. It sets out the ten Principles of War used by the ADF and gives examples of their importance from the RAN's own experience of conflict.

Chapter 8:

Maritime Strategic Concepts analyses the origins of maritime strategic thought and the relevance of maritime strategic concepts today and tomorrow. It sets out the principal objectives of naval forces in conflict. It makes clear that the ability to use the sea and deny its use to an opponent - known as sea control - is fundamental to maritime nations such as Australia in achieving their strategic goals. This chapter shows that sea control is also critical to the effective projection of power in a maritime environment, particularly when the sea is being used to transport or support land forces.

Chapter 9:

Maritime Operational Concepts explains the relationships between land forces, sea and air power. It defines the unique characteristics and attributes of sea power and the contribution which it can make to joint operations. The mobility, flexibility and adaptability of warships, their access and reach and their ability to poise, as well as the capacity of ships to transport a critical mass of combat power over long distances provide many options for political and strategic decision makers across a wide range of contingencies. This chapter also explains the potential limitations of sea power and the way in which it is complemented by the strengths of other forces. It sets out the means by which an effective joint approach can achieve manoeuvre from the sea.

Chapter 10:

Maritime Operations describes the many different ways in which maritime forces can be used. It explains that the roles of maritime forces depend fundamentally upon their warfighting capabilities but also shows the extent to which those capabilities confer on government the flexibility to forward the aims of foreign and domestic policy.

Chapter 11:

The Enablers of Sea Power describes the ways in which the structure and organisation of the RAN support its ability to raise, train and sustain effective forces. It sets out the components of maritime logistics and shows how the Navy is dependent upon effective relationships with national industry as well as other parts of the Australian Defence Organisation in achieving its goals.

Chapter 12:

The Constituents of Maritime Combat Forces explains how maritime forces are organised by task. It shows the contributions which are made to maritime operations by all major systems and platforms within the ADF and how the capabilities of units are combined to achieve the greatest effects. It shows that true flexibility in the maritime environment is dependent upon the ability to make such combinations from among the various types of naval forces, together with appropriate land forces and air power.

Chapter 13:

Maritime Campaigning details the principal factors in planning and executing a maritime campaign. It explains the considerations applicable to the employment of naval forces, as well as those of the air and land in the successful conduct of a campaign. It shows how the maritime environment can be exploited to achieve the operational commander's objective.

Chapter 14:

The Future Navy sets out the likely challenges and opportunities facing sea power in the future. It explores the potential implications of key technological, social and economic developments for the shape and roles of maritime forces, particularly the ways in which navies may increase their ability to directly influence events on land.

Glossary:

The Glossary includes definitions of key terms and concepts relevant to maritime operations. They are sourced from ADF doctrinal publications. Where such guidance does not exist, these definitions have been either drawn from appropriate international works or developed specifically for this volume. They are italicised on first usage in the text.

Further Reading:

Further Reading summarises the principal sources used in the development of *Australian Maritime Doctrine* and guides the reader to works on maritime strategy and maritime operations which provide more detailed assessments of these complex subjects.

Acronyms & Abbreviations

ADDP	Australian Defence Doctrine Publication
ADF	Australian Defence Force
AEW&C	Airborne Early Warning and Control
AFTI	Australian Fleet Tactical Instructions
ANMEF	Australian Naval and Military Expeditionary Force
ANZAC	Australian and New Zealand Army Corps
ANZUS	*Security Treaty between Australia, New Zealand and the United States 1951*
ARG	Amphibious Ready Group
ASW	Anti-Submarine Warfare
AWD	Air Warfare Destroyer
BPC	Border Protection Command
BR	Book of Reference
C2	Command and Control
CAP	Combat Air Patrol
CEC	Cooperative Engagement Capability
CIWS	Close-In Weapon System
CO	Commanding Officer
COMAUSFLT	Commander Australian Fleet
CS	Continental Shelf
CTE	Commander Task Element
CTF	Commander Task Force
CTG	Commander Task Group
CTU	Commander Task Unit
CW	Coastal Waters
CZ	Contiguous Zone
DDG	Guided Missile Destroyer

DSO	Distinguished Service Order
EEZ	Exclusive Economic Zone
EW	Electronic Warfare
HMAS	His/Her Majesty's Australian Ship/Submarine
HMS	His/Her Majesty's Ship/Submarine
HSK	*Handelsstörkreuzer* (commerce disruption cruiser)
INTERFET	International Force East Timor
JDP	Joint Doctrine Publication (UK)
JP	Joint Publication (US)
LADS	Laser Airborne Depth Sounder
LCM	Mechanised Landing Craft
LHD	Amphibious Assault Ship
LNG	Liquefied Natural Gas
LOSC	*United Nations Law of the Sea Convention 1982*
LSE	Logistic Support Element
LWD	Land Warfare Doctrine
MCM	Mine Countermeasures
MPA	Maritime Patrol Aircraft
MTWAN	Maritime Tactical Wide Area Network
NAG	Northern Arabian Gulf
NATO	North Atlantic Treaty Organization
NCAGS	Naval Cooperation and Guidance for Shipping
NCC	Naval Component Commander
NGS	Naval Gunfire Support
NSC	Navy Strategic Command
OTC	Officer in Tactical Command
PSI	Proliferation Security Initiative
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
RANC	Royal Australian Naval College

RAS	Replenishment at Sea	
RN	Royal Navy	
ROE	Rules of Engagement	
SAE	Service Assisted Evacuation	
SLOC	Sea Lines of Communication	
SMS	*Seine Majestat Schiff* (His Majesty's Ship) - German World War I designation	
SPC-A	Sea Power Centre - Australia	
SPE	Service Protected Evacuation	
SRR	Search and Rescue Region	
STOM	Ship to Objective Manoeuvre	
TE	Task Element	
TF	Task Force	
TG	Task Group	
TS	Territorial Sea	
TSB	Territorial Sea Baseline	
TU	Task Unit	
UAV	Unmanned Aerial Vehicle	
UK	United Kingdom	
UN	United Nations	
US	United States	
WASP	Wide Area Surveillance Picture	
WMD	Weapons of Mass Destruction	

1 UNDERSTANDING MARITIME DOCTRINE

- Maritime doctrine contains the principles by which naval forces guide their actions in support of national objectives.
- Maritime doctrine is derived from hard won national and international experience gathered over many years.
- Comprehensive maritime doctrine is a key element of the Royal Australian Navy's capability.

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THE PURPOSE OF MARITIME DOCTRINE

Military *doctrine* contains the fundamental principles by which military forces guide their actions in support of national *objectives*. It helps planners and commanders approach dangerous, chaotic and unfamiliar situations with clarity of thought. It is based on rigorous analysis and a comprehensive understanding of the history of human *conflict* and national military experience. In effect, military doctrine provides a basis for action founded upon knowledge.

Maritime doctrine is that component of military doctrine which sustains the employment of armed forces at and from the sea. This definition recognises the inherently *joint* nature of *maritime operations* and the fact that these *operations* are of use only so far as they can affect the course of a *campaign*, whether directly or indirectly. This book, *Australian Maritime Doctrine: RAN Doctrine 1*, explains the key concepts for the conduct of successful maritime operations. At a fundamental level it explains why Australia has a navy.

THE ORIGINS OF AUSTRALIAN MARITIME DOCTRINE

One of the principal themes of the Royal Australian Navy's (RAN) doctrinal experience is that for most of its history its practices have been largely international. As the Navy of a medium power, and one which had its roots in the Royal Navy (RN) and has since frequently operated as part of alliance forces, the RAN has had no need to develop its doctrine wholly from first principles. Rather more than air forces and considerably more than armies, almost all modern navies operate from a very large base of shared international doctrine, allowing a level of mutual understanding that also manifests itself at much higher levels of *command*. For example, all of Australia's allies at sea operate with *Allied Tactical Publication 1* as a standard reference when manoeuvring and communicating with each other. Most friendly navies have access to earlier but still valid versions of the same document, while those that do not are able to use an expurgated version which allows any *warship* to communicate and manoeuvre safely with another. *Replenishment at sea* is also a generally shared skill that is the

result of the extensive development, practice and dissemination of agreed allied procedures since the end of World War II. Today there are more than thirty navies with which Australian warships can safely conduct underway replenishment with little or no notice. Thus, Australian maritime doctrine is a synthesis - and not just in a joint sense - of national effort with that derived from the country's major allies and a wide range of other sources.

Replenishment at sea is a skill shared by many navies, often allowing the RAN to extend its reach and persistence beyond the limitations of our own national force structure.

A second theme of Australia's maritime doctrine is one of complexity. The fundamentals of maritime doctrine contain many different elements; components which include factors not clearly related to conflict. These range widely. One example is that there are *logistics* and maintenance procedures which combine to determine whether warships are capable of extended and wide ranging activities, or whether they must confine themselves to coastal operations. Another is that the RAN ascribes to and has developed for its own use the concepts of ship navigation and pilotage laid down within the RN's *Manual of Navigation*. These give it a capacity for operations in shallow water and within *littoral* regions that some other navies might hesitate to attempt. Thus, an activity related ostensibly to the safe passage of ships has direct implications for the Navy's *combat* potential.

Iraq War, 2003

In the lead up to combat operations against Iraq in March 2003, Australian warships consistently operated in the difficult shallow waters off the Iraqi coast while enforcing a long running economic sanctions campaign on behalf of the United Nations. By maintaining a sustained overt presence close inshore they were better able to intercept smugglers, while at the same time building up a detailed picture of local civil and military activities. This experience proved of immense value when combat operations began, allowing for better understanding of changes in Iraqi activity and movement patterns, and more effective support for coalition forces operating ashore.

THE LEVELS OF MARITIME DOCTRINE

Australian Defence Force (ADF) doctrine is a hierarchy of *capstone doctrine*, philosophical doctrine, application doctrine and procedural doctrine. Although these different levels of doctrine bear some relation to the levels of command – strategic, operational and tactical – the point at which one level is subsumed by another is rarely clear. That maritime warfare does not readily allow for clear distinctions between these levels of command further complicates the issue. Elements of procedural doctrine can have fundamental implications for every other level, just as changes in philosophical doctrine will have ramifications elsewhere.

Application and Procedural Doctrine

Application and procedural doctrine, which relate to the operational and tactical levels and the detailed mechanics of operations at sea, have a long professional history, starting with the RN's *Fighting Instructions* of 1672. The RAN employed the modern British versions of *Fighting Instructions* as a primary doctrinal source for the operational and tactical levels of warfare until well into the 1970s. Other important sources of guidance for operations and tactics were found in a range of North Atlantic Treaty Organization (NATO), United States (US) Navy and allied publications to which Australia had access. In the case of operations with the US and New Zealand under ANZUS and with Singapore, Malaysia, New Zealand and the United Kingdom under the Five Power Defence Arrangements, considerable effort has gone into the development of mutually agreed procedures and tactics. Evolution of these procedures continues, constantly validated by regular multinational exercises, and providing the basis for *coordinated multinational* and *combined operations* in the event of contingencies.

When Australia's strategic situation demanded a more self-reliant approach, the need for guidance tailored to Australian circumstances was met by the 1972 classified publication, *Australian Maritime Doctrine and Fighting Instructions*. Pared down to focus on the tactical level, this was renamed *Australian Fleet Tactical Instructions* (AFTI) in the late 1970s. Although AFTI remained under the editorial guidance of the RAN's Fleet Command, it transmuted in 1994 into *Australian Maritime Tactical Instructions*, thereby highlighting the joint nature of maritime operations and the extent to which it received Royal Australian Air Force (RAAF) and Australian Army input. The more recent issue of the comprehensive 'Australian Defence Doctrine Publication' (ADDP) series, and in particular ADDP 3.0 *Operations*, has furthered inter-Service linkages at the operational level.

Higher Level Doctrine

Capstone and philosophical doctrine have not enjoyed so long a formal existence as application and procedural doctrine, particularly those discussing maritime and naval affairs. However, they are vitally important in many ways. Higher level doctrine has educational purposes in addition to its direct relevance to the employment of military force. It not only serves to educate and motivate personnel and improve their understanding of the roles and functions of their services, but can also be used to inform those within government and the wider community of the varied ways in which military forces can be used by the nation in exercising its national power.

Although the philosophers of land warfare might be said to date back several thousand years, the first comprehensive analyses of maritime strategic doctrine in the Western world date only to the late 19th century. Works such as *The Influence of Sea Power Upon History 1660-1783* by the American Rear Admiral Alfred Thayer Mahan (1840-1914) and *Some Principles of Maritime Strategy* by the British historian Sir Julian Corbett (1854-1922) had particular impact.

Later in the 20th century there were increasingly sophisticated contributions from France in the work of Admiral Raoul Castex (1878-1968) in the 1930s and from the former Soviet Union by Admiral Sergei Gorshkov (1910-88) in the 1970s. These joined continuing efforts by British and American analysts to define maritime strategic concepts and match them to contemporary requirements. The British *Naval War Manual* (the original BR 1806 – the RN's capstone doctrinal publication) which derived from 1921 and 1925 versions, was in successive iterations (1948, 1958 and 1969) the principal source of higher level doctrine for many of the Commonwealth navies, including the RAN, in the period after World War II.

Australian Maritime Doctrine *draws on a wide variety of sources.*

The end of the Cold War in the early 1990s served as the impetus for an explosion of formal doctrine as Western navies searched for new roles and justification in the absence of a great power competitor. This work fundamentally reinforced longstanding maritime concepts and tasks, some of which had received too little emphasis within the context of 20th century wars. The body of higher level maritime strategic work has been extended further by contemporary thinkers and writers such as Professors Ken Booth, Colin Gray, Eric Grove, John Hattendorf and Geoffrey Till. Within Australia, much pioneering work was done by Alan Robertson and Vernon Parker in the 1970s and this has since been carried forward by Sam Bateman, Jack McCaffrie, James Goldrick and others. The 'Further Reading' section provides a chronological selection of some of the more important works in *maritime strategy* and doctrine.
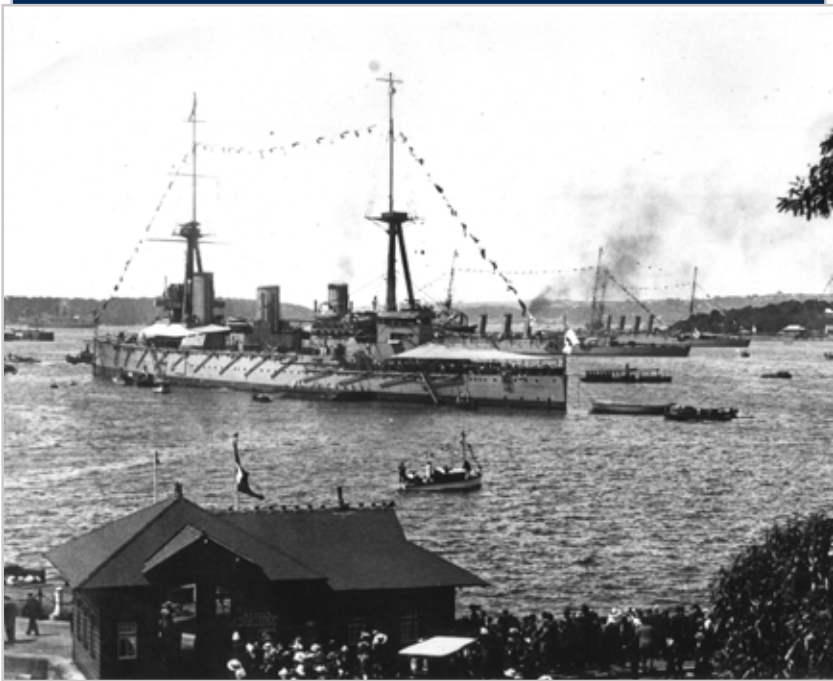
Maritime doctrine is derived from the hard won experience of those who have gone before.

As the RAN's capstone doctrinal publication, *Australian Maritime Doctrine* draws on all these sources and many others. It stands at the summit of Australian naval doctrinal effort and fits alongside such publications as Land Warfare Doctrine (LWD) 1 - *The Fundamentals of Land Warfare* and Australian Air Publication (AAP) 1000-D - *The Air Power Manual*, as well as the major elements of the Australian Defence Doctrine Publication series, in particular ADDP-D - *Foundations of Australian Military Doctrine*. This book is designed to be read not only by those in the Navy and other elements of the ADF who have a direct professional concern, but by all those with an interest in and a concern for the issues of Australian security and maritime affairs.

Ship visits serve as a visible demonstration of Australia's interest in strengthening international security cooperation.

2 THE HUMAN FACTOR

- The Royal Australian Navy's ethos is that of a professional fighting service.
- People generate naval capabilities.
- Life at sea is unique and demanding.
- Maritime operations require the highest quality people and the highest quality of training.
- The Navy's values of Honour, Honesty, Courage, Integrity and Loyalty are vital to effective professional performance.

ETHOS

The RAN's mission is to fight and win in the maritime environment.

The Navy is developed, structured, trained and supported to deliver combat power at and from the sea. Its ethos is that of a professional fighting service; one with long held traditions and a proud wartime history. This ethos might also be summarised as the drive to achieve professional mastery at sea. Fundamentally, the RAN's professional mastery, together with that of the other two armed Services, is the critical foundation on which all joint operations are based.

Yet, although conducting maritime combat operations is its *raison d'être*, the Navy also needs to balance the maintenance of its combat preparedness with the many important, and often conflicting, requirements of recruitment and retention, education and training, peacetime operations, sustainability and future capability development. The successful fulfilment of every one of these elements depends absolutely upon comprehensive and thoroughly understood maritime doctrine.

PEOPLE

It is not simply technology which gives the RAN its capability but rather the way that this technology is employed. It is therefore Navy people who generate the real capabilities that surface ships, submarines, aircraft and support organisations represent. People, both uniformed and civilian, full-time and part-time, are thus the most important factor for maintaining naval effectiveness. The RAN has a long history of operational achievement and excellence which provides a firm foundation for its current activities and future progress, but this foundation is one that can rapidly be eroded if we do not give priority to the entire naval family.

Life at Sea

Life at sea is inherently dangerous, and it is the notion of the uncompromising sea as the mariner's first and common adversary which underlies the sense of fellowship experienced by sailors from around the world. Indeed, the effects of wind, water and hidden hazards have often proved more deadly than any declared enemy. In consequence, all seafarers must be constantly alert to the possibility of emergencies and the unexpected. Even in harbour, ships still require some level of monitoring to ensure their physical integrity and security.

War at sea is unique. Operations are tiring, demanding and unforgiving. They are often characterised by long periods of *surveillance* and patrol followed by short bursts of intense and destructive combat. Peacetime operations require virtually the same degree of commitment and effort, and are similarly arduous and unremitting. Even the biggest ships are relatively cramped and confined, and all living within are subject to the continuous effects of weather and sea state. Constant monitoring of work practices is essential to lessen and manage the risks associated with fatigue.

Discipline

It follows from the nature of life at sea that naval discipline is as much self-discipline as it is externally imposed. There are occasions on which orders need to be obeyed instantly and without question, but the key elements of naval discipline are cooperation and teamwork. Naval discipline at its best is the result of a clear understanding of the code of behaviour required in a warfighting and seagoing service. It provides the framework by which personnel can operate effectively under the strain, shock and fear of maritime combat.

Morale

Morale may be understood as the state of mind of a group of people as reflected by their behaviour under all conditions. Although it is a collective quality, in developing morale it is necessary to start with the individual as the way to stabilise the group. The creation of high morale depends upon a way of life. Naval training must focus on the development of the qualities needed to create a spirit which, sustained by professional mastery and leadership, will never accept defeat.

Notwithstanding the push towards greater automation there remain many physically demanding activities in seagoing units.

Leadership

The exercise of leadership at sea reflects the unique nature of the environment. The focus at sea is on the effort of the entire crew to place the combat instrument, which is the ship, into the control of the directing mind of the commander. No shell is fired and no missile can be launched without specific command direction. With very few exceptions this applies even in the most intense of combat situations and it is never widely delegated. By contrast, the infantry commander must lead their soldiers as individuals to make their singular contributions to the combat effort in accordance with their intent. Likewise the air commander must rely on each of their pilots to complete the *mission* allocated. It is a fair generalisation to say that the aim of leadership at sea is the moulding of the ship's company and their ship as a fighting instrument, while on land and in the air leadership is focused on the individual as a fighting instrument.

Australian Naval Leaders, 1939-45

With the first graduates of the Royal Australian Naval College (RANC) entering the fleet only in 1917, it was not until World War II that native-born officers regularly assumed command of larger RAN vessels. As a whole they performed exceptionally well, with RANC graduates Commodores John Collins and Harold Farncomb both rising to command the Australian Squadron. Several others died in action, and at the end of the war Admiral Sir Ragnar Colvin (Chief of Naval Staff 1937-41) wrote an obituary which read in part:

> No finer sailors ever trod the deck. To one who has known them and worked with them there was something out of the ordinary about these sailors of the RAN. Coming from the Australian Naval College they worked and trained for years on their own and with the Royal Navy but they were never mere copyists. They assimilated the knowledge and traditions of the older service, but blended it with something peculiar to themselves and the result was unmistakable and unmistakably good.

Teamwork & Cohesion

Leadership at sea depends vitally upon deep professional competence, but it in no way diminishes the importance of the human element. A mission effective warship is one in which the commander invariably harnesses the different professional skills and diversity of their ship's company to develop into a high performing team. A *task group* (TG) commander must similarly bring together subordinate commanders to develop a force that is greater than the sum of its individual units. One advantage that the leader at sea possesses is that risk is shared by all those onboard the ships involved in combat. The need for teamwork, the enclosed and confined nature of the shipboard environment and the long and arduous nature of maritime operations mean that leadership must be vital, personal and consistent. The greatest naval leaders possessed the ability to generate enthusiasm and devotion among their subordinates at every level; a basic element of success in battle.

Training

The processes by which men and women are trained for maritime combat involve both individual and collective efforts. The complexities of modern warships and the systems that they carry mean that naval personnel of all ranks and specialisations require above average intelligence and a high level of education from the outset. The provision of quality basic and

specialist training on entry is similarly essential, particularly in an era of minimum crewing concepts. Even with increasingly realistic simulators, however, the individual's training as a sailor will not be completed until after he or she has had first hand seagoing experience.

Units newly commissioned or operational after extended periods of leave and maintenance, both of which often involve considerable changeover of personnel, cannot be expected to conduct operations with any high degree of efficiency. Ships in these circumstances undertake harbour training and system checks before they go to sea to *shake down* to achieve minimum standards of safety and *work up* to achieve the operational capability required. The level of such capability set for achievement will depend upon the operational requirement, but even in peacetime no unit will be deployed by a commander until it has reached a specified minimum level of operational capability. Certain threats or contingencies will require priority to be given to particular warfare areas or techniques, while others can be held at designated peacetime standards. This focusing allows the most efficient allocation of resources, as well as ensuring that effective forces are provided to operational commanders as quickly as possible.

The need to maintain professionalism as both a seaman and a warrior is the feature which most consistently distinguishes the sailor from the soldier.

Designating the standards required for peacetime operations is a particularly important process. A balance must be reached between achieving standards which allow for prolonged safe operations in a benign environment, those which improve professional performance more generally, and those which will make the transition to mission *readiness* as rapid as possible. This applies not just in a single work up or deployment, but for an entire seagoing career.

Mission Readiness and Combat Fatigue

Units must be in a mission ready state before they enter an area of operations. This condition is not wholly subject to objective measurement and its attainment must be a matter of judgement on the part of those responsible for combat training and those who will command the operation. In reality, the preparations for deployment will be working against time and the package of preparative training will almost always be a compromise between operational imperatives and training ideals. Although simulations help, it is almost certain that units will not achieve their highest degree of mission readiness until they have actually had some experience of combat and developed confidence in their own fighting abilities and in those of the other units with which they operate. This will be particularly true in the case of joint or *coalition operations*, in which pre-existing shared experience is less likely.

HMAS *Quiberon*, 1942

After commissioning in the United Kingdom on 6 July 1942 *Quiberon* spent many long weeks on convoy escort duty in the Atlantic and steamed thousands of miles under wartime conditions. Yet until her attachment to a Royal Navy striking force in late November the destroyer had seen little actual combat. Thereafter, however, the intensity of activity increased markedly and the exceptional quality of the ship's individual and collective training came to the fore. In her first week in the Mediterranean, *Quiberon* survived four heavy bombing raids, destroyed an enemy submarine and fought a successful night action against an Italian troop convoy. While returning to base she rescued the crew of a stricken consort and fought off another eight determined air attacks. With recent combat experience enhancing individual and group confidence, her ship's company had undoubtedly attained the highest degree of cohesion and mission readiness.

The maintenance of a mission ready state is one of the primary responsibilities of commanders. They must be able to demand high standards from their people and systems without exhausting them beyond the point of no return through *combat fatigue*. This balance of effort also applies to commanders themselves, since they must be able to maintain their personal efficiency and conserve their strength for the critical periods. Crew cohesion and mutual trust and support are essential factors in sustaining readiness in action.

NAVY VALUES

Human factors are in many ways shaped by the kind of values which an organisation puts forth as being at its core. The RAN's core values are Honour, Honesty, Courage, Integrity and Loyalty. These values make clear:

- What the Navy collectively stands for and what brings its people together.
- What is important to the Navy and therefore what we should jointly work towards.
- What is considered acceptable or unacceptable in the Navy environment.
- How to act and interact with others, whether shipmates, colleagues, superiors, subordinates, Defence partners or the broader community.
- What we can reasonably expect of others, and what they will expect of us.
- How to make principles based decisions rather than needing a rule for every situation.

Honour

Honour is the fundamental value on which the Navy's and each person's reputation depends. Honour reflects our moral and ethical standards. It demands strength of will and inspires physical effort and selfless service. Honour guides our actions in a way explicit rules cannot; it shapes our conscience and determines our notions of pride, self-respect and shame.

Honesty

Honesty is always being true to ourselves, our shipmates and our colleagues. Honesty demands we face up to our shortcomings. We must be open and upfront with each other and ourselves. Honesty drives personal and professional growth. A lack of honesty hinders improvement, allows incompetence to be swept under the carpet and encourages failings to be ignored. Honesty enables us to serve with a clear conscience, sincerity and selflessness.

Courage

Courage is the strength of character to do what is right in the face of adversity. Courage demands unwavering obedience to moral principles. Courage drives responsibility, humility and personal example. No amount of education and experience can overcome a deficiency of courage.

Integrity

Integrity is being committed to always doing what is right, no matter what the consequences. Integrity is unforgiving: if it's not right, don't do it - if it's not true don't say it. Our integrity defines our moral power and underpins our fighting spirit. As people of integrity we confront and overcome wrong regardless of personal cost.

Loyalty

Loyalty is being committed to each other and to our duty of service to Australia. Loyalty is a reciprocal obligation of our shared and mutual commitments to each other and to the nation. It requires we acknowledge commendable effort and that we accept responsibility and accountability for our actions and for those of our subordinates.

The most important factor.
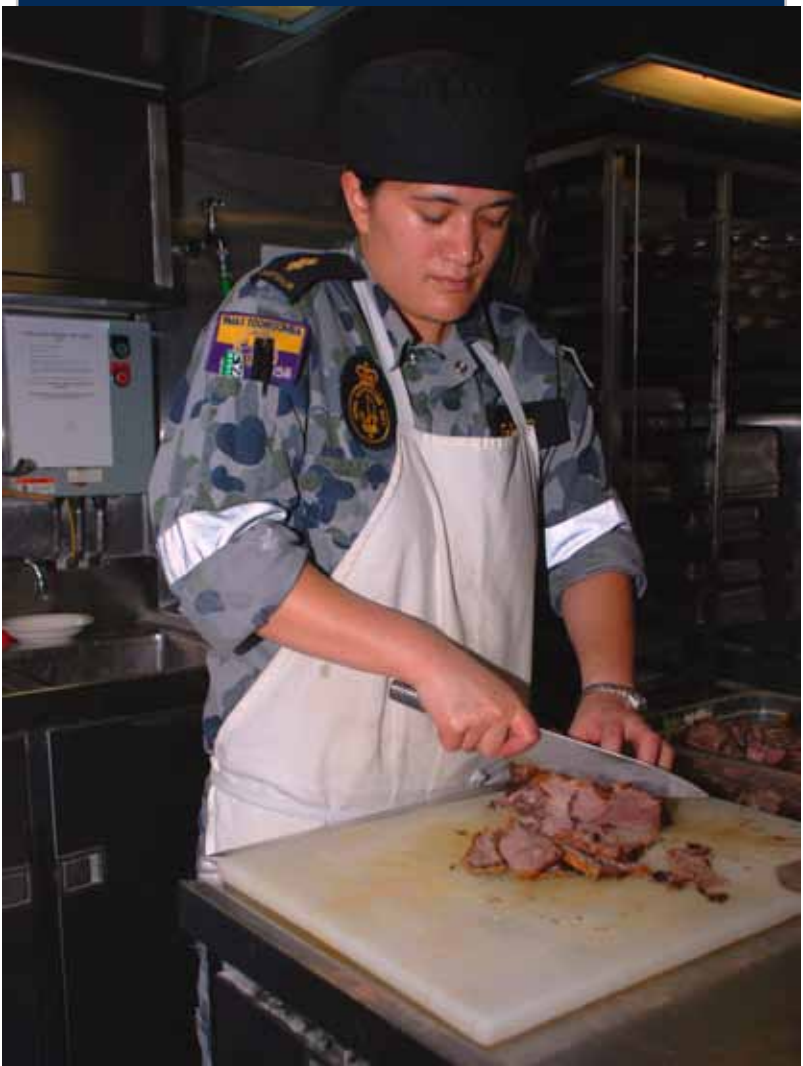
Every sailor is required to achieve a high level of specialist skill. Whether they are boatswains, cooks or technicians all contribute to the success of the Navy team.

- **The sea is huge, harsh and unforgiving.**
- **Australia's area of strategic interest is vast and we require maritime forces capable of meeting the challenges of our strategic geography.**
- **Australia and our regional neighbours depend on the sea for transport and draw heavily on the sea for living, mineral and petroleum resources.**
- **Maritime forces possess significant access and therefore influence in our region.**

THE PHYSICAL ENVIRONMENT

The sea is huge and it is always changing. Its many moods and unending motion are unforgiving of human weakness and constantly place great stress on personnel and equipment. The oceans are the very foundations of life on Earth, but the sea must always be treated with respect.

Despite the introduction of wide area ocean surveillance systems by some nations, *naval forces*, particularly submarines, remain difficult to detect, classify and track. By their ability to constantly move and remain *covert*, ships and submarines can take full advantage of the ocean in remaining undetected and unpredictable in their intent. If this is accompanied by shrewd exploitation of weather and oceanography, an adversary's surveillance problem can be further complicated.

STRATEGIC GEOGRAPHY

More than 70 per cent of the Earth's surface is covered by water and the world ocean connects all the globe's landmasses. This makes the importance of the sea an international reality, one with particular significance for Australia given that we are an island nation surrounded by huge maritime resource zones. In view of our enduring strategic geography, Australia's *sea power*, as embodied in our Navy, will frequently be the most efficient and effective means of applying force in time of conflict. More importantly, by consistent involvement in a range of maritime patrol, engagement and cooperative security measures, our sea power may help prevent conflict from arising in the first place.

The areas in which naval forces can operate range from the open oceans, or what is known as 'blue water', over the continental shelves, *archipelagos* and coasts in 'green water' and into inshore areas and estuaries in 'brown water' conditions. Littoral operations are defined as those influenced by the interface between land and sea. The physical differences between these circumstances can pose very different challenges, since submarines, ships, aircraft and systems that are configured for one condition may not be well suited for another.

Australia from space
(National Aeronautics and Space Adminstration).

Nevertheless, operational flexibility is built into naval forces and developed through doctrine, procedures and training. In general, larger vessels with primacy in blue water can also be effective in green and brown water conditions and thus within the littoral. Conversely, smaller units lack the *seakeeping* capabilities necessary to deal with the swell and sea states experienced in deep water, as well as the *endurance* to cope with oceanic distances. This is particularly important for Australia where open ocean conditions generally exist immediately off the coast.

The relationship between Australia's strategic geography and its maritime security is complex. Our area of direct security interest encompasses more than 10 per cent of the Earth's surface. Australia adjoins the Pacific Ocean to the east, the Indian Ocean to the west, the Southeast Asian archipelago to the north and, sometimes forgotten, the Southern Ocean to the south.

Blue water conditions exist just outside almost all of Australia's major ports making seakeeping an important consideration in naval capability.

Our maritime jurisdictional area is among the largest in the world, amounting to more than 14 million km^2 or almost twice the size of mainland Australia. The surveillance and protection of this area are placing ever greater demands upon national resources, and our *maritime forces* may find themselves rapidly moving from one extreme of climate and local sea environment to another. Within days, major units might need to transit from the tropical calm and heat of the dry season in the northern archipelago to the extreme cold and huge seas and swells of the Southern Ocean.

Operations SUTTON and SLIPPER, 2002

Although in early 2002 she was due to deploy on maritime interception operations in the Arabian Gulf, the guided missile frigate HMAS *Canberra* (II) was initially diverted to intercept fishing vessels operating illegally in the Heard Island and McDonald Islands exclusive economic zone. Having boarded and apprehended two such boats in particularly arduous weather conditions, *Canberra* then escorted them back to Fremantle. A week later the frigate was on her way to enforce United Nations sanctions in the Gulf where her recent seamanship and boarding party experience would again be put to the test, but in vastly different climatic, environmental and operational circumstances.

Figure 3.1 – Australia's maritime jurisdiction (Geoscience Australia).

Distance is thus the most striking single fact about Australia's strategic geography. Although the combined coastline of our mainland and offshore territories is very long (more than 47,000km depending on the calculation method used) and hence difficult to defend in a conventional frontier sense, these same extremes of distance would also make our nation very difficult to invade successfully. While a major factor in the physical defence of our territory, distance also plays a significant role in a range of many of Australia's other *national interests* – interests that extend well into the region and, indeed, across the globe.

Sea communications are vital to Australia, but have two notable vulnerabilities. The first is that shipping moving to and from our major trading partners in the northern hemisphere must pass through many archipelagic choke points to reach its destinations. Almost 40 per cent of our exports and 32 per cent of our imports by value are carried directly through the Indonesian archipelago. The only alternative is to divert through much longer time and hence fuel consuming deep-ocean routes, with consequent increases in cost. The second vulnerability is that shipping in the Indian and Pacific oceans can be identified from some considerable distance away as being bound only for Australia or New Zealand. Figure 3.2 illustrates this area as defined by the 'Sandison Line'.

Figure 3.2 - The Sandison Line (JM Sandison).

The other geographic factor of great relevance to Australia is that for most of this country's northern coastal regions, archipelagic Southeast Asia, and the numerous islands of the South Pacific, the sea represents either the only means of access, or the only way in which any substantial number of people or amount of cargo can be delivered or extracted.

When combined with the regional importance of fishing as a vital source of protein, it is clear that the use of the sea is as important to our neighbours as it is to us.
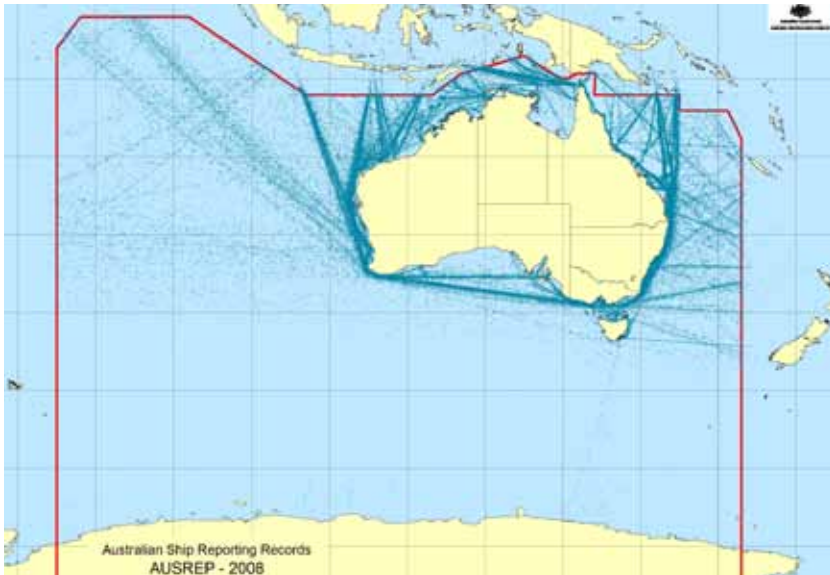
Figure 3.3 - Australian ship reporting records 2008
(Australian Maritime Safety Authority).

ECONOMIC ASPECTS

Most people arrive or leave Australia by air, but our global connections pass overwhelmingly on or under the sea. For instance, over 99 per cent of the data traffic passing along communications links reaches Australia through fibre-optic submarine cables. Sea transport, meanwhile, remains by far the most cost-effective means for the movement of international trade, both by value and volume. In Australia's case, more than 75 per cent of our exports and imports by value go by sea and over 99.9 per cent by weight. Dampier, on the North West coast, is our busiest port in terms of tonnes of cargo handled and deals with more than 140 million tonnes of cargo and more than 1000 port calls each year.

The nation's economic wellbeing depends upon the maintenance and growth of a diverse international export trade, while manufactured goods, industrial tools and high technology equipment are among our essential imports. In recent decades, Australia has been less dependent on oil imports than many other developed nations but, as a result of declining domestic sources, we are increasingly dependent upon crude oil imports to meet domestic demand for transport fuels.

More than 13 per cent of the cargo tonnage moved across Australian wharves is coastal cargo. Coastal shipping not only plays a substantial role in Australia's domestic transport network, but its free movement is also essential to the survival of many cities and towns in the remote north and west of the continent. The entire transportation sector depends on liquids for energy, and in major ports like Broome and Darwin more than 80 per cent of refined fuel supplies arrive by sea. It is important to remember that in modern economies most commodities are not stockpiled in any meaningful amount, and therefore supply is entirely dependent on continuous or 'just in time' delivery.

Shipping is the delivery mechanism of global trade. Port Melbourne, the largest container and general port in Australia, also moves the greatest value of goods. In 2008-09 it handled more than 3400 commercial vessels and freight worth $70 billion, contributing over $2.5 billion to the national economy and employing directly over 13,700 people (Port of Melbourne Corporation).

It is not just the direct trade to, from and around Australia that is in our interest, however. The unhindered movement of shipping from the Middle East to North Asia is vital to the economies of Australia's other major trading partners in East Asia. Japan, South Korea, and to a lesser extent China, are absolutely dependent upon seaborne imports for energy resources and raw materials. Global economies are now so interconnected that any interruption of, or interference with, this shipping would have rapid and detrimental effects on our economy and export competitiveness as well as on those of the countries directly affected.
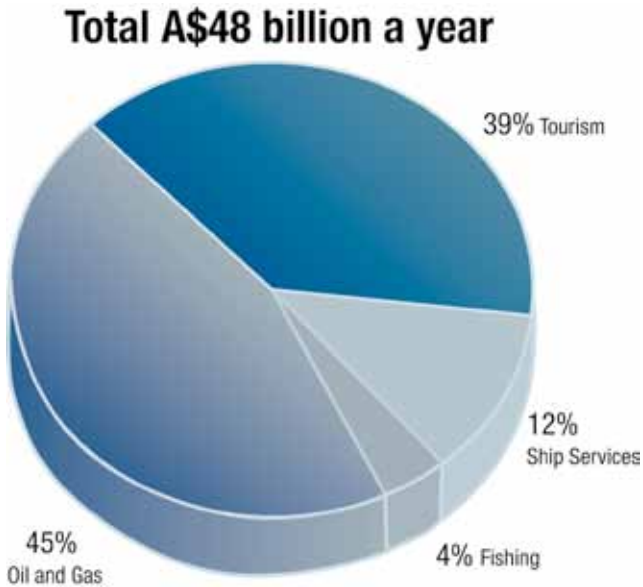
Figure 3.4 - Value of Australia's maritime sector
(Australian Institute of Maritime Science).

With a value calculated at more than $48 billion in 2009, the marine sector now contributes more each year to the Australian economy than agriculture, yet more than 96 per cent of our *maritime domain* still remains unexplored and therefore underexploited. Although the waters of our *exclusive economic zone* (EEZ) are relatively poor in biomass, the seabed is becoming an increasingly important source of resources and technological advances are making the exploitation of these resources both possible and economically viable. Australia already depends upon offshore oil and gas fields for much of its energy needs, with the North West Shelf accounting for nearly two thirds of national gas production in 2007-08.

Although Australia's crude oil production has declined in recent years, natural gas production continues to increase. Once converted to liquefied natural gas (LNG), much of this gas is exported to Asia in large, dedicated LNG carrier ships (North West Shelf Shipping Service).

SOCIAL ASPECTS

Despite Australia's reliance on its surrounding oceans, few Australians are employed directly in seagoing activities. Brought up to embrace the traditions of the bush, Australians tend to look inwards rather than outwards and, when not reflecting on the sea's evident vastness, consider it primarily in terms of enjoying a coastal lifestyle. But the sea can be used for many purposes, and the idea that our surrounding seas and oceans are a highway rather than a barrier is becoming more widely understood. The ongoing attention given in Australia to maritime *quarantine* enforcement, the prevention of drug smuggling and the control of illegal immigration are just some examples of this trend.

Conversely, the sea also gives Australia access to the world. In terms of security, more than 150 of the 192 members of the United Nations (UN) are *Coastal States*, and some 70 per cent of the Earth's population lives within 150km of a coastline. In Australia's case the coastal population is well over 95 per cent and it is even higher for most Southeast Asian nations. Our region is thus a maritime-littoral environment to a greater degree than any other in the world.

Maritime forces, consisting not only of naval forces but also maritime capable land forces and air power, can use the sea to exploit access to centres of human activity and thus to governments. Technological developments are increasing the *latent capabilities* of naval forces to operate close to land through better navigational techniques, improved environmental understanding and better sensors and data exchange systems. These developments also allow ships to 'look' inshore from the coastline and over intervening terrain to detect possible threats.

THE NATURAL ENVIRONMENT

As a responsible nation, Australia sees the protection, conservation and ecologically sustainable use of the environment as a high priority and pursues policies that seek to advance its environmental and trade interests in a mutually reinforcing way. Thus, the management and conservation of living resources are important not only for Australia's domestic fisheries but also for the long-term preservation of a healthy ecology.

The increasing exploitation of marine resources makes preservation of marine biodiversity a vital global issue. Australia is already recognised as a world leader in marine conservation and management and is actively engaged in further international work to enhance the protection of the marine ecology in areas beyond our national jurisdiction.
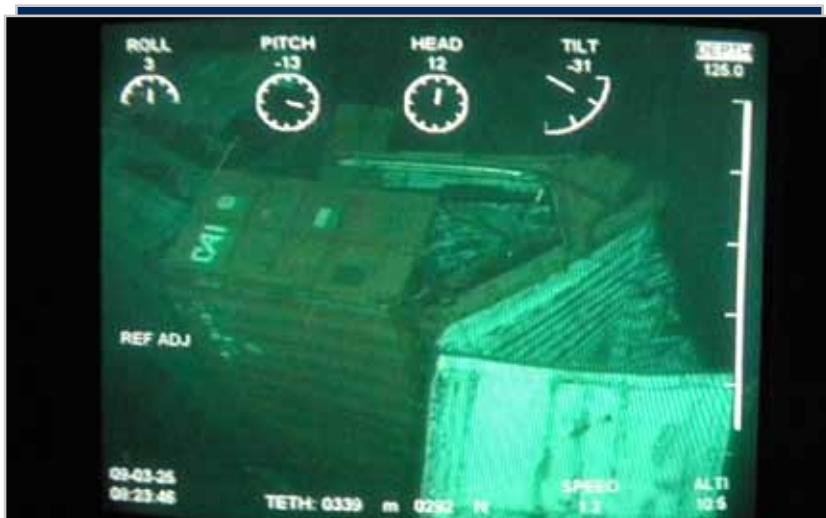
Naval capabilities may be particularly appropriate for some environmental missions. In March 2008 the minehunters HMA Ships Yarra *(IV) and* Norman *(II) were tasked with locating and marking the positions of containers lost overboard from a merchant vessel during Cyclone Hamish.*

Due to economies of scale, shipping is more environmentally friendly than most other means of freight transport, but there remain inherent dangers. The prevention of marine pollution is one fundamental requirement for ecological preservation, as well as for the maintenance of much of our tourist industry and for the quality of life of Australians more generally. In sum, while Australians seek greater access to the vast economic and social wealth of our ocean territories, their environmental value must also be preserved.

Maritime Geospatial Information

Environmental understanding is critical to the success of maritime operations. Credible maritime combat capability depends fundamentally upon the ability to access and rapidly analyse environmental knowledge. If this does not exist, then deployment plans can be flawed by the use of unsuitable platforms, surveillance intentions can be thwarted by the inability of sensors to meet requirements and weapons may prove ineffective against key targets. Because knowledge of the maritime environment is a vital element for operational success, the Navy possesses hydrographic, oceanographic and meteorological operational analysis elements which also conduct data collection and research.
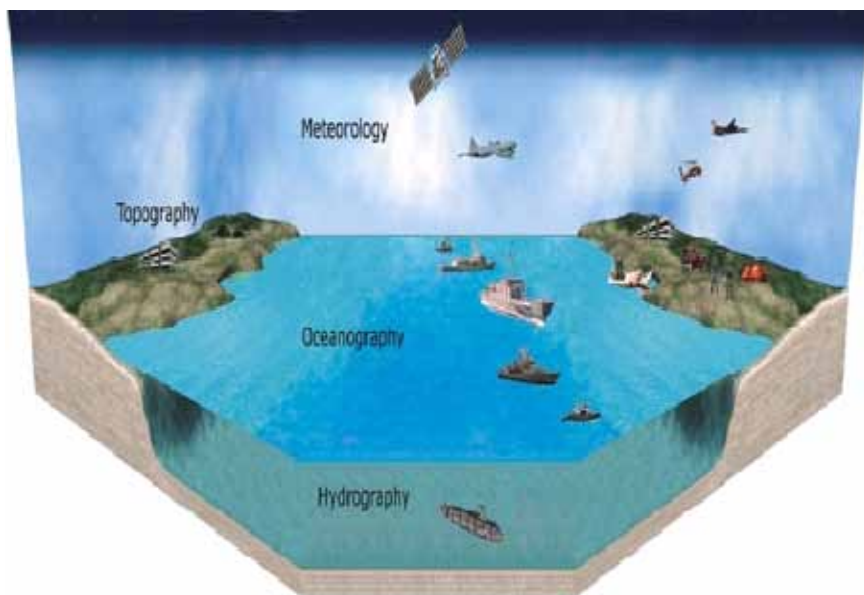
Figure 3.5 - Maritime geospatial information is a key enabler of maritime operations.

- International maritime law arises from the desire of Nation States to regulate the use of the sea for mercantile, maritime and military purposes.
- The *United Nations Law of the Sea Convention 1982* defines maritime zones within which certain activities may or may not take place.
- Warships have particular rights and duties within specified zones. This may have an influence on how naval operations are conducted.
- The Law of Armed Conflict places specific restrictions on how warfare may be conducted at sea.

LEGAL ISSUES

The ADF operates in accordance with both international and domestic laws which set its rights and obligations and govern its use of force. In addition, the RAN operates within an increasingly complex legal context related directly to the features of the maritime environment. The long held concept of *Freedom of the Seas* has undergone important modifications in recent decades, particularly as a result of the *United Nations Law of the Sea Convention 1982* (LOSC).

Australia relies upon international law and diplomacy to resolve any differences that may occur among Nation States. Economic interdependence and the free flow of global trade produce good material outcomes for all States, and hence help promote peaceful relations. Disruptions to the global economy and trade have the opposite effect, leading to increased potential for dispute and conflict. Good order at sea is of paramount importance to Australia for, although we are an island nation, we remain citizens of the global community. International law is used to help regulate how the sea is sustainably used by each State, either as an economic resource, a unique environment, or as a means of transportation.

THE NAVY'S LEGAL BASIS

Section 51 (vi) of the Australian Constitution gives the Parliament the power to make laws with respect to naval and military defence. The first piece of Commonwealth legislation specifically dealing with matters of defence was the *Defence Act 1903* which contained provisions dealing with matters affecting the Defence Force including the Commonwealth Naval Forces. The *Naval Defence Act 1910* followed a similar structure, amplifying various powers and providing the clear legislative authority necessary for what was then renamed the Royal Australian Navy. Amended many times since first enacted, this legislation continues to underpin today's Navy.
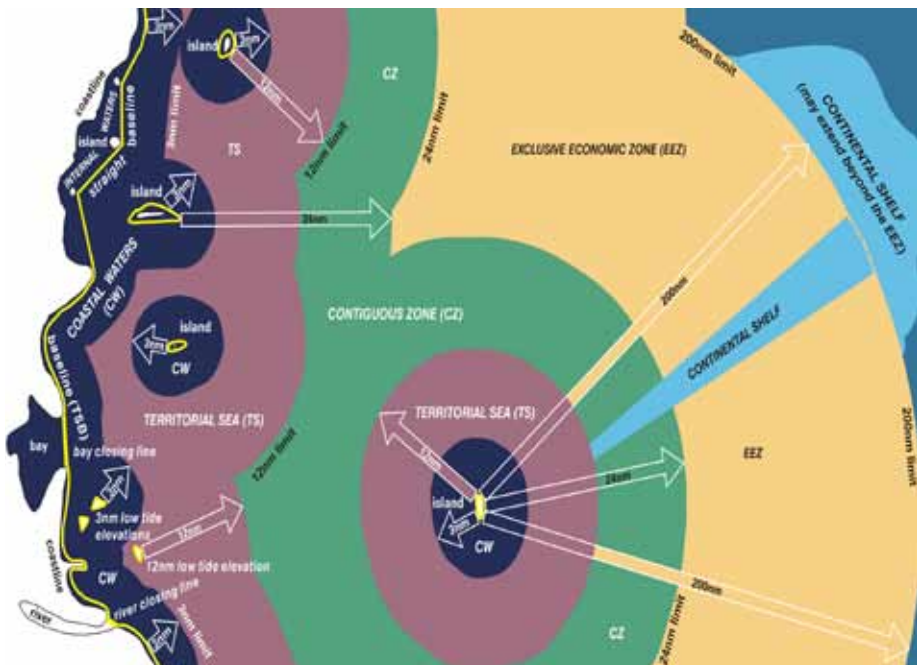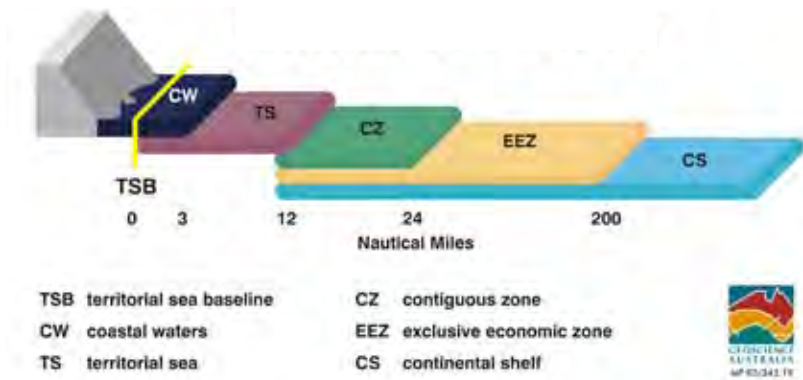
Figure 4.1 – Maritime zones (Geoscience Australia).

MARITIME ZONES AND BOUNDARIES

The LOSC came into force on 16 November 1994, but even before this date was generally regarded, for the purposes of nature and scope of maritime zones, as indicating norms of *customary international law* binding upon all States. Figure 4.1 provides a graphical representation of these zones.

High seas passage rights apply to those waters outside of *territorial seas*, subject to the rights of Coastal States where a *contiguous zone*, EEZ, or *archipelagic waters* exist. Maritime forces are prohibited from conducting operations within the territorial sea of a neutral Coastal State, although this does not impede the right of warships to take *innocent passage* within territorial seas. Warships may pass through such areas, but they must proceed on a continuous and expeditious basis and in such a manner as not to prejudice the peace, good order or security of the Coastal State, not delay their transit nor operate weapons or some active sensors. There are in addition designated *archipelagic sea lanes* and also *international straits* to which a different requirement applies - that is that ships *transit passage* in *normal mode* as well as on a continuous and expeditious basis. Warships must generally seek diplomatic clearance for permission to enter *internal waters*.

Figure 4.2– Exclusive economic zones of Pacific Island Nations.

There are maritime regions in which the legal regime has even greater complexities and anomalies exist which may be significant for maritime forces, including those of Australia. For example, Australia has significant claims to territory and maritime zones in the Antarctic (see Figure 3.1). The treaty regime in the Antarctic is not recognised by the majority of nations, thus leaving open the question of jurisdiction and ownership of natural resources. Similar problems apply to fisheries outside national EEZs, even where there are clear conservation implications in uncontrolled fishing. While international conventions have been developed to govern such aspects as migrating fish stocks on the high seas, the practicalities of how such regimes operate continue to evolve.

States with opposite or adjacent coasts may need to enter into a maritime boundary limitation agreement to define the extent of their maritime zones. Australia shares maritime boundaries with France, the Solomon Islands, Papua New Guinea, East Timor, Indonesia, New Zealand, Norway (in the Australian Antarctic Territory) and potentially Vanuatu (see Figure 4.2). Australia's flexible approach in negotiating with other States has resulted in some of the most complicated boundaries in the world. For example, Australia's agreements with Indonesia result in different boundaries for the EEZ and the *continental shelf* such that sections of Australia's continental shelf are located under the water column of Indonesia's EEZ.

LAW OF ARMED CONFLICT

The threat or use of force against the territorial integrity or political independence of any State is prohibited under the UN Charter and customary international law. Nevertheless, States are permitted to use force in exercising the right of national or collective self-defence, or when collective action is authorised by the UN Security Council. In some cases this collective self-defence notion is enshrined in specific bilateral or multilateral treaties such as ANZUS.

In recognition that *armed conflicts* do still occur, a body of international law has developed which seeks to regulate the conduct of hostilities. This body of law has traditionally been considered to fall into two strands. These are commonly referred to as 'Hague Law' and 'Geneva Law'. Geneva Law is found mainly in the series of Geneva Conventions and deals with the protection of civilians, prisoners-of-war, and the sick and wounded. Hague Law provides regulation with respect to the means and methods of warfare. This law is mainly contained in a series of Hague Conventions as well as several other conventions.

Korean War, 1950

On 25 June 1950 the Soviet-equipped forces of communist North Korea crossed the 38th parallel and invaded South Korea. This overt aggression caused widespread international condemnation and immediate appeals for assistance from the UN Security Council. Both the RAAF and RAN were able to provide combat components at short notice. Over the three years of war Australia committed nine warships and more than 4500 men to combat operations under the authority of the UN. The inclusion of the aircraft carrier HMAS *Sydney* (III) meant that Australia was one of only three nations to contribute a naval aviation capability. Australia's prompt, effective and sustained response to the initial appeal was to have a positive influence on relations with the United States for many decades.

General Principles of the Law of Armed Conflict

The means and methods of warfare are not unlimited and armed conflict is regulated by the basic principles of military necessity, humanity, proportionality and distinction:

- **Military necessity** - prevents a *belligerent* from taking action that is not otherwise prohibited by law, to secure the complete submission of the enemy as expeditiously as possible. It permits only those acts that are necessary for achieving a legitimate military objective.

- **Humanity** - also sometimes described as the prohibition against unnecessary suffering - prohibits the use of means or methods of warfare which are calculated to cause suffering, injury or destruction not actually necessary for the achievement of legitimate military objectives.

- **Proportionality** - provides a link between the concepts of military necessity and humanity. It requires that the losses resulting from a military action should not be excessive in relation to the required military advantage.

- **Distinction** - the requirement to distinguish between the civilian population and combatants and between civilian objects and military objectives in targeting*.

Collectively, these four principles ensure that a conflict is fought as humanely as possible.

No matter its destructiveness, maritime warfare is not unlimited.
A sense of fraternity is a reality among the seafarers of all nations.

The Law of Naval Warfare

The Law of Naval Warfare, that governs the means and methods of warfare at sea, is a subset of the *Law of Armed Conflict*. The rules for conflicts at sea may be found in various Hague Conventions, the four 1949 Geneva Conventions and the *Geneva Additional Protocol 1 1977*. They are mostly intuitive as they reflect customary international law. An attempt to document this customary international law may be found in the *San Remo Manual on International Law Applicable to Armed Conflict at Sea 1994* which, although non-binding, is a useful guide.

Special rules also apply to *blockades*, as well as visit and search. Once an armed conflict has begun, warships have a belligerent right of visit and search which enables them to visit a vessel to determine its true character. Merchant vessels are obliged to provide information about their flag, destination and cargo. The regimes of blockade and visit and search are legally different from operations authorised under UN Security Council Resolutions. However, in operational practice there are obvious similarities. It is also possible that both the Law of Naval Warfare and UN Security Council enforcement regimes may simultaneously apply to the same naval operation.

During the 2003 Iraq War the naval mission was to maintain sea control, support coalition forces ashore and clear Iraqi waterways for the entry of humanitarian aid. Although the coalition navies could have used the traditional laws of naval warfare, they instead relied on the long-standing and long practised UN Security Council resolution regime and its associated legal framework.

Rules of Engagement

Rules of Engagement (ROE) are directions to commanders which delineate the constraints and possible freedoms in the application of force. For multinational operations *harmonisation* of ROE will be necessary. As the Law of Armed Conflict codifies important principles of international law, it follows that national control of military action is a fundamental requirement. Commanders are not permitted to exceed these levels of delegation without higher command approval, but the right of self-defence remains the implicit prerogative of every commanding officer or individual.

5 STRATEGIC POLICY

- The Australian Defence Force is a key element in the protection of Australia's national interests.
- Australia's strategic characteristics mean that capable maritime forces are fundamental to the ADF successfully fulfilling its roles.
- Naval forces are vital enablers for the execution of the ADF's principal tasks.

NATIONAL SECURITY

The roles of naval forces in the protection of Australia and its interests are derived from the Government's overall Defence and *national security* policies. Military strategic policy covers the policy elements that relate to the use of armed force in international affairs. In turn, this strategic policy shapes the development of the national *military strategy* and the methods by which armed force will be used when necessary to meet Australia's interests. This chapter summarises Australia's security and strategic policies and establishes the requirements for maritime forces to contribute to the implementation of our military strategy, as well as the nature of that contribution.

National Interests

A government's first duty is to provide for the security and wellbeing of its citizens. Its responsibilities include the protection and security of national sovereignty, both territory and people. These responsibilities extend further to the support of national values and the advancement of the social, environmental and economic well being of the population.

National Objectives

To protect and advance these interests, the Government pursues a set of national objectives, some explicit and others implicit. They involve outcomes across the full range of government activity, both domestic and international. A vital component will be those which achieve the required levels of physical security and protection.

National Power

National power is the nation's ability to achieve its national objectives. The elements of national power include the totality of a nation's capacity for action and reaction. They are not confined to purely government functions, but also relate to the nation's geography and natural and human resources, its industrial and scientific *infrastructure* and its relationships with other nations. The ADF provides the military capability of Australia's national power.

*Naval forces allow national interests to be demonstrated
and asserted across significant parts of the globe.
This use of forward presence can be critical in the process of
shaping events to accord with Australia's national objectives.*

AUSTRALIA'S STRATEGIC ENVIRONMENT

A nation's strategic environment may be defined as the context within which it must exist and interact with other nations and other international entities. That context is the product of a wide range of geographic, economic, political and social factors which are themselves constantly changing both within themselves and in relation to other issues. Although it is possible to make judgements about the fundamental security challenges facing Australia, assessments and courses of action relating to those challenges are inherently dynamic and must constantly be revisited.

Australia's strategic environment is most fundamentally shaped by the global distribution of power. In an ever more multipolar and globalised world, some of these power relationships are changing, as are the patterns of underlying economic power and influence. Most notably, the strategic environment is increasingly complex and interconnected, and the boundaries between international and domestic security issues are

progressively more blurred. Recent strategic policy guidance has also identified emerging challenges such as the proliferation of weapons of mass destruction (WMD), climate change, information vulnerability and energy security.

ABIDING STRATEGIC INTERESTS

Australia has identified a number of abiding strategic interests that require our fullest attention because of their potential consequences. These are:

- **A Secure Australia.** The defence of Australia against direct armed attack is our most basic strategic interest. This includes armed attacks by other States and by non-State actors with the capacity to employ strategic capabilities, including WMD.

- **A Secure Immediate Neighbourhood.** The security, stability and cohesion of our immediate neighbourhood, which includes Indonesia, Papua New Guinea, East Timor, New Zealand and the South Pacific Island States is our next most important security interest. What matters most is that they are not a source of threat, and that no major military power has access to bases in our neighbourhood from which to project force against us.

- **Strategic Stability in the Asia-Pacific Region.** Australia has an enduring strategic interest in the stability of the wider Asia-Pacific region. In particular, we have a deep stake in the security of Southeast Asia, as any hostile forces would have to operate in this area to sustainably project force against us.

- **A Stable, Rules-Based Global Security Order.** Australia cannot be secure in an insecure world and must play its part in dealing with global security challenges. The United Nations and the UN Charter are central to the rules-based global security order.

These strategic interests are presented as a geographical hierarchy that reflects both relative priorities for defence action and our realistic capacity for influence through the employment of military power. They also recognise both the need for unilateral action, generally as a last resort, and the requirement to act cooperatively with other States within the region and with our more distant friends and allies. The need for cooperative action is particularly relevant in the maritime context, where the free movement of shipping between the major world trading blocs is vital to the effective functioning of the global, regional and national economy, yet may suffer interference at any point on its passage.

German New Guinea, 1914

Concern for the security of our immediate neighbourhood is not new. The campaign to secure the German colonies in New Guinea and the South-West Pacific in August 1914 was Australia's first joint operation, as well as being the first operational engagement of Australian forces, preceding the Gallipoli landings by eight months. The Australian Naval and Military Expeditionary Force rapidly achieved its objectives, depriving German naval forces of their bases and removing a long feared threat to Australia and its sea communications. A key factor in the campaign was the presence of the battle cruiser HMAS *Australia* (I). Her overwhelming firepower acted as an effective deterrent to the German East Asiatic Cruiser Squadron either attempting to dispute the result or entering Australian waters.

STRATEGIC CHARACTERISTICS

What the ADF and, in particular, Australia's maritime combat forces can achieve is influenced by our strategic characteristics. These characteristics are the elements which, in conjunction, make Australia a unique entity within the Asia-Pacific region. They include, but are not limited to, our national political system, our population, economy and national support base and our foreign policy. Our understanding of history is also an important factor. The varied natural factors which make up Australia's 'strategic geography' are likewise vital and are discussed in Chapter 3.

Political System

Australia is a sophisticated liberal democracy with one of the longest histories of democratic government in the Asia-Pacific region. Our military forces are committed to upholding the Constitution, to the subordination of the military to the Government, of the Government to Parliament and of Parliament to the people. This means that Australia's use of armed force must be subject to the test of legitimacy, in that the Government must have the capacity to demonstrate to the Parliament and the electorate that there is adequate moral and legal justification for its actions.

This adherence to legitimacy and the democratic nature of the Australian Nation State is a particular strength for the ADF. Historically, liberal democracies have been more successful in the development and operation of maritime forces than other forms of government. This is principally because the intensity and complexity of the sustained effort required for

these capabilities places heavy demands upon a nation's financial systems, its technological and industrial infrastructure and its educated population. In other words, sophisticated combat forces depend directly upon the support of the people for their continued existence.

Population, Economy and National Support Base

Australia's demography means that the level of human resources allocated to defence and security outside general war will be limited, and therefore must be very carefully managed. Furthermore, our national economic and industrial capabilities cannot maintain all force elements at the required technological levels by local efforts alone. As with other countries, external support through access to technology, manufacturing and logistics is required to ensure that an effective armed force is maintained at a reasonable cost and without making excessive resource demands. The most important relationship in this regard for Australia is and will be with the United States. The balance between self-reliance and external support will inevitably be dynamic and one of the key considerations for the Government.

Maritime forces, through their ability to demonstrate sustained presence without violating another nation's sovereignty, represent a highly appropriate mechanism for demonstrating national intent.

Foreign Policy

The first and best defence of the nation is the maintenance of a positive international environment in which States interact to mutual advantage and sources of potential conflict are dealt with before they evolve to the point where military responses are required. Australia is thus not an aggressive nation, and the Government would only use or threaten armed force with regard for our foreign relations and international standing. Should force be required, it would be employed in a manner consistent with our international obligations, with clear goals in mind, and with a full appreciation of the long-term consequences of its use.

A navy's military capability provides the fundamental reason for its existence, but a nation's decision to use force in international affairs remains one of the most serious its leadership can make.

The Influence of History

Australia's relatively short history is marked by several occasions when our national interests were judged to have been seriously threatened. Nevertheless, the nature of the Australian military experience in general, and our naval history in particular, creates special challenges for policy makers. Despite public awareness of the achievements of Australia's land forces in both world wars, there is little general understanding that their expeditionary roles were only possible because of the *maritime superiority* of the alliances within which Australia operated. Hence much more attention has been paid to the stories of Gallipoli and North Africa than to the fact that hundreds of thousands of Australian troops and their equipment were not only safely *convoyed* over vast distances, but

In a demonstration of the mobility of resources conferred by Allied sea power, between 1914 and 1918, 44 convoys ferried some 337,000 men and 27,000 horses from Australia to the European theatre.

also that their operations in *theatre* were projected and sustained from the sea. This applied just as much to the campaigns in New Guinea and Borneo as it has to the post-war operations in Korea, Malaya, Vietnam, East Timor and the Middle East. Yet it was when that maritime superiority was threatened, as in 1942, that Australia was in most peril.

A similar incongruity is apparent in the consideration of naval roles outside periods of *crisis* and conflict. In a record that stretches back to the earliest days of the Navy's formation, Australia has used *naval diplomacy* to express its interest and involvement in many areas of the world. This has only been possible because of the normally unstated, but self-evident threat inherent in a warship. Uniquely acceptable overseas and free to access remote regions, the RAN has on countless occasions acted to support, reassure, deter, or coerce as a particular need arose. Yet it is a record not always fully recognised outside the Navy, and this misunderstanding of our history has often tended to minimise or obscure the importance of the sea in considerations of Australian national security.

PRINCIPAL ADF TASKS

Although the emphasis on each will vary over time, the Government generally requires the ADF to perform four main tasks:

- Deterring and Defeating Attacks on Australia
- Contributing to Stability and Security in the South Pacific and East Timor
- Contributing to Military Contingencies in the Asia-Pacific Region
- Contributing to Military Contingencies in Support of Global Security.

Maritime forces will play an integral part in the execution of each of these tasks.

Deterring and Defeating Attacks on Australia

The ADF's principal task is to deter and defeat armed attacks on Australia by conducting independent military operations without relying on the combat forces or combat force elements of other countries. This means that the ADF has to control our air and sea approaches against credible adversaries, to the extent required to safeguard our territory, critical sea lanes, population and infrastructure. It also includes protection of our offshore domain which includes strategically significant offshore territories and economic resources. In addition, the ADF also needs to be able to respond to an increasingly complex domestic security environment.

Contributing to Stability and Security in the South Pacific and East Timor

This involves conducting military operations, including protecting our nationals, providing disaster relief and humanitarian assistance and, on occasion, stabilisation operations. Such operations need to be closely integrated with efforts by civilian agencies and may involve coalitions with others.

By minimising the shore-based footprint of joint and combined regional assistance missions, warships can provide aid without affecting the political sensitivities of our neighbours.

Contributing to Military Contingencies in the Asia-Pacific Region

This includes assisting our Southeast Asian partners to meet external challenges and meeting our alliance obligations to the United States and others as determined by the Australian Government at the time. In addition to military contingencies, contributions might include humanitarian relief, disaster recovery and, on occasion, the evacuation of nationals. *Counterterrorism*, *counter-piracy*, resource protection assistance and the protection of critical sea lanes might also be contemplated.

Contributing to Military Contingencies in Support of Global Security

Finally, the ADF has to be prepared to contribute to military contingencies in the rest of the world, in support of efforts by the international community to uphold global security and a rules-based international order, where our interests align and we have the capacity to do so. Many of the unique characteristics of maritime forces described in Chapter 10 bear directly upon their usefulness in these circumstances.

A MARITIME STRATEGY

In sum, Australia's strategic approach requires a principally maritime strategy. Even in situations where the initial conflict has developed wholly on land, its protraction or conclusion will be directly affected by the control of sea communications. Offensive and defensive operations will thus require naval forces, whether in their own right against seaborne adversaries or as enablers for the projection of land forces and air power.

Marine science, patrol, surveillance and response forces daily ensure that Australia's sovereignty, its resource zones and its other environmental and economic interests are protected and advanced, and our domestic laws enforced.

Warships are required for both the projection of force and for defensive measures to protect seaborne communications and national territory, including measures to ensure that our land forces possess sufficient maritime mobility to accomplish their tasks.

6 THE SPECTRUM OF OPERATIONS

- Naval forces are useful at every level of the spectrum of operations.
- Maritime operations may take many different forms and vary in intensity and scale.
- Armed conflict remains a reality of international relations.

THE NEED FOR BALANCE

The RAN exists as part of the ADF, and its submarines, ships and aircraft must be able to fight and win at sea in any armed conflict in which Australia is involved. This does not mean, however, that the Navy does not have a role to play in operations other than war. All of Australia's combat forces must be capable of meeting a range of security contingencies, many of which could arise at little or no notice. It is therefore necessary to maintain a careful balance between the clear needs of the immediate future and the preparations and adaptations needed to meet the uncertainty of longer term threats.

THE SPECTRUM OF OPERATIONS

Since the formation of the UN in the closing stages of World War II, much effort has been expended to limit the form and extent of conflict through international treaties and conventions, and Australia has been a leading actor in such work. Nevertheless, the experience over the last few decades has demonstrated that conflict remains a perennial aspect of international relations.

The varieties of conditions which can create and sustain conflict are such that we need to think of it as a spectrum of conflict, or more accurately a *spectrum of operations*, for in reality not all military activities require the application or even the threat of force (see Figure 6.1). Within this spectrum are countless differing contingencies broadly based on the level and types of threat faced. The three broad categories that are particularly useful when considering the maritime environment are peacetime operations, operations other than war, and warlike operations.

Peacetime Operations

Within peacetime conditions naval forces are employed to preserve and protect Australia's enduring values and interests in a generally non-threatening environment. Although changes in the international situation may occur this will normally be in a controlled way, aided and to some
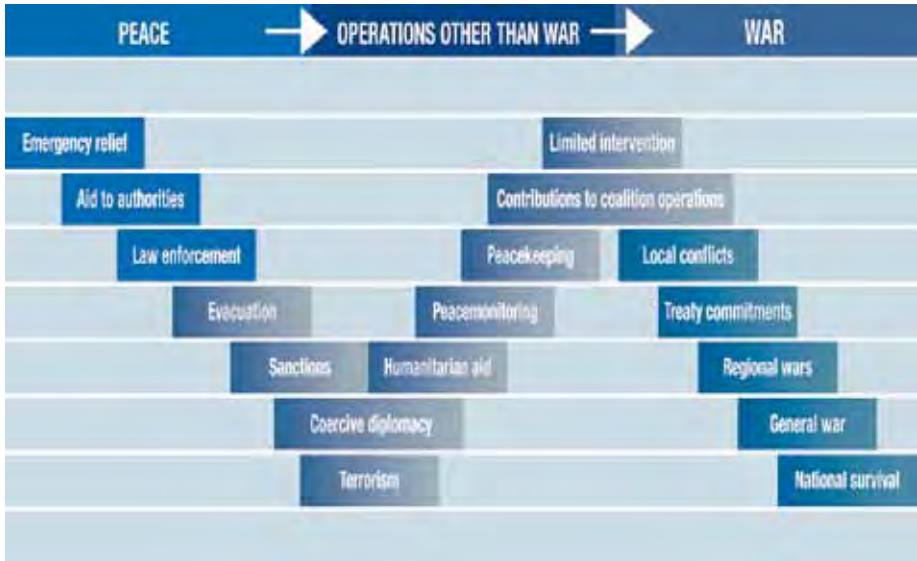
Figure 6.1 - The Spectrum of Operations.

Peacetime operations will always involve risk. The actions of highly trained ADF personnel did much to lessen the suffering of survivors in the aftermath of an explosion onboard a suspected illegal entry vessel on 16 April 2009.

extent directed by the processes of diplomatic negotiation. Force or threats of force are only employed within the context of the domestic legal system or the international order. Examples include the maritime interception of suspected illegal immigrants from 2001 to 2006 (Operations RELEX I and II), the interception of suspected illegal fishing vessels in the far Southern Ocean between 1997 and 2004 (Operations DIRK, STANHOPE, MISTRAL, TEEBONE, SUTTON, GEMSBOK and CELESTA) and the ongoing patrols of Australia's maritime domain (Operation RESOLUTE).

Operation RESOLUTE and Border Protection Command

Since 2006 the ADF's contribution to civil maritime security has been provided under Operation RESOLUTE. Defence assets are assigned under operational control to the Commander Border Protection Command (BPC) who manages this tactical force through the employment of a Joint Task Force. BPC comprises officers from the Australian Customs and Border Protection Service and the ADF, together with embedded liaison officers from the Australian Fisheries Management Authority and the Australian Quarantine Inspection Service. Identified maritime threats include: illegal activity in protected areas; illegal exploitation of natural resources; marine pollution; prohibited imports and exports; unauthorised maritime arrivals; a compromise to bio-security; piracy, robbery or violence at sea; and maritime terrorism. Generally, BPC provides an onwater tactical response at the request of other Australian Government agencies.

Operations Other Than War

Operations other than war are those military activities that are short of warlike, where the application of force is limited to self-defence. Because these operations may involve some form of conflict, casualties could occur, but they are not generally expected. Non-warlike operations can include hazardous duties such as overseas disaster relief, mine clearance and peacekeeping normally conducted under Chapter VI of the UN Charter. Examples include the maritime campaign to enforce UN economic *sanctions* against Iraq between 1990 and 2003 (Operations DAMASK and SLIPPER), the maritime contribution to bringing peace and stability to the Solomon Islands between 2003 and 2004 (Operation ANODE) and relief operations following various natural disasters in 2009 (Operations SAMOA ASSIST and PADANG ASSIST).

*Since its earliest days, the Australian Navy has been
involved in providing assistance to overseas communities
in the wake of natural and man-made disasters.*

Warlike Operations

Warlike operations may vary in intensity and type, but all involve the existence of an armed adversary and the authorisation to apply force to pursue specific military objectives. Some casualties may be expected.

Low intensity operations are operations that are limited in aim, scope and area. Violence tends to be sporadic. They are just as likely to be conducted on a multilateral basis as unilaterally and they will often be under the *mandate* of the UN or the aegis of some other supranational organisation. They may involve a significant number of non-State actors, as protagonists. Examples include the Australian led operations leading to the establishment of an independent East Timor in 1999 (Operation STABILISE) and the Australian military contribution to the US led coalition for stabilisation and recovery operations in Iraq from 2003 to 2008 (Operation CATALYST).

Higher level operations at sea may be much more intense and involve organised combat operations and the deployment of major weapons systems by both sides. They remain limited in aim, scope and area but are very demanding in nature. Recent maritime examples include the 1991 and 2003 wars against Iraq (Operations DAMASK II and FALCONER).

General war differs from higher level operations not so much in the combat methods or tactical outcomes, but in its much broader aim, scope and area. It is at the same time the rarest but by far the most serious type of conflict. Fortunately, Australia has not experienced general war since the end of World War II in 1945.

With their inherent stealth, long-range endurance, formidable striking power and advanced intelligence gathering capabilities, submarines have a significant impact on high-level maritime warfare.

The various forms of warlike operation do have an important dimension of time. This can be considered as a continuum which extends first from a pre-conflict phase, characterised by tension and perhaps sporadic acts of violence, into a conflict phase. This is typified by the application of armed force by the parties in the dispute. It may lead to a post-conflict phase, which brings the resolution, or at least the aftermath of the conflict. Depending upon the specific circumstances, maritime forces may have important roles to play in each part of the continuum.

Sanctions, Crisis, War and Aftermath, 2003

From late 2001 the RAN maintained a permanent presence in the Northern Arabian Gulf enforcing UN economic sanctions against Iraq and supporting the International Coalition against Terrorism (Operations DAMASK and SLIPPER). In the period of crisis leading up to the 2003 Iraq War additional warships were pre-deployed to the area of operations, adding to the pressure on the Iraqi regime and ensuring that Australian forces were prepared should a diplomatic solution not be found (Operation BASTILLE). During the war these ships took an active part in coalition combat operations assisting with an amphibious assault and the clearing of Iraqi waterways (Operation FALCONER). In the wake of combat operations the deployed force immediately became responsible for assisting with national recovery programs and facilitating the transition to Iraqi self-government (Operation CATALYST).

Navy helicopters can contribute across the complete spectrum of operations.

7 THE FEATURES OF ARMED CONFLICT

- Danger, friction and uncertainty are inherent features of armed conflict.
- Conflict can be viewed as occurring at the strategic, operational and tactical levels.
- The Principles of War are: selection and maintenance of the aim, cooperation, offensive action, concentration of force, security, surprise, economy of effort, flexibility, sustainment, and morale.
- Modern manifestations of conflict create additional challenges for armed forces.

ARMED CONFLICT

Armed conflict possesses intrinsic and inseparable features that in combination make it a unique phenomenon in human affairs. The fundamental ingredient of conflict is the adversary. Other features derive from the physical context in all its aspects and those of particular interest to maritime forces have been discussed in Chapter 3. This chapter concentrates on the human aspects, particularly those effects that are generated by or inherent within conflict.

Danger

Danger and conflict are inseparable and fear is an ever-present element in operations. Properly trained and prepared, personnel can manage their fear and exploit its stimulant effects. Uncontrolled, it rapidly degrades individual and group cohesiveness and effectiveness in battle. The effect of fear on operations is thus a measure of the standards of training, leadership and readiness of combat forces. Forces can prepare for this reality by training and conducting exercises which are as challenging and realistic as possible. For naval units, this will bear dividends not only in combat, but also in facing the dangers of the sea.

Friction

Friction is a difficult concept to understand without personal experience of conflict. It is defined as the features of war that resist all action, making the simple difficult and the difficult seemingly impossible. This process is due not only to the multitude of problems that arise in attempting any complex activity in an uncertain and changing environment, but also to the presence and actions of an unpredictable adversary. Most important of all, friction is due to the conscious and subconscious effects of fear.

The challenges of going down to the sea in ships and operating over the sea in aircraft mean that an element of friction is an ever present reality for navies even outside times of conflict. Thus, an armed service which allows its people every opportunity to hone their professional skills on, under and over the sea, to test them in adversity and extend their operating envelopes, even in ways seemingly unconnected with warfighting, will be better prepared for success in combat.

Confidence in a ship's company's ability to rapidly and effectively deal with combat damage enhances a vessel's fighting abilities.

Uncertainty

Uncertainty is related to friction. It recognises that a lack of accurate and timely information, errors, confusion and contradictions combine to create what is known as the *fog of war*. Highly complex situations must be faced and actioned, even when there is insufficient time for complete planning and investigation of the issues. Commanders need to be 'risk aware' rather than 'risk averse' in order to conduct effective operations. The best preparation is not only to understand the inevitability of uncertainty, but also to ensure that unity of command and understanding of the military aim are supported by coherent and comprehensive doctrine and practised by realistic and demanding exercises.

LEVELS OF COMMAND

The direction, command and management of an armed conflict can be considered as operating on three levels: strategic, operational and tactical.

The strategic level of command embraces its overall direction and is sometimes further divided into national strategic and military strategic levels. The national strategic level deals with the organisation and direction of the whole nation in achieving the desired *end state* of the conflict. The military strategic level refers to the overall military planning and direction of the conflict towards that end, reflecting the links upwards to the political-military interface and downwards to the operational level.

The operational level of command involves the planning and conduct of campaigns and key operations to achieve the strategic aim. Within the ADF, activities at this level will invariably be commanded and directed on a joint basis through the Chief of Joint Operations. The operational level of war is particularly concerned with the allocation of resources. These act as the enablers for tactical efforts to achieve the objectives set, thus providing the link between the strategic and tactical levels of command.

The tactical level of command relates to the planning and execution of battles and engagements within the military campaign. It fundamentally relates to combat with the adversary.

A naval task group commander may frequently need
to deal with issues across the three levels of command.

In some circumstances it is possible to define or perceive clear distinctions among the three levels of command. But this has never been easy for maritime warfare, particularly in terms of the distinction between the operational and tactical levels. Coalition maritime operations in the Northern Arabian Gulf from 2001 to 2008, for example, frequently demonstrated compression of the three levels of command. This theatre also saw the RAN regularly assume *operational* and *tactical command* of coalition forces.

The key feature to remember is that even the smallest naval units have a span of interest and of combat influence that can be significant to an entire theatre or area of operations. Furthermore, both modern technology and the influence of external factors such as the media and international law mean that even the smallest event may have profound effects on the strategic situation.

THE PRINCIPLES OF WAR

The ten *Principles of War* used by the ADF have been developed as basic principles for the conduct of armed conflict. They have for many years been a useful mechanism for encapsulating important issues relating to military action. Although their origins are fixed very much in the early experience of continental mechanised warfare, and they must always be balanced against each other and matched to the particular situation, the principles remain relevant to modern maritime warfare.

Selection and Maintenance of the Aim

Military action is never an end in itself and must always be viewed as a means to an end. The end, therefore, must always be kept clearly in sight and the *aim* of military action must be selected carefully and articulated clearly. This cardinal principle applies equally at each of the strategic, operational and tactical levels.

Convoy 1, 1914

The aim of a convoy is to ensure the safe and timely arrival of its cargo, whether that be human or materiel. On 9 November 1914 news came to the first Australian Imperial Force convoy in the Indian Ocean that a strange warship was attacking the cable and wireless station in the Cocos Islands. The escort commander in the light cruiser HMAS *Melbourne* (I) was sorely tempted to detach his own ship in pursuit, but he remembered his responsibility to the troopships. He thus remained with the convoy, ensuring its protection, but leaving the glory of a successful action with the German cruiser SMS *Emden* to the unit he detached for the purpose, HMAS *Sydney* (I).

Cooperation

Cooperation – within a Service, between the Services, between the ADF and other elements of the Australian Government, with national industry and the community, and between the ADF and allies or coalition partners – is vital for success in both peace and war. Only in this way can the resources and energies of each be harnessed so as to achieve victory.

Since 1990 operations in the Middle East have seen the navies of more than 20 nations work together in support of common security interests.

Offensive Action

Offensive action is action by a military force to gain and retain the initiative. Although offensive action is essential in most circumstances to the achievement of victory, it is not to be interpreted as license for rashness. Rather it should be seen as a spirit of boldness, a readiness to exploit opportunities and capitalise on enemy weaknesses.

The South-West Pacific Area, 1943-45

The Allied amphibious operations conducted in the South-West Pacific Area during World War II reveal how offensive action is central to maintaining the initiative and obtaining victory. The US Navy's 7th Amphibious Fleet, which included many RAN ships and men, successfully completed 56 amphibious assault landings. These involved the sea transport of more than a million troops, and were responsible for the rapid advances against a determined Japanese enemy across New Guinea, the Philippines and Borneo. By bold and fast manoeuvre, and by bypassing Japanese strongpoints, offensive amphibious operations reduced Allied casualties and kept the enemy continuously off balance.

Concentration of Force

Success in combat depends on the concentration of superior military force at the right place, at the right time, so as to achieve a decisive result. Superior force is not merely a matter of numbers and firepower, but also of superior combat skills, *mobility* and timing, selection of objectives, leadership, morale and technology.

In October 1944 the Japanese attempted to interfere with Allied assault operations in Leyte Gulf. US Navy and RAN surface units, including the heavy cruiser HMAS Shropshire *and the destroyer HMAS* Arunta *(I), were moved from their shore bombardment stations and concentrated to meet the enemy force in the Surigao Strait. In the night action which followed, overwhelming firepower and technological superiority resulted in the destruction of all but a few of the Japanese ships.*

Security

Security is vital in military operations to allow one's own forces the freedom of action to operate effectively with minimal interference from the adversary; and deny that adversary an advantage. Security needs to be balanced with other Principles of War such as economy of effort and offensive action.

Gallipoli, 1915

The evacuation of Allied forces from the Dardanelles in 1915 was conducted almost without loss and without the enemy becoming aware of the operation until after its completion. Had the Turkish forces been alerted to the withdrawal, casualties among the departing troops would have been very heavy. Among the last ANZACs out were the members of the RAN Bridging Train. This naval-manned Australian field engineering unit played an 'indefatigable' role in preparing the beaches and piers for the evacuation while ensuring that the deception was successfully maintained to the end.

Surprise

Every effort must be made to surprise the enemy and to guard against being taken by surprise (in this there is a close connection with the principle of security). Surprise exerts a powerful influence on operations and may produce results out of all proportion to the effort expended.

On 19 November 1941 Australia suffered its greatest ever naval tragedy when the light cruiser HMAS Sydney *(II) was taken by surprise and subsequently lost with all hands. Although ostensibly a more powerful vessel,* Sydney *had been deceived by the actions and appearance of the diguised German raider HSK* Kormoran *(Finding Sydney Foundation).*

Economy of Effort

Economy of effort is the prudent allocation and application of defence and civil resources to achieve the desired results. The more effective a force is in economising its allocation of resources in one place, the more resources are thereby released to permit concentration of force elsewhere.

New Caledonia, 1940

The support provided by the light cruiser HMAS *Adelaide* (I) to the Free French movement in New Caledonia in September 1940 was critical to its successful assumption of government. The presence of this single warship ensured that Vichy French forces, sympathetic to Japan, were unable to intervene in the local struggle for power. By this operation, a potential strategic weakness in Australia's region was converted into a strength.

Flexibility

Flexibility is the capacity to adapt plans to take account of unforeseen circumstances, so as to ensure success in the face of friction, unexpected resistance or setbacks, or to capitalise on unexpected opportunities. Flexible decision making will reflect a culture of devolution, a thorough understanding of doctrine and a clear appreciation of the superior commander's intent.

Australian destroyers during the Vietnam War had to be continuously available to provide naval gunfire support to forces ashore, while ever ready to deal with air, surface or submarine threats. Flexibility was the key, and also allowed the short notice performance of other duties such as coastal surveillance and the interdiction of enemy attempts at maritime infiltration and resupply (Bevin Stringer).

Sustainment

Sustainment includes support arrangements necessary to implement military strategies and operational plans. These arrangements include those logistic and personnel elements necessary for the efficient support of a force committed to operations and must allow for unforeseen circumstances.

Morale

Morale is an essential element of combat power. High morale engenders courage, energy, cohesion, endurance, steadfastness, determination, and a bold, offensive spirit. In any given situation, military success may depend as much on morale as on material advantages.

Operation LILLIPUT, 1942-43

Land commanders are ultimately dependent upon sea transport for the troops and materiel they need to sustain fighting. Throughout the New Guinea campaign the northern branch of the supply line from mainland Australia assumed the greatest importance. At the end of 1942 the Allies instituted Operation LILLIPUT, a regular supply and transport service between Milne and Oro bays. The greatest threat to the supply line came from Japanese air and submarine attack, but the Allied air forces found it difficult to both provide air cover and carry out their own air attacks against the enemy. Fifteen RAN corvettes and two US Navy submarine chasers therefore provided the primary escort. From mid-December 1942 to mid-June 1943 LILLIPUT involved the transport of 60,000 tonnes of supplies and 3802 troops over 39 separate voyages. The aim was achieved, but LILLIPUT was not completed without loss. Two merchant ships were sunk and two badly damaged, and several corvettes sustained damage and casualties.

During 23 hectic months in the Mediterranean in 1940-41, the destroyer HMAS Stuart *(I), under Captain HML 'Hec' Waller, DSO, RAN, ran the gauntlet of 2 full-scale naval battles, 4 shore bombardments, 9 anti-submarine actions, 65 air attacks (excluding bombings while in harbour) and the Libyan, Greek, Cretan and Syrian campaigns. She escaped without a single casualty.* Stuart*'s crew epitomised the value of high morale, all praising their captain and expressing a keen desire to remain under his command* (Frank Norton).

FUTURE DIRECTIONS OF ARMED CONFLICT

In an era of rapid technological change, globalisation and increasing economic interdependence, some strategic analysts have suggested that the nature of armed conflict is changing fundamentally. In particular, they claim that it is moving away from outright confrontation between nations, with all that this implies by way of disciplined armed forces fighting in what are effectively controlled environments. Within this thesis, the nature of future armed conflict will be much more closely related to the activities of non-State actors, such as terrorist groups, international criminals and insurgent movements, as well as to the consequences of collapsed States and economic, political and environmental failure. Thus, armed forces will need to adapt themselves to face the threats which these activities will pose to their nations and increase their preoccupation with what are often termed *asymmetric threats*.

The difficulty with this argument is that it over simplifies the problem. All the indications are that such phenomena exist in many areas of the world. But these events come in addition to the realities of potential inter-State conflict, not instead of them. Several of the major armed conflicts of the late 20th and early 21st centuries, including the 1980-88 Iran-Iraq War, the 1990-91 Gulf War and the 2003 Iraq War were conducted between Nation States. National armed forces therefore have to do their best to adapt to all these situations and all these possible conflicts. When combined with an appreciation that established technology often tends to persist in spite of new technology, it is clear that armed forces will need to do more, not less to meet the challenges of the future. It is for this reason that the ADF maintains a *balanced force*. For the Navy this drives the requirement for a *balanced fleet*.

For navies the challenge must be to deal with the reality that low intensity conflicts do not necessarily mean low technology threats, nor do high intensity conflicts wholly confine themselves to the exploitation of high technology. Many of the emerging issues present opportunities as well as challenges for maritime forces. Some of these issues are discussed in Chapter 14 but the result of these developments for a maritime nation in a maritime region is to <u>increase</u> the span of responsibility for maritime forces. Contingencies ranging from people smuggling to environmental disasters, from the need to assist or intervene in failed States, through to State against State 'conventional' conflicts will, in Australia's situation, by necessity have a maritime element.

Later chapters explain what this means and how Australia's maritime forces expect to meet their responsibilities, but first it is necessary to look more closely at the maritime strategic concepts that provide the foundation for this understanding.

Historically, the best trained and led sailors have invariably won the war at sea. Notwithstanding the influence of technology, the future maritime war is unlikely to be significantly different.

8 MARITIME STRATEGIC CONCEPTS

- Sea Control, Sea Denial and Maritime Power Projection are the basic tasks of maritime forces.
- Sea Control, which is the ability to use the sea and deny its use to an opponent, is fundamental to Australia achieving its strategic goals in deterring and defeating attacks.
- Sea Control will also be an essential element of practically every other campaign or major operation in which Australia is involved.

THE ORIGINS OF MARITIME STRATEGIC THOUGHT

The development of strategic theory for maritime warfare was a phenomenon of the late 19th century. Influenced by the study of land warfare by such luminaries as Carl von Clausewitz (1780-1831), the efforts of early naval theorists collectively produced a systematic approach to explaining and understanding the workings of maritime strategy. Some of the more important works in this process may be found in the 'Further Reading' section, but one of the most influential was undoubtedly Alfred Thayer Mahan's *The Influence of Sea Power upon History 1660-1783*. First published in 1890, this seminal work sought to analyse the relative success of France and Britain in exploiting sea power during their long contest for supremacy in the 17th and 18th centuries.

COMMAND OF THE SEA

Modern analysts have noted that Mahan and his contemporaries focused on general war rather than the wider spectrum of operations, and were primarily concerned with maritime dominance. As a body, these writers were acutely conscious of the historical advantages that lay with the use of the sea to further national power. One of the first products of their thought was the concept of *command of the sea*, which was considered to be the principal objective of naval forces operating in a maritime campaign. Command of the sea implies that dominance has been achieved to such a degree that the risk to one's own forces from enemy action is negligible or non-existent.

Command of the sea was theoretically achievable through the complete destruction or neutralisation of an adversary's forces, but it was a concept that, however historically valid, became increasingly unrealistic as naval forces faced a range of asymmetric threats brought about by technological innovations such as the mine, torpedo, submarine, aircraft and guided missile. Furthermore, attempts to achieve command of the sea carried the risk of dissipating resources by a failure to recognise that the sea, unlike the land, was a dynamic medium, and that the value of maritime operations

came from the <u>use</u> of the sea for movement and not from <u>possession</u> of the sea itself. Mahan's English contemporary, Sir Julian Corbett, recognised these dilemmas. In *Some Principles of Maritime Strategy*, published in 1911, Corbett pointed out that all naval conflict was fundamentally about the control of communications. With this in mind, he qualified the concept of command of the sea, a process which had by the 1970s led to the development of the contemporary term *sea control*. Unlike command of the sea, control of the sea is limited in place and in time and the required extent is determined purely by the task to be achieved.

Mahan's writings had much to do with the national preoccupation with battleship strength in the early decades of the 20th century.

SEA CONTROL

Achieving sea control allows a force the freedom of action to use an area of sea for its own purposes for a period of time and, if required, *deny* the sea's use to an opponent. It is simply a means to an end and not an end in itself. Sea control must necessarily include the airspace above the sea's surface, together with the water mass and seabed below and the electromagnetic spectrum. To an increasing degree, this concept also includes consideration of knowledge, space-based and other external assets that provide fused information to the commander at sea. Indeed, the blurring of the boundaries between environments and the accompanying drive towards the integration of all elements of combat power have led to the concept of *battlespace dominance*. Attaining sea control is the necessary maritime component of battlespace dominance.

The forces required to exercise sea control are not easily prescribed, and in some circumstances control may be achieved by a combination of measures, not all of which may involve high technology or direct *coercion*. The nature of the threat as much as the overall task to be accomplished must define the forces employed, for if its use of the sea is uncontested then it may be that a force has sea control by default.

More than one maritime strategist has noted that navies fight at sea only for the strategic effect they can secure ashore, because that is where people live. Some of the activities that take place at sea may be only indirectly linked with effects on land but, sooner or later, that link is established and a terrestrial result accomplished. Sea control, once achieved, establishes the context for more direct efforts ashore. Maritime forces can thereafter shape, influence and control events as necessary.

The Battle of the Coral Sea, May 1942

The Battle of the Coral Sea marked the point at which the Japanese advance into the South-West Pacific was arrested when strong enemy naval forces were confronted by US Navy aircraft carriers supported by American and Australian surface formations. Although their forces sustained relatively smaller losses in the battle, the Japanese failed to achieve the necessary degree of sea control south of New Guinea. They were thus thwarted in their ultimate aim, an attempt to mount a direct amphibious assault on Port Moresby.

SEA DENIAL

Given that some powers might have as their primary aim not the control of the sea, but the prevention of its use, a related concept developed in the form of *sea denial*. Like sea control, sea denial may be limited to place and time. Moreover, maritime forces may conduct sea denial operations in one area, while undertaking sea control in another. Sea denial can take many forms, from the maintenance of a blockade of enemy forces, through the operation of *exclusion zones*, to campaigns against an adversary's trade or logistic systems.

The Battle of the Bismarck Sea in March 1943 was a classic sea denial operation. The decimation by Allied air power of a major enemy resupply convoy, forced the Japanese to abandon hopes for further offensive operations in New Guinea.

Force in Being

A variation on the concept of sea denial is that of the *force in being*, a term derived from the historical concept of the *fleet in being*. By avoiding a head-on confrontation with a larger force and preserving its maritime strength, the weaker power may limit the capabilities of the stronger power by compelling the latter to divert some of its strength towards *containment*, or to providing additional protection for its vulnerabilities.

The German High Sea Fleet, 1914-18

One of the clearest historical examples of a fleet used as force in being was the four year standoff in the North Sea during World War I. Here the threat posed by the smaller German High Sea Fleet forced the British to maintain much of their naval strength in the Grand Fleet as a counter, effectively preventing it from being employed to support operations elsewhere. At the same time the German Navy placed much of its faith in the operations of its submarines which aimed to deny the British the use of the sea for oceanic communication. Several Australian warships, including the RAN's flagship, the battle cruiser HMAS *Australia* (I), took part in Grand Fleet operations.

MARITIME POWER PROJECTION

The delivery of force from the sea, often as part of an *expeditionary operation* is known as *maritime power projection*. Maritime power projection can take a variety of forms including the landing of *amphibious* or *special forces*, the delivery of seaborne land and air forces, or bombardment by guided or unguided weapons from warships and aircraft.

Combined amphibious exercises provide an opportunity to test the projection of maritime power (US Navy).

Maritime power projection is most obviously seen in the implied, threatened or actual use of force. It is thus a tool applicable across a range of contingencies, crises and conflicts. For example, suitable naval forces can be despatched at an early stage of a crisis to give a clear signal of resolve, or they can remain *poised* for long periods over the horizon with the ability to react at short notice to a wide range of taskings. The discrimination with which maritime power projection can be exercised gives great strategic advantage to those skilled in its application.

Operation ASTUTE, 2006

A call for help from the government of East Timor in May 2006 resulted in an ADF deployment to bring security, peace and confidence to the new nation and a textbook example of maritime power projection. ASTUTE was the first operational deployment of the ADF's Amphibious Ready Group, comprising the amphibious transports HMA Ships *Kanimbla* (II) and *Manoora* (II), and heavy landing ship HMAS *Tobruk* (II). Acting together these units established an Army battalion group ashore within three days. Preceding the amphibious group's arrival were the frigate HMAS *Adelaide* (II) and the replenishment ship, HMAS *Success* (II), which together maintained a patrol line close off Dili Harbour. The highly visible and professional appearance of these two warships had a significant impact on perceptions ashore during the critical early hours.

SEA CONTROL AND THE SPECTRUM OF OPERATIONS

Although the early maritime theorists concentrated on the wartime role of navies, the ability to ensure sea control will most likely be needed across the entire spectrum of operations. This is the key theme enunciated by the most thoughtful of modern maritime strategists, much of whose work has focused on the value of navies in a broader variety of contexts. Sea control measures may well prove necessary to prevent pirates or terrorists from interfering with the flow of merchant shipping, to enforce economic sanctions, or when establishing conditions suitable for the insertion of a peacekeeping force. In many circumstances, sea control will be pre-existent, but it is vital that its status not be uncritically assumed.

SEA CONTROL AND RISK

The essential difference for military planners between sea control and command of the sea is that achieving control does not exclude the existence of risk. The degree of sea control needed in a particular circumstance must depend upon the level of risk acceptable in the context of the objective. At times, that risk may be very high and successful completion may involve loss and damage to crews and their equipment.

This is an important point. Ships and aircraft must be regarded as tools for the operational commander that can be risked. While they cannot be wasted, preservation must not obscure higher level goals. Navies that have proved risk averse in their employment have not enjoyed any degree of success, either at the tactical level or, most critically, in their operational and strategic contributions. Unlike land warfare, there is no inherent advantage for the defence over the offence in tactical sea combat. Although this relationship becomes more complex in the littoral environment, it is self-evident that defence exists to buy time for the offence to become effective.

The Evacuation of Greece and Crete, 1941

The ships of the British Mediterranean Fleet did not possess undisputed control of the sea and therefore took heavy losses from air attack during their efforts to evacuate British, Australian and New Zealand forces from Southern Europe in April and May 1941. The Australian light cruiser HMAS *Perth* (I) and destroyers HMA Ships *Napier* and *Nizam* were among those to suffer damage and casualties. Nevertheless, the operations continued; the Commander-in-Chief, Admiral Sir Andrew Cunningham, declaring 'Whatever the risks, whatever our losses, the remaining ships of the Fleet [will] make an all out effort to bring away the Army'.

SEA CONTROL AND SEA LINES OF COMMUNICATION

Sea control will be an essential element of almost any conceivable campaign or operation mounted by the ADF, whether acting jointly or in coalition. Because a force must necessarily travel on or over the sea at some point, and be sustained at its destination, the requirement for sea control will naturally involve the protection of *sea lines of communication* or SLOCs.

Although the concept of lines of communication can be applied to both the land and sea, they do not mean the same thing and pose very different problems of security and protection.

There are no lines on the sea. SLOCs do not exist physically and their defence must be considered only in terms of the ships which use the routes. SLOC protection, except in regard to facilities such as ports and harbours and smaller and more confined focal areas and choke points, is inherently dynamic. This contrasts with the fixed defensive methods which may apply to *lines of communication* on land.

CONTEMPORARY DEVELOPMENTS AND CLASSICAL MARITIME STRATEGY

Since the end of the Cold War in 1991, three key developments have had a profound influence on contemporary strategic concepts.

First, technology has significantly increased the ability of naval forces to influence events on land and in the air. This is not only concerned with the development of extended-range guided munitions that can be fired from ships and submarines, but also with the use of advanced helicopters and tilt-rotor aircraft to deliver ground forces well inland in a battle ready state. Given the other inherent characteristics of sea power described in the next chapter, particularly its mobility in mass, increased *reach* means that naval forces have a greater utility in a wide range of situations. Both aspects are also closely tied into the development of much improved *battlespace* management and force networking systems. These allow warships to better 'view' and intervene in the land, air and land-air battles by integrating the activities of all units involved.

A US Navy amphibious ready group contains a balanced range of military capabilities which are routinely employed in times of crisis (US Navy).

The second development is the emergence of a strategic context in which the US Navy in particular, but also the major navies of Western Europe, have operated for some two decades in an environment of maritime superiority. Without a credible blue water rival, the US Navy is normally in a position to assume that it has sea control. In practice, as part of its drive to achieve battlespace dominance, the US Navy can generally assume that it also has command of the sea. As such it can in most circumstances concentrate on maritime power projection with less need to divert resources towards the protection of sea communications.

This concentration on expeditionary warfare has been the foundation of a succession of strategic documents which focus on how American sea power – which comprises the United States Marine Corps, US Navy and US Coast Guard – can be applied around the world to influence events ashore. Comparable concepts, adapted and modified for their circumstances, have been taken up by other Western nations and laid out in their own doctrinal works. These documents recognise current strategic realities, but they are not set in stone and may well change as other maritime powers, whose interests may not always match the West, decide to make their presence felt.

The Global Maritime Partnership Initiative

Faced with the many existing and potential challenges to maritime security, and recognising that no single country can confront them adequately alone, in August 2005 the US Navy introduced the '1000-ship Navy' concept. Subsequently renamed the Global Maritime Partnership, it recognises the importance of assuring the flow of the goods and services that feed the economies of every country around the world, and promotes cooperative approaches to maritime security within existing international law. The concept primarily represents an intellectual and policy framework which links existing initiatives and programs and encourages the development of new ones in regions where they are most needed. An increasing number of allied and friendly navies, including the RAN, have indicated their commitment. Maritime domain awareness, information sharing and greater interoperability are key objectives of the ongoing work.

The third development is perhaps the most important because it reflects a fundamental shift in the perceived focus of maritime strategy. In an era of often violent peace, in which the stakes may be lower but the frequency of threats to good order at sea and local crises deserving attention has risen dramatically, there is a growing appreciation of the need for greater naval cooperation across the globe.

Collective security arrangements are not new, but recent trends suggest a greater internationalisation of armed forces, with diverse nations expected to operate effectively as coalitions at short notice. Navies remain well placed to minimise these problems through continuing multinational exercises and the exchange of personnel. But it is indicative of the underlying shift that less attention is being paid to high intensity blue water combat operations and more to humanitarian work, peace operations and coalition building.

Because of the ease with which navies interact, they are a very effective means of achieving international engagement through exercises and cooperative training. They are thus well adapted for developing improved mutual confidence, even when the interests of individual nations are not readily compatible (US Navy).

Such cooperation is well illustrated by the long-term use of coalition naval assets in the Middle East after 1990, in the Adriatic between 1991 and 1996, and in East Timor in 1999. Without combined naval *interventions*, limiting these crises would have proven more expensive to achieve and potentially more dangerous. In truth, few nations could ever hope to mount such operations on their own, and the involvement of friends and allies often brings additional benefits, including improved capability, responsiveness and flexibility.

Combined Operations in East Timor, 1999

The ADF has invested in deliberate and concerted engagement efforts over many years. These have meant that the RAN has developed excellent maritime relations with both diverse regional States and our more traditional allies. Australia was the lead nation during operations in East Timor in late 1999, but did not possess the naval or maritime forces to go in alone, even had such an option been desirable. From the superior battlespace management offered by a US Navy Aegis cruiser, through to the essential support provided by a Canadian tanker and Singaporean logistics ships, the entire operation was underpinned by the coalition's maritime interdependence and strength.

THE AUSTRALIAN CONTEXT

Australia's maritime strategic requirements are closely tied to the concepts of sea control, sea denial and maritime power projection. Because Australia is an island continent fundamentally dependent upon the sea for communications, and because it exists within a region equally dependent upon the sea, it is control rather than denial which more closely bears upon our national situation. Denial retains a place, but sea control operations ensure that Australian response options are not constrained and will be required whenever our national freedom of action is threatened.

Recent strategic assessments have recognised not only this reality, but also the need for Australia to maintain some credible ability to project military power throughout our primary operational environment and, on occasions, beyond. To this end Government guidance has sought to improve the ADF's amphibious, strategic *lift* and offshore sustainment capabilities.

The RAN currently lacks ship-borne attack aircraft, but new combat helicopters and *unmanned aerial vehicles* (UAV) may possess some capability to perform such roles, and future ships and submarines are to be fitted with land-attack cruise missiles. In any event, the RAN will always be expected to act in close concert with Army Aviation and the RAAF to project air power. Australian forces may also operate in a combined context with allied aircraft carrier forces. In these ways, naval forces can play an integral part in the air campaign, a part which will significantly expand with the evolution of networking capabilities.

For Australia, apart from the issues of cost and scale, the contemporary strategic context is even less clear than the technological one. Our region already includes a large number of nations with significant surface, undersea, air and *electronic warfare* (EW) capability, and it would be extremely unwise to make the assumption that the preconditions for sea control will exist whatever the strategic situation. Thus, while we may adopt and benefit from much of the work being done in the US and Europe, Australia will still need to maintain its focus on fundamental issues such as sea control while seeking to increase our ability to directly influence events on land.

Maritime superiority has allowed the unhindered dispatch of joint expeditionary forces from European and US bases in recent years, but in regional theatres the situation is more complex and sea control must never be assumed (US Navy).

9 MARITIME OPERATIONAL CONCEPTS

- The Australian Defence Force aims to ensure near seamless approaches to warfighting so that joint force effectiveness is maximised.
- Navies bring unique capabilities to a joint force and provide many options to strategic decision makers.
- Maritime forces can transport and sustain combat power over great distances, using the sea as a manoeuvre space.

THE RELATIONSHIP BETWEEN LAND FORCES, AIR AND SEA POWER

The environments within which the three Australian Armed Services operate are interconnected and, like the Services themselves, cannot be considered in isolation. Indeed, the trend of technological development has been to make the operating environments and methods more alike.

Traditionally, the fundamental differences between the land, sea and air were that land warfare tended to be linear and focused on gaining or holding ground, while air and maritime warfare tended to be nonlinear, dynamic and platform focused. As noted in the previous chapter, there are also tactical relationships between the offence and defence on land which differ from those on the sea or in the air. As all environments become more technologically sophisticated, such distinctions are disappearing, with land warfare becoming more dynamic and nonlinear and all three environments becoming better integrated via communications networks in order to achieve battlespace dominance. Over-the-horizon sensor systems and satellites are important elements in this process because all forces are increasingly able to acquire, track and engage targets throughout the battlespace and thereby achieve joint effects.

Notwithstanding these developments, there remain key differences between land, air and maritime operations. Perhaps the most important factor for navies is that the nature of operations at sea leads more readily to organisation and command by task rather than within specified geographical or environmental boundaries. The more detailed aspects of this for *command and control* (C2) will be discussed in Chapters 12 and 13, but the key issue is that the capabilities and the potential limitations of maritime forces must always be considered in terms of both space and time.

THE CHARACTERISTICS AND ATTRIBUTES OF SEA POWER

The unique characteristics of land forces and air power are described in their separate Service-sponsored doctrinal publications. Likewise, navies by their nature possess characteristics and attributes in combinations and to an extent which are not necessarily present in the other environments. These characteristics are listed below.

Mobility in Mass

Warships are mobile. A ship may only transit at a thirtieth the speed of a jet aircraft, but even moderately sized warships have the ability to carry tens, hundreds or even thousands of times the payload. Ships are thus uniquely mobile in mass. This mobility in mass relates not only to lift capacity, which is the ability of ships to move large numbers of people and huge amounts of cargo over significant distances, but the capacity of warships to carry considerable combat power in the form of their onboard weapons and munitions over an equal distance. This is very important for smaller maritime forces that face particular difficulties in projecting and sustaining concentrated combat power.

Warships are also continuously mobile in a way that land or air platforms are not. They are capable of deploying from base and sustaining their progress almost indefinitely while still maintaining a constant awareness of their environment and being instantly ready to react. Seaborne forces can move at many times the speed of land forces over long distances, an aspect of considerable significance for *amphibious operations*. Even at a moderate transit speed of 15 knots (28km per hour), a naval *task force* (TF) can travel 360nm (more than 660km) in a day. In conjunction with embarked and shore-based aircraft, particularly *airborne early warning and control* (AEW&C) aircraft, and with the support of non-organic systems such as over-the-horizon radar and submarines, the idea of a 'moving multidimensional bubble' of approximately 1000nm (or nearly 2000km) radius is a realistic way of thinking about the scope of geographic influence of an Australian maritime force.

Submarines, too, carry considerable combat power. In addition to their internal weapons load, they possess the unique ability to transport, insert, support and extract small special forces units. By comparison with surface warships, conventional (diesel-powered) submarines have slow transit speeds and therefore require additional time to reach an operational area. But, once deployed, submarines possess exceptional persistence and can remain covert and unsupported in forward areas where air and surface forces may face excessive risks.

Embarked combat aircraft are an integral part of a warship's sensor and weapon systems, extending its reach many hundreds of miles.

Readiness

Warships should be ready for a contingency. Although a navy's normal operating and maintenance cycles may make it difficult to surge an entire order of battle, customary operating patterns and exercise levels generally mean that ships that are not in maintenance and have completed normal training can very rapidly be deployed. This is particularly the case for submarines, which are generally kept at the highest levels of mission readiness and can therefore be tasked at very short notice for operational tasks.

Operation NAVY HELP DARWIN, 1974

In the early hours of Christmas morning 1974 Cyclone Tracy devastated the city of Darwin. Despite the Christmas leave period the first elements of a 13-ship task group sailed from Sydney on 26 December. The ships carried hundreds of tonnes of building materials, electrical and relief stores. All had reached Darwin by 3 January 1975. Able to operate independent of local support, and hence having no detrimental impact on scarce resources, the ships provided a work force of some 1200 men with a range of specialist skills.

Additionally, because warships do not need to establish initial forward operating bases or build up to an operational mass, they can often be effective in a theatre before any other forces, despite their apparently longer transit times. Being on scene early and with credible strength helps contain *escalation* in crisis situations, and may prevent the conflict widening.

Access

Warships can operate wherever there is sufficient depth of water to float. They are only restricted in their operations in the internal waters and territorial seas of other countries. This gives them immediate *access* to much of the Earth's surface and the majority of its population. Furthermore, the extent of that access can be expanded through embarked aircraft and amphibious forces. Submarines specifically, can substantially extend access by operating clandestinely in waters not controlled by friendly forces.

Warships do not create a 'footprint' on other nations' territories or in their airspace, and thus do not directly challenge sovereignty in the way that land forces or forward deployed or overflying air power must do. Restrictions on airspace and ground basing facilities have limited Australia's response options in the past and may mean in some circumstances that warships are the only military tool available to the Government. The ability to control crisis and conflict without physically committing troops on the ground is an important strategic advantage.

Flexibility

Warships are inherently flexible. Modern high capacity communications permit warships to be immediately and uniquely responsive to government direction. The oceans are huge, and even in an era of satellite surveillance, warships are difficult to detect, locate and identify, particularly near busy shipping lanes. Because they are free to travel in any direction they are even more difficult to track continuously. Warships can be deployed into an area covertly or *overtly*; they can remain just over the horizon; they can be withdrawn at will; and they may be just as easily operated to create a deliberate impression of ambiguity as of certainty and decision. Submarines, with their ability to remain covert, can be particularly useful in this regard.

*Warships are responsive and sensitive to government direction.
They can be deployed rapidly, sustained indefinitely and transition
to high states of readiness without any external indications.*

Adaptability

Warships can transition from a peacetime state to the highest degree of battle readiness almost instantaneously and without giving any external indication. A warship's state of readiness is not immediately obvious. This is a very important consideration for any would-be adversary, who can never be certain of the naval response. Warships can change their employment from the most *benign* of international activities to offensive action with equally little warning.

Operation MORRIS DANCE, 1987

On 14 May 1987 Fiji's elected government was overthrown by the local military. At the time of the coup the two frigates HMA Ships *Sydney* (IV) and *Adelaide* (II) were alongside at Suva and Lautoka on a goodwill visit. Ideally placed to report on the developments, the warships were first ordered to remain as part of a contingency plan to evacuate Australian nationals. As the situation deteriorated the warships joined with other units, including ground troops, which had deployed from Australia. The joint force thereafter remained poised offshore until an easing of the crisis allowed a phased withdrawal.

By organising warships into task formations, as described in Chapter 12, the varied capabilities of particular ships can be combined to achieve effects that can be matched to the job required. This allows a higher level of threat to be accepted and commensurate stress to be applied to an adversary.

Sustained Reach

Warships routinely operate at a great distance from their home base. Unlike land and air forces, when warships deploy they carry much of their logistic support with them. This reduces vulnerability to delay and *interdiction* and gives them considerable inherent capability to conduct sustained operations, whether working individually or in task formations, at long distances and for extended periods from bases. Reach can be extended in distance and time by the provision of replenishment vessels and by the rotation, or *roulement,* of combat forces into and out of theatre.

Indian Ocean Deployment, 1980

Following the Soviet Union's invasion of Afghanistan, the aircraft carrier HMAS *Melbourne* (II) led a force comprising HMA Ships *Perth* (II), *Derwent*, *Stalwart* (II) and *Supply* on a four month flag-showing cruise through the Indian Ocean. Described at the time as the largest and longest RAN task group deployment since World War II, the operation clearly demonstrated Australian interest in world events, and the level of reach and autonomy attained by Australian sea power.

Poise and Persistence

Warships need not always provide a visible presence on station. The mobility and endurance of warships means that they have the ability to *poise* in theatre, returning from over the horizon to intervene in a situation as required and over an extended period. In the case of a submarine, it may simply continue to operate covertly.

To a greater or lesser degree, all warships are self-contained and can operate without recourse to the shore for periods of weeks or even months. *Embargo* operations have been conducted without interruption for years. The qualities of poise and persistence relate directly to the size and hence storage capacity of the vessels involved, but can be readily increased by the provision of fuel, food, ammunition and spares from replenishment ships. All modern blue water navies possess such supply ships as fundamental elements of their fleet.

This ability of a force to poise and be persistent is particularly important for governments that are attempting to resolve a course of action in complex and ambiguous situations. In these circumstances, warships allow national leadership to anticipate and fine tune responses.

In support of peace operations in Bougainville, in 1998 the heavy landing ship HMAS Tobruk *(II) remained for 65 days in the area of operations in the course of a single 73 day deployment.*

Resilience

Warships are resilient. Not only are they designed and their crews trained to control and alleviate the effects of damage, they are also much less mission sensitive to defects than combat aircraft. All ships possess a degree of redundancy in both their equipment and ship's company, and the extent of this redundancy tends to increase dramatically with hull size. Just as most ships have multiple weapon and sensor capabilities and can perform several tasks concurrently, so too even major defects or damage may not prevent a ship from making a contribution to the force.

Battle of Lingayen Gulf, 1945

The heavy cruiser HMAS *Australia* (II) was hit five times by Japanese suicide aircraft during the Battle of Lingayen Gulf in the Philippines in January 1945. Despite her damage, which included a 10m^2 hole at the waterline, and more than 100 casualties, *Australia*'s fighting ability was not impaired beyond the capacity of temporary repairs. She met her scheduled bombardments and remained in action until the amphibious assault was successfully completed.

POTENTIAL LIMITATIONS OF SEA POWER

Sea power also has a number of potential 'limitations', which must be considered in operational planning. Nevertheless, these limitations are often more apparent than actual, and the essential requirement for the commander is always to understand the implications of the choices being made.

Transience

Warships cannot 'hold the sea' in the way that troops can 'hold ground'. Although persistence has been described as an important characteristic of navies, and one not readily achieved by air power, it is rarely a tool capable of final strategic decision. The blockade of an entity that has no alternative access to transport is probably the only exception to this rule.

Indirectness

An associated issue is the fact that many of the achievements of maritime forces are indirect and their effects not always apparent. The success of an economic embargo, for example, may be very difficult to measure, not only because the effects may take a long time to appear, but also because it requires close coordination with a range of other measures to be fully effective. Certainly, these types of operation are frequently overlooked and will rarely achieve newsworthy status.

The primary danger of indirectness is that in most conflicts it tends to disguise the critical nature of the sea. This is particularly true in relation to the requirement to maintain uninterrupted sea communications to support land campaigns, a requirement that has applied to practically the entirety of Australia's historical military experience. Too often, it is simply taken for granted that Australian expeditionary operations will safely reach their distant destinations and will be sustained once there without difficulty.

Sanctions Campaign against Iraq, 1990-2003

The economic sanctions enforced on Iraq after its 1990 invasion of Kuwait did not convince Saddam Hussein's regime to fully accept a succession of UN Security Council Resolutions. Moreover, the maritime enforcement regime could never entirely isolate a country with such porous land borders. Notwithstanding these limitations, the continual application of pressure did demonstrate international resolve and ensured that the Iraqi armed forces remained inadequately trained and equipped. The latter was particularly important when coalition forces acted to remove the Hussein regime by force in 2003.

Speed

Although naval forces are mobile in mass and can move several times more quickly over long distances than large land forces, they do not have the speed of aircraft. There will be circumstances in which the response time of a warship will be measured in days or even weeks, rather than in the few hours of immediately ready air-mobile forces.

The comparison is complicated, however, by the uncertainty of warning time and the fact that the balance between range and payload remains a difficulty for aircraft, which require the prior availability of forward bases, mobile operating platforms or tanker-intensive air-to-air refuelling to add reach to their speed. Critical in planning for a contingency, the provision of forward bases or the availability of tankers may not always be assured. Developments in high speed vessel technology must also be considered, as these offer significantly lower costs when compared to air lift and more rapid deployment than conventional *sea lift*.

The RAN's charter of the fast catamaran HMAS Jervis Bay (II) between 1999 and 2001 aroused considerable worldwide interest in the potential of fast logistic vessels in both combat support and humanitarian relief roles.

Where distance is a major consideration — which will almost always be the case for Australian military operations — the operational commander will need to make a careful judgement as to the key characteristics needed to achieve the task and the capabilities available within the ADF or coalition force. In uncertain situations, the more effective the political-military interface the more likely that warships will be deployed sufficiently early to allow their effective use. Alternatively, a specific context may allow advantage to be drawn from a lengthy transit, particularly if time is needed for political reflection or diplomatic solutions are still being sought.

MANOEUVRE AND ATTRITION IN MARITIME WARFARE

In military doctrine it is now standard to adopt a *manoeuvrist* approach to warfare. Military objectives are carefully selected, planning proceeds inside the enemy's decision making cycle and forces are rapidly manoeuvred and concentrated to *strike* by surprise at the enemy's *centre of gravity*, or critical vulnerability, to bring rapid victory with minimum losses. The whole point is to avoid long and costly battles of *attrition*. This does not imply, however, that manoeuvre replaces attrition. Once battle is joined at the tactical level, it will always have an element of attrition about it, in that victory will normally result in the serious disabling or destruction of the loser.

The element of attrition in naval battle was most apparent up to and including the Battle of Jutland in 1916. Commanders generally sought to manoeuvre their battlelines to bear on the enemy so that sheer weight of fire crushed the opposing fleet. This represented a limited and tactical emphasis on manoeuvre prior to the battle, which was then decided largely through attrition.

In modern maritime warfare, attrition remains important. The number of missiles or aircraft required to overwhelm the defences of a ship or task group must be accurately calculated, or an attack is likely to involve wasting weapons and units to minimal effect, while increasing the risk of an effective counterattack. Even at the tactical level, however, creating the conditions that allow devastating attrition of the enemy is more a matter of manoeuvre than it was in the past. This is because technical innovations in surveillance and weaponry have increased the ranges at which battles occur, greatly broadening the scope for manoeuvre. Manoeuvrist effects can be achieved at sea if overwhelming force can be deployed against an opponent's critical vulnerabilities without warning.

Destruction is one of the key themes of the historical experience of war at sea and it is important to remember this reality in the context of determining risk.

In maritime warfare, manoeuvre is also very much an operational and strategic concept, although the distinctions between the three levels of war can be very blurred. The pre-emptive sowing of minefields outside an adversary's bases, for example, may do much to weaken their physical cohesion. As discussed in the previous chapter, the retention of a force in being may limit an opponent's freedom of action, and have far reaching effects in other theatres of action. The object of maritime warfare is the establishment of control over a dynamic environment in order to achieve the required end state. A superior force may achieve sea control by default, as opposing weaker forces typically prefer withdrawal or avoidance rather than destruction. In the rare event that opposing forces are evenly balanced and willing to fight to a definite conclusion, victory will normally go to the side which can make the first accurate attacks and thus to the one which has used its scouting and surveillance assets to develop better *battlespace awareness* on the path to achieving dominance. That process, requiring patrol and surveillance over extended areas and for long periods, is both highly demanding on systems and people, and time consuming in its execution. Nevertheless, it is very much the reality of maritime operations.
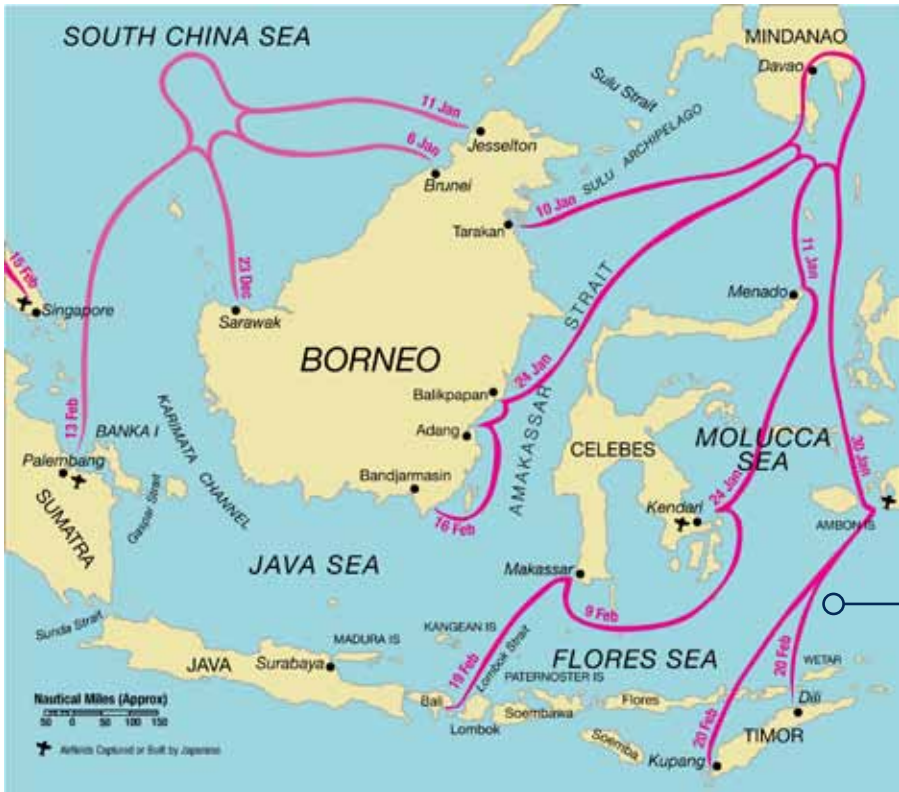
Figure 9.1 - The Japanese Octopus, January-February 1942.

Japanese Successes, 1942

During January and February 1942 the Imperial Japanese Navy used maritime manoeuvre to capture much of Southeast Asia. Like some vast octopus it relied on strangling many small points rather than concentrating on a vital organ. No single force attempted to meet the entire strength of the Allied fleet based in Java. Instead Sarawak, Brunei, Tarakan, Menado, Balikpapan, Kendari, Ambon, Makassar, Palembang, Bali, Kupang and Dili fell to the Japanese in rapid succession, and Australian Army units based on Ambon and Timor were isolated and overrun. Australian warships fought alongside their British, Dutch and American allies in defence of Java but they were too weak to establish sea control and, employed piecemeal, were unable to resist the joint land-sea-air power projected by the Japanese.

*The individual actions of sailors can have
significant tactical and strategic effects.*

The other key aspect of manoeuvre as a concept at sea principally relates to the capability of maritime forces, or at least those which possess a sufficient degree of sea control, to move military force to the locations which can achieve the greatest possible advantage over the adversary. By seizing, retaining and exploiting the initiative, the terms and place of confrontation can be selected to exploit weaknesses in an adversary's will or capacity to resist. It is thus inherently a joint concept and has particular relevance for Australia because of the maritime-littoral nature of so much of our strategic environment. Sometimes described as 'manoeuvre from the sea' or *littoral manoeuvre*, it will be fundamental to most Australian operations in crisis and conflict.

10 MARITIME OPERATIONS

- A navy's warfighting capabilities provide the basis for its use in a wide range of other tasks.
- Navies routinely contribute to diplomatic efforts and are uniquely flexible symbols of national sovereignty and national interest.
- Navies also play significant roles in enforcing domestic and international law.

THE SPAN OF MARITIME TASKS

As noted in previous chapters, maritime forces are useful in a wide range of situations, thus bridging a spectrum of potential operations ranging from peaceful human activity through to the highest *levels of conflict*. Several modern strategic thinkers, most notably Ken Booth in *Navies and Foreign Policy* (1977) and Eric Grove in *The Future of Sea Power* (1990), have suggested that the roles of maritime forces in this context fall into one of three categories: military (or combat related), diplomatic (or foreign policy related) and constabulary (or policing related). The usefulness of this classification is emphasised by its wide application across different navies and therefore its ability to provide a common philosophical frame of reference.

The span of maritime tasks reproduced in Figure 10.1 illustrates the relationship between the three defined roles and their subordinate tasks. The diagram is not meant to be prescriptive, as the roles will rarely be exclusive and the tasks are representative rather than specific. In reality there will always be anomalies, not least because more than one of the roles and several of the tasks may be carried out simultaneously. Nevertheless, although the nature of any given operation can change rapidly, the foundation of this triangle on the basis of military functions is very deliberate. The ability of warships to undertake the constabulary and diplomatic roles depends substantially on their ability to carry out their combat roles. The capability to do all these things is thus largely a by-product of the resources and core skills developed for warfighting.

COMBAT OPERATIONS AT SEA

Intelligence Collection and Surveillance

Although intelligence collection, surveillance and environmental assessment gathering activities are conducted during all operations, and have obvious application to national requirements outside conflict, they are vital enablers in maritime combat. Comprehensive intelligence and surveillance are fundamental to the generation of the degree of battlespace awareness that

Figure 10.1- The span of maritime tasks.

will be necessary to seize and maintain the initiative and achieve battlespace dominance. All maritime units can contribute to the development of this awareness and exploit its products. Space-based and over-the-horizon surveillance and intelligence collection systems, as well as shore-based processing, production and dissemination systems also play a vital role, particularly in the provision of cueing information which allows forces to be concentrated and focused against a particular threat or target.

Submarines, because they can remain covert, are very effective in intelligence collection within their area of operation, while AEW&C and *maritime patrol aircraft* (MPA), together with surface combatants and their embarked helicopters or UAVs, are the principal maritime contributors to wide area surveillance operations.

The Battle of Savo Island, 1942

The Allied invasion of Guadalcanal was a disaster for the US and Australian navies. During the early hours of 9 August 1942 a Japanese force of seven cruisers and a destroyer slipped past the American destroyers watching at the entrance to Ironbottom Sound and successively fell upon two groups of patrolling cruisers. HMAS *Canberra* (I) was among the four heavy cruisers lost. The Japanese had the advantage of surprise, for the communication of Allied surveillance information had been flawed. Moreover, many of the Allied crews were fatigued by extended periods of action stations in difficult conditions. Neither visual nor radar lookouts were at their most acute. Despite their initial success the Japanese did not follow it up with an attack on the vulnerable American transport and supply ships thereby squandering their initial tactical advantage.

Cover

Less capable forces will often require support to ensure their protection and the completion of their tasking without interference from an adversary. *Covering forces* may require positioning within reach of the units needing protection, but *cover* may also be exercised effectively through the simple threat of intervention. This is particularly applicable to situations in which it is desirable to contain the intensity or extent of a conflict. Adequate cover can provide *deterrence* against would-be adversaries and thus reduce the likelihood of escalation. Cover applies to all combat environments, and in a joint context it is one of the most important services which different force elements can provide for others at their points of greatest vulnerability.

During the INTERFET insertion into Dili in 1999, the naval component provided cover for the land forces while they became established. At a time when the situation ashore remained highly charged, the presence of highly capable and well-armed warships was, in a sense, a psychological operation and gave a clear demonstration of INTERFET's capacity to defend itself should the situation deteriorate.

Maritime Strike and Interdiction

Combat operations are conducted against an adversary's combat and logistics shipping for either a direct strategic effect or to meet an operational or tactical aim. Strategic effect will usually be gained by a systematic campaign designed to reduce the adversary's ability to fight by preventing his use of the sea. At the operational level, the intent will be to prevent both an adversary's reinforcement or sustainment of deployed units and any attempt to conduct manoeuvre operations by sea.

Interdiction of an adversary's maritime forces, to prevent their use for sea control, sea denial, or power projection, can be conducted from the sea or from the land, and can be directed against targets at sea or in harbour. Depending on circumstances, submarines or attack aircraft may be the most common platforms employed for interdiction, but surface combatants, MPA and some helicopters can also launch anti-ship and land-attack missiles and anti-submarine weapons. If suitable weapons are available, then aircraft and submarines can also be employed to lay offensive minefields.

Submarines are well suited to maritime strike and interdiction in an adversary's waters. In 1915 HMAS AE2 *became the first Allied submarine to penetrate into the Sea of Marmara, opening the way for an interdiction campaign that severely disrupted the flow of supplies to Turkish forces on the Gallipoli peninsula* (Phil Belbin).

Containment

By threatening an adversary's critical vulnerabilities it is possible to force the diversion of their maritime forces into defensive roles, thus preventing their use for the offensive.

German Distraction Campaign, 1944-45

One of the best examples of containment by distraction in the context of an alternative maritime strategy took place off Australia in the last year of World War II. Having failed in its attempt to defeat the Allied global logistics effort through a tonnage war in the Atlantic, the German Navy attempted to 'tie-down' enemy resources by directing long range U-boats to attack shipping in widely displaced theatres. Between September 1944 and February 1945, *U862* operated successfully off Australia's western, southern and eastern coasts, occupying the attentions of more surface and air assets over a longer period than any single submarine has ever achieved before or since.

Blockade

Blockade has been a fundamental naval task for centuries, and has at times proven one of the most efficient ways to exert pressure on an adversary. It involves denying an enemy access to or from their ports (a *close blockade*) or denying access to a sea area through which their ships must pass in order to reach the enemy's territory (a *distant blockade*). The term 'blockade' has a long and clear legal meaning, and in this context is traditionally associated with operations directed against the enemy's economy. The UN Charter refers to blockade as an action that may be taken by the Security Council to restore international peace and security. However, modern embargo operations of the sort approved by the UN Security Council do not usually invoke this traditional form of blockade. Today the expression is more likely to be applied to an operation directed against the enemy's armed forces.

Barrier Operations and Defended Areas

Barrier operations may be conducted where geography and/or oceanography combine to create a *focal area* that can be closed to an adversary. Similarly, the requirement to concentrate forces in one particular locality may mean that defended area operations are the most effective method for their protection. Generally *defence in depth* is the most effective approach to the problem, with units allocated sectors based on the ability of their *organic* sensors and weapons to contribute to the force. Defensive minefields or the use of submarines in choke points can be a particularly effective mechanism for achieving this aim.

Layered Defence

The concept of *layered defence* is one of the oldest in maritime strategy, including as it does the method of convoy. *Escorts*, generally surface or airborne, provide warning and weapon coverage against air, surface or underwater threats by acting as moving *screens* around the high value unit or units to be protected. Convoying ships, or grouping them together for their own protection, enables the concentration of defensive assets in close proximity which increases the overall defensive capability of the escort.

Advance Force Operations

Advance force operations are conducted ahead of a main force, notably an amphibious force, to make acceptably safe the area in which the latter will operate. The naval elements of such activities are primarily directed against an adversary's submarines and mines, or are concerned with developing improved situational awareness and knowledge of the operating environment.

Advance force operations are asset intensive and time consuming and may themselves be vulnerable, especially when conducting *mine countermeasures* (MCM). They thus frequently require cover from other forces. Although friendly submarines may on occasion be well placed to conduct unrestricted operations, advance force operations will more generally be thought of in terms of threat minimisation and management rather than threat elimination.

Protection of Merchant Shipping

Notwithstanding the traditional threat of a *guerre de course*, changes in the international shipping industry since World War II and, in particular, the rise of 'flags of convenience' mean that the protection of *merchant ships* can no longer be enforced. Masters, charterers and owners are usually neither legally required to accept naval guidance nor, even if threat levels are high, obliged to accept an escort or to form or remain in a convoy. Nevertheless, navies will still be expected to provide protection in the face of threats to maritime trade.

No one navy could be expected to do this alone and Australia works in conjunction with other like-minded nations. *Naval Cooperation and Guidance for Shipping* (NCAGS) provides for a series of measures scaled to the nature of the threat to merchant shipping in any particular area, whether that threat is military or otherwise. These measures can range from the provision of briefing, debriefing and routing information to the

most sophisticated escort and screening operations. Much NCAGS effort, particularly in guiding and monitoring the progress of merchant ships, assists substantially in developing the surveillance picture. Only in the event of substantial and credible threats would such active measures as *close* or *distant escort* be adopted, either to cover a specific campaign or area of conflict, or to ensure national economic survival.

During both World Wars it was the maintenance of sea communications that allowed the Australian economy to continue functioning and overseas military campaigns to be conducted. The RAN and RAAF's role in the defence of shipping continues to be one of the more neglected aspects of Australia's wartime experience.

COMBAT OPERATIONS FROM THE SEA

Maritime Mobility (Sea Lift)

The sea can be used for the projection of power against the shore in a number of ways. At its most basic, ships can be used to transport land forces into theatre and sustain their operations there. Sea lift, however, is limited by its reliance on developed port facilities for embarkation and disembarkation. Furthermore, unless tactically loaded, the forces so transported are likely to require significant time to prepare themselves for operations after landing. Thus, although sea lift can be a vital element of the ADF's strategic lift capabilities, and a very useful tool of *manoeuvre warfare*, the reality of operational contingencies and local threats will often require the use of amphibious forces.

In recent ADF operations sea lift has generally proven vital by ensuring that land and air forces are supplied with the fuel, food and ammunition they need to remain effective.

Land Strike

The ability of navies to strike directly at land targets has historically depended upon the possession of large calibre guns or embarked fixed-wing aircraft. Surface combatants with medium calibre guns possess a limited capability to conduct bombardment, although effectiveness has improved with increasing accuracy. The introduction ship and submarine borne land-attack missiles will increase the potential for these operations.

Support to Operations on Land and in the Air

Naval forces offer considerable potential to contribute to combat operations on land and in the air. Medium calibre guns in surface combatants can be used for *fire support* or bombardment operations, while air warfare sensors and weapons contribute to *counter air operations*. These capabilities will be particularly useful when networked with AEW&C and fighter aircraft, or with land-based sensors and weapons. Army battlefield helicopters (embarked in the *Amphibious Ready Group* (ARG)) and naval combat and utility helicopters can also provide extensive support to operations on land. In the littoral, maritime forces aim to prevent the adversary moving forces by sea, thus protecting their seaward flank and denying the adversary the ability to conduct maritime manoeuvre.

Operation FALCONER, 2003

During the opening phase of the war against Iraq the sensor, weapon, logistics and technical capabilities possessed by Australian naval forces in the Northern Arabian Gulf (NAG) allowed them to provide a wide range of specialised support. They assisted special forces operations, provided naval gunfire support to the Royal Marine assault on the Al Faw peninsula, patrolled the adjacent waterway, hosted coalition ships and aircraft, thwarted a covert Iraqi attempt to mine the NAG, cleared the port of Umm Qasr of unexploded ordnance, discovered a major weapons cache and dealt with the more general threat to coalition forces from surface, sub-surface and missile attacks.

Amphibious Operations

In addition to providing sea lift, amphibious forces are capable of transporting land forces and disembarking them in a high state of tactical readiness in the absence of developed facilities. Amphibious operations seek to exploit the superior mobility and carrying capacity of navies. They may contribute to a campaign by striking at an adversary's vulnerabilities on land, by seizing an objective, conducting a turning movement to expose a vulnerable flank or, on a smaller scale, by infiltrating forces to interfere with an adversary's lines of communication. Not all amphibious operations are conducted by surface ships. Submarines can be useful for the covert insertion, support and extraction of special forces. The insertion of a smaller force for a particular and limited task and its withdrawal immediately on completion is known as an *amphibious raid*. The core concepts underpinning amphibious operations in the Australian context include littoral manoeuvre, *ship to objective manoeuvre* (STOM), *distributed operations* and *sea basing*.
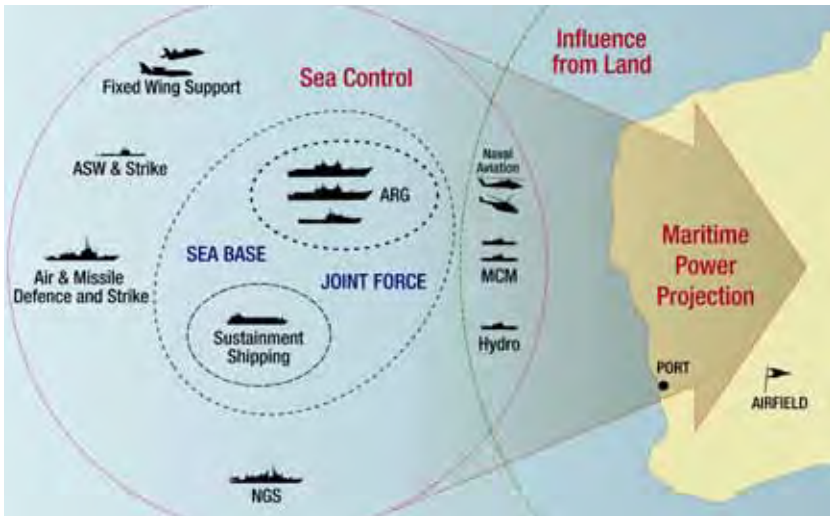
Figure 10.2 - Maritime power projection.

Amphibious forces can be particularly effective when conducting an *amphibious demonstration*. They may thereby tie down much larger land forces by threatening but not conducting a landing. This makes use of the maritime forces' ability to poise and be persistent and achieves *distraction* of the adversary.

An amphibious operation normally begins with advance force or pre-assault operations. This may include the covert landing of small numbers of personnel to conduct scouting and *reconnaissance*.

An *amphibious assault* is the main landing of forces to seize one or more landing points and secure an objective. Whether land forces seek to move out from that objective will depend upon the aim of the operation. The term 'assault' no longer describes an attack on heavily defended coastal areas in the fashion of the operations in Normandy and the Central Pacific in World War II. Rather, amphibious forces seek to land where the adversary is not, and they will go ashore only when they are confident that local superiority exists.

An *amphibious withdrawal* is an operation conducted to remove the landed force. It is a routine evolution for amphibious forces after their tasks have been completed because it is an important part of maintaining their flexibility and speed of response. When a withdrawal is required because of the arrival of superior enemy land, sea or air power, very close coordination is required among all elements of the force to ensure a safe departure. Retention of sea control will be critical.

An effective amphibious capability depends upon a very high degree of sustained joint effort in the form of equipment, doctrine and training. During World War II, joint Australian operational activity reached its peak during the final campaigns in Borneo.

DIPLOMATIC OPERATIONS

Naval diplomacy, or the use of navies in support of foreign policy can also be described as *shaping* operations, and provides context for those tasks primarily designed to influence the policies and actions of other nations. The variety of tasks that may be undertaken under this category is particularly instructive. Although many activities are unquestionably benign, there remain significant elements that rely directly upon a warship's combat capabilities and its ability to apply finely graduated force.

One important aim of such operations is to develop the conditions which will allow the successful conduct of combined operations in the future. Many of the inherent naval characteristics described in the previous chapter are attributes that make maritime forces the instruments of first resort for governments. In particular, they possess the *versatility* and the range of response to be very useful tools in times of uncertainty and crisis, allowing governments the maximum freedom of decision.

Humanitarian Assistance and Disaster Relief

No nation is immune to natural or man-made disasters. Warships repeatedly demonstrate that their inherent capabilities make them uniquely valuable in providing both short notice and long term assistance in disaster relief, not only for coastal locations, but sometimes well inland. While embarked helicopters can be particularly useful and ships may act as logistic support bases, hospitals and command posts for long periods, the specialist skills available in ships also mean that their personnel can be invaluable sources of trained manpower for rehabilitation and repair work. Most importantly, naval forces are self-supporting and do not create additional logistic burdens in situations where infrastructure has been destroyed or severely damaged. Disaster relief is one of the many activities to which naval forces can be expected to make an immediate and effective contribution with little or no warning.

Operation SUMATRA ASSIST, 2004-05

On 26 December 2004, an undersea earthquake off Sumatra resulted in a tsunami that devastated the adjoining coastal regions and spread destruction and massive loss of life to many other nations around the Indian Ocean rim. The international response to this humanitarian disaster was unprecedented. Australia's relief efforts were spearheaded by a joint ADF task force which deployed to Indonesia. By 13 January 2005 the amphibious transport HMAS *Kanimbla* (II) was anchored off Banda Aceh and, with local infrastructure nonexistent, the ship's landing craft and helicopters were used to ferry vehicles, personnel and stores to the objective. Over the following weeks *Kanimbla* continued to support the working parties ashore, providing them with fuel, water, hot food and laundry services. The helicopters distributed humanitarian aid along the west coast of Sumatra and the ship's medical team supported the Anzac Field Hospital ashore while maintaining hospital facilities onboard.

Defence Force Assistance to Allied and Friendly Nations

Defence Force assistance can be provided to other countries in many ways. In addition to the benign activities associated with goodwill visits, warships can exercise and assist with the training of other national forces to increase their effectiveness. During an exercise, for example, Australia may provide submarines or aircraft for training, thereby allowing the practice of undersea and air warfare to a level not otherwise possible. Australia may similarly share intelligence and surveillance data within the limits of security policies.

In mid-2009 the hydrographic ship HMAS Melville*, with embarked clearance diving and geospatial support teams, deployed to the Solomon Islands as part of Operation RENDER SAFE, an ongoing joint Service effort to clear unexploded ordnance from Pacific Island Nations.*

Presence

Presence is the term used to describe the operations of naval forces in areas of strategic significance. Presence is intended to convey an interest and may involve simple passage through another nation's waters, port visits or exercises. Warships are unique and powerful symbols of a nation's identity, and their influence derives directly from such features as access, flexibility, poise and persistence. Presence is not itself a threat of force, but a *demonstration* of capability that can be used to reassure, to impress or even to warn, as circumstances dictate.

Evacuation Operations

Warships can be key elements in Service Assisted Evacuations (SAE) and Service Protected Evacuations (SPE). The potential for failed States and civil disorder has seen the need for these operations expand. Evacuations will almost always be conducted jointly and seek to use a seaport or airport, but an amphibious operation may prove necessary in undeveloped areas. In the case of SAE, the safety of the evacuation is guaranteed by local authorities and the focus is on achieving the safe and timely removal of nationals or displaced persons. In SPE, protective operations safeguard the process. These may be large scale and complex and could

demand sea control measures. Apart from their ability to transport and support large numbers of people, warships may also provide shore-to-ship transport using boats and helicopters, as well as the command, control and communications facilities to coordinate operations.

Evacuations are not initiated lightly and the circumstances in which the requirement develops generally involve a high degree of uncertainty. With their sophisticated command and control, sensor and weapon capabilities, deployed warships assist in keeping options open while the alternatives are examined.

Operation QUICKSTEP, 2006

In November 2006 the ADF dispatched a task group comprising HMA Ships *Newcastle*, *Kanimbla* (II) and *Success* (II) to the waters off Fiji in response to increasing tensions between the Fiji Government and its military. The presence of these vessels confirmed the Australian Government's commitment to provide security if violence broke-out and to evacuate its citizens if threatened. If required, the force could have remained poised in the area for several weeks. Fortunately, the crisis did not descend into chaos and in late December the RAN units and their embarked land forces were ordered back to Australia.

Preventative Diplomacy

Preventative diplomacy aims to prevent disputes from developing, or to prevent existing disputes from escalating. The capacity of warships to poise and be persistent is particularly important in this phase as governments attempt to resolve complex and ambiguous circumstances.

Coercion

If a situation requires more direct action, navies can be used to coerce a would-be adversary by demonstrating Australian readiness to deploy sufficient combat power to either make their aim unachievable or its consequences counterproductive. Warships can thus be effective deterrents and, with specific reference to submarines, can often have a coercive effect disproportionate to their size and number.

In many circumstances, particularly those in which the main events are on land rather than at sea, coercive action will require close cooperation with deployable land forces and air power. Maritime forces, including amphibious forces, have particular value in such cases because they are able to remain for extended periods just over the horizon, and thus achieve coercive effects without necessarily violating national sovereignty.

CONSTABULARLY OPERATIONS

When discussing maritime activities, the idea of *constabulary operations* is particularly valuable because it emphasises the historically close and continuing relationship between navies and domestic and international law enforcement. Constabulary operations function within the framework of domestic law and Australia's international law obligations and hence the amount and degree of force that can be applied must be strictly within the mandate given. This highlights an important difference between constabulary and military operations in that, while the former depends upon legitimacy deriving from a legal domestic mandate or an internationally agreed order, the latter, whatever the degree of force implied, threatened or exercised, is defined primarily by the national interest.

In December 2008, the frigate HMAS Arunta *(II), the
West Coast Operational Response Vessel, steamed 1000nm
into the Southern Ocean to provide emergency medical assistance
to a solo yachtsman.* Arunta *sailed from Fleet Base West
only five hours after being warned of the mission.*

Search and Rescue

All vessels on the high seas and aircraft operating over them have obligations under international law to assist in search and rescue. In addition, individual sovereign States, including Australia, have accepted coordination responsibilities within their areas of interest. In Australia's case, this encompasses a significant proportion of the Earth's surface, ranging well out from the coast and into the Pacific, Indian and Southern oceans (see Figure 10.3). Naval and air forces may therefore be required to engage in search and rescue operations at very long range and in extremely demanding conditions with little notice.

Environmental and Resource Management and Protection

Fisheries protection is one of the oldest constabulary roles of naval forces and Australian warships have been engaged in this task since the earliest days of the Commonwealth. Today, in an era of extending jurisdiction and increasing exploitation of, and stress on, fish stocks in both coastal and oceanic waters, it remains a vital activity. Furthermore, the resource protection task has extended considerably in recent decades to include the surveillance and protection of offshore industries and the monitoring of the natural environment and the actions of humans within it. The emphasis of such operations on direct national economic benefit has thus begun to include more wide-ranging concerns of environmental quality.

Gayundah's 'Special Cruise', 1911

The Australian Government has long relied on the Navy for domestic law enforcement, particularly when seeking a credible means of policing our sovereignty in remote regions. In late 1910 the Minister of Trade and Customs asked the Defence Minister whether a Commonwealth warship could be found to undertake a 'special cruise' in northern waters. For what was then a barely funded force, this was no easy task, but on 22 April 1911 the Brisbane-based gunboat HMAS *Gayundah* set out on a four month mission. Although she apprehended just two vessels found fishing illegally, her mission also involved support for a federal scientific expedition, surveys of the lesser known bays and inlets, and intelligence gathering on foreign fishing fleets.
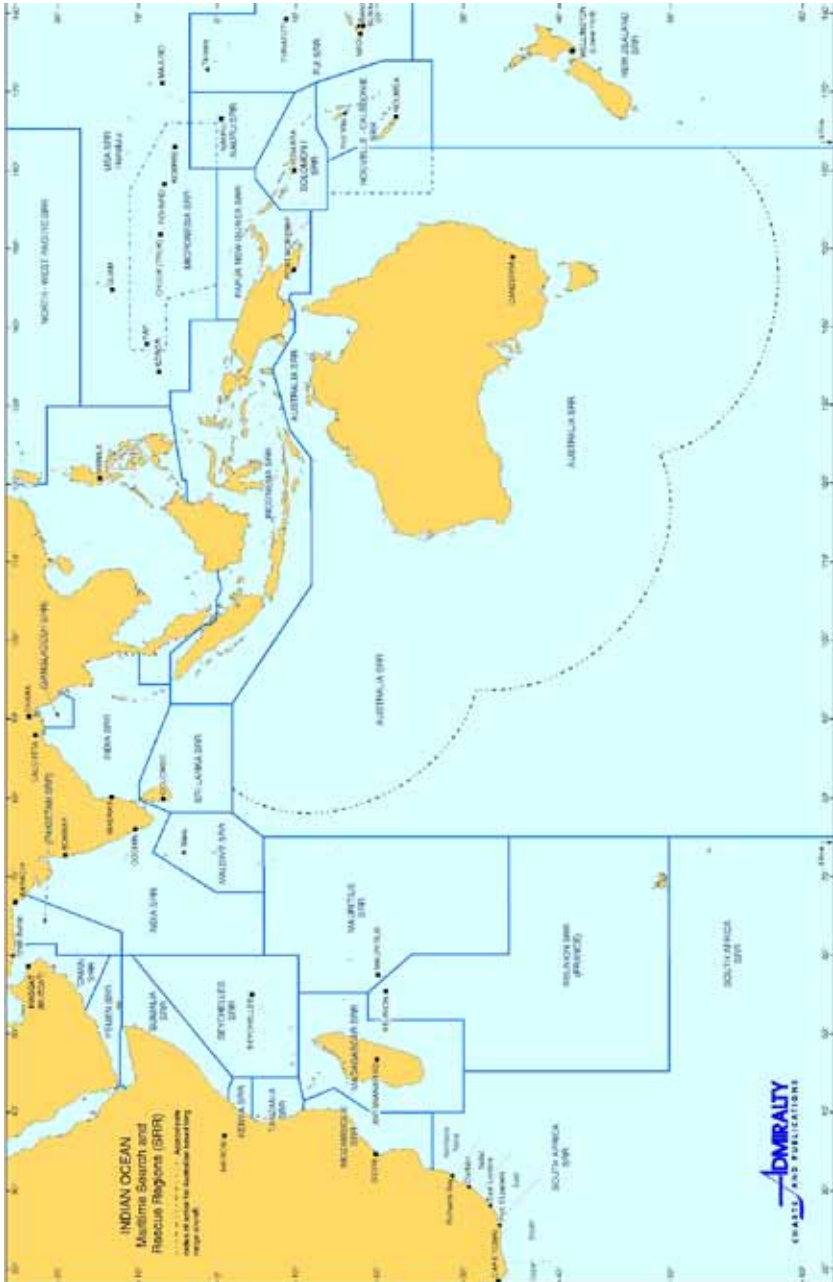
Figure 10.3 - Indian Ocean maritime search and rescue regions (Admiralty).

Defence Force Aid to Civilian Authorities

Naval operations providing military assistance to civilian authorities are usually aimed at supporting domestic law enforcement at sea within national jurisdictions. Defence Force Aid to Civilian Authorities supplements law enforcement measures undertaken by Commonwealth or State Governments where the ADF may be required to use force. These operations might, for example, include counterterrorism tasks such as the recovery of offshore gas or oil installations, or of ships held by terrorists.

Maritime Barrier Operations

The formalised economic blockade of naval tradition is likely to be rarely used in the future, but within the spectrum of operations there remain tasks requiring the use of forces to prevent the passage of people and commodities through maritime areas subject to national control. Maritime forces play a significant role in combination with other government agencies in operations such as the enforcement of quarantine regulations, drug interdiction and the prevention of illegal immigration. Defence Force personnel are specifically empowered to undertake such activities by Commonwealth legislation.

Operation TARTAN, 2003

In April 2003 the frigate HMAS *Stuart* (III) sailed from Sydney carrying special forces personnel. Her task was to stop the 4000 tonne North Korean freighter, *Pong Su*, suspected of involvement in the landing of significant quantities of drugs near Lorne in Victoria. Although ordered to stop by Victorian Police vessels, *Pong Su* had failed to do so, and a hot pursuit ensued. Coastwatch and RAAF maritime patrol aircraft maintained surveillance. *Pong Su* was eventually stopped and boarded some 90nm from the coast, searched, and finally jurisdiction was handed over to the Australian Federal Police and the Australian Customs Service.

Counter-piracy

Like all navies, the RAN is bound under the LOSC to suppress *piracy* wherever it may occur. By definition piracy occurs only on the high seas. Within territorial waters, piratical activities are legally described as armed robbery at sea and must be dealt with by domestic mandate. In circumstances where piracy or armed robbery at sea are actively interfering with commerce and other peaceful activities, the same measures which apply in other situations for the protection of merchant shipping must require to be applied in sea control operations. The more sophisticated, technologically advanced and aggressive the criminal activity, the more demanding such operations will be.

While on patrol in the Gulf of Aden in September 2009, HMAS Toowoomba *(II) received an emergency call from a merchant ship. The vessel reported a boat carrying armed individuals closing at high speed. By enforcing the Government's policy to deter, warn, intercept and disarm vessels and persons suspected of engaging in acts of piracy, the frigate removed the threat from the shipping lanes.*

Peace Operations

Peace operations encompass those operations that support the diplomatic peace process. They are considered under the constabulary rather than the diplomatic or military roles because they are generally mounted in pursuit of UN Charter purposes and principles. The major categories relevant to the maritime environment are explained below.

Peacebuilding. *Peacebuilding* aims to prevent disputes, conflicts and other crises from arising or, having come to pass, ensuring that they do not recur. Where reconstruction of a State or region is being attempted in the wake of conflict, navies can provide many facilities to assist with such work, both in platforms and personnel. Key areas where naval forces undertake such efforts include mine clearance, the opening of ports and ordnance disposal and salvage. Depending upon the scale of the task, such activities may take many years to complete. For example, since 1945 the RAN has worked to clear enormous quantities of dangerous wartime ordnance not only from Australian territory and waters, but also from around the region and in Middle East conflict zones.

*RAN clearance divers frequently assist
in the disposal of explosive ordnance.*

Peacekeeping. *Peacekeeping* describes non-coercive diplomacy and formally refers to observer and interposition forces. Peacekeeping operations implicitly operate under a mandate and according to conditions which are agreed to by all the belligerent parties. Open-ocean peacekeeping operations are rare and, more commonly, naval forces will be used to patrol coasts, estuaries and rivers to monitor ceasefires. Warships may also often provide a useful neutral venue for talks, while specialist naval personnel can be employed as military observers, liaison officers, headquarters staff officers, disarmament inspectors or in medical or communications teams. Moreover, naval forces, particularly amphibious vessels and embarked helicopters, can provide substantial logistic support to peacekeeping forces ashore.

In July 2003, the highly visible presence of HMAS Manoora *(II) off Honiara in the Solomon Islands provided a clear demonstration of the hard power that backed Australian participation in the ongoing crisis and an unmistakable sign to all observers that change for the islands was imminent.*

Peace Enforcement. *Peace enforcement* moves a step further than peacekeeping and is defined as the coercive use of military forces to assist diplomatic efforts to restore peace. It may occur in circumstances where one or more of the belligerents have not consented to intervention by international forces. While the level of force which may be employed is carefully controlled, the possibility of reprisal by the affected party generally requires such operations to be conducted in concert with a range of self-protective measures. The roles played by maritime forces will depend upon the nature and scale of the operation, but may extend to high level sea control and power projection operations, as well as the provision of logistics support. Sanctions and embargoes are a major maritime component of peace enforcement.

Peacemaking. *Peacemaking* is defined as operations to secure a ceasefire or peaceful settlement, involving diplomatic action supported, when necessary, by direct or indirect use of military assets. The presence of a warship close offshore can assist immeasurably in this context, providing an unmistakable show of military strength and national resolve.

Sanctions and Embargoes

Although the level of force that may be employed during sanctions and embargoes is carefully controlled, the possibility of reprisal by the affected party generally requires such operations to be conducted in concert with a range of self-protective measures. Depending upon the nature of the threat, this may require sea control operations on an appropriate scale.

Proliferation Security Initiative, 2003

In May 2003, the United States announced that it would lead a new international effort, the Proliferation Security Initiative (PSI), to interdict shipments of weapons of mass destruction and related goods to terrorists and countries of proliferation concern. As one of the 11 original PSI participants, Australia took an active role in shaping the set of principles underlying the initiative, and the RAN and RAAF have regularly taken part in PSI exercises. By 2009 more than 90 countries had publicly committed to the initiative. The PSI is primarily intended to encourage participants to take greater advantage of existing laws to interdict threatening trade within their own jurisdiction. It does not grant any new legal authority to conduct interdictions in international waters or airspace.

*Maritime operations include those tasks
necessary to protect our natural environment*
(Great Barrier Reef Marine Park Authority).

- The RAN is organised and structured to deliver combat capability.
- An effective relationship with industry is a key element in delivering this capability.
- Maritime logistics ensure that combat forces meet their operational requirements.

The enablers of Australian sea power are the structures, systems and elements which support the RAN at sea.

ORGANISATION

An effective organisation is fundamental to the Navy's efficiency and hence its capacity to accomplish its assigned missions. The objective of the RAN's structure is to align the entire Service and its supporting agencies into a system which is focused on the delivery of trained forces and the necessary support to deliver combat capability.

The Chief of Navy commands the Navy and is responsible for raising, training and sustaining the RAN. Under the Chief of Navy are two major elements: Fleet Command and Navy Strategic Command (NSC).

Fleet Command

Commander Australian Fleet (COMAUSFLT) has responsibility to the Chief of Navy for the *full command* of assigned assets and to Joint Operations Command for the provision of operationally ready forces. While the Chief of Navy sets strategic requirements and priorities, COMAUSFLT is responsible for implementing these at the operational level. COMAUSFLT thus has dual responsibilities: to the Joint Operations Commander and to the Chief of Navy. Training, assessment and crossforce operational integration are major activities for Fleet Command.

At the centre of Fleet Command capability output are the four 'Forces': Surface Force; Submarine Force; Mine Warfare, Hydrographic and Patrol Force; and Fleet Air Arm. The Forces draw together specific operations and preparedness, doctrine, research, development and capability proposals, integrated logistics and configuration management, repair and maintenance, training and personnel requirements, and resource management. The Forces define and articulate their requirements, priorities and expectations from other agencies and service providers. They monitor the delivery of goods and services to achieve goals defined by the Chief of Navy and COMAUSFLT.
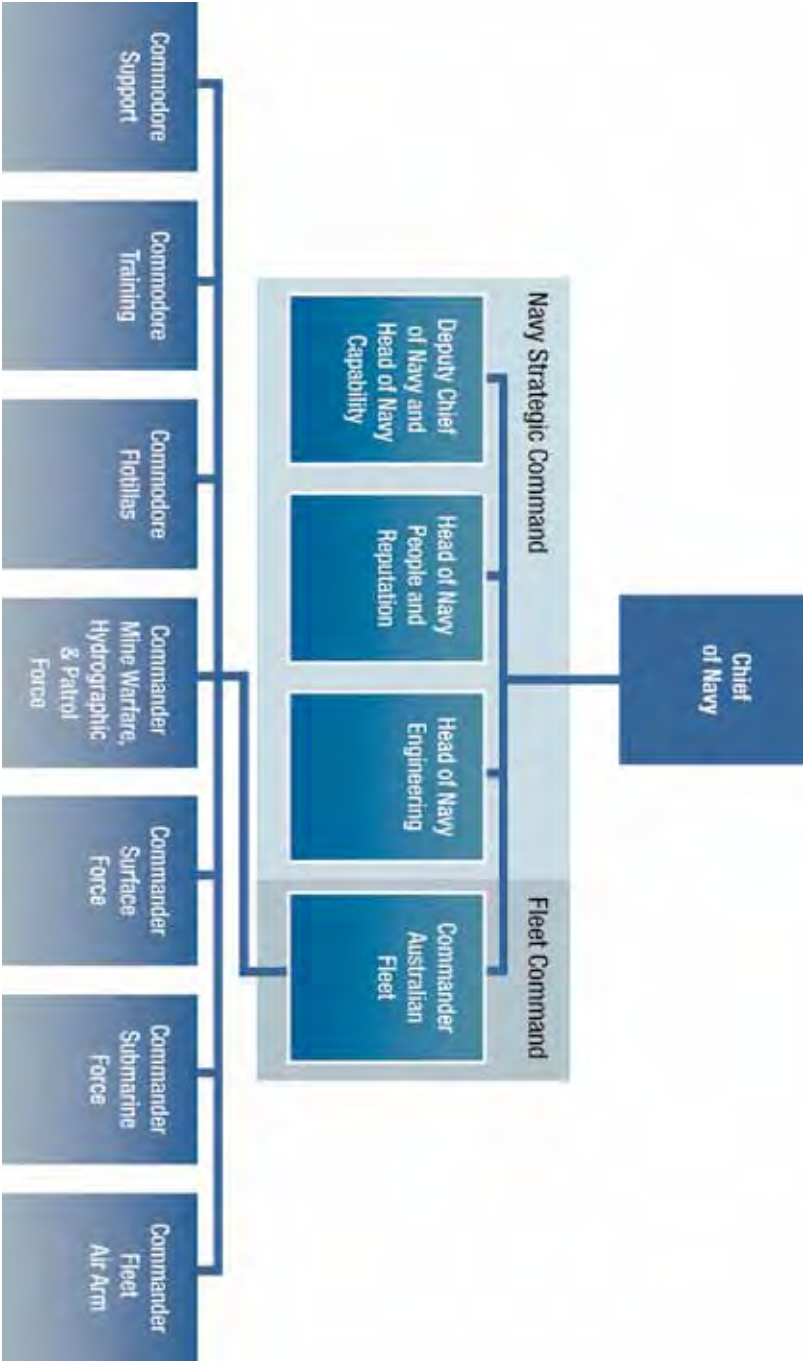
Figure 11.1 - Navy organisation.

Navy Strategic Command

NSC supports the Chief of Navy in directing RAN capability management and the delivery of the Defence Output for which the Chief of Navy is responsible, together with naval contributions to other Defence Outputs. NSC incorporates Head of Navy Capability, Head of Navy People and Reputation and Head of Navy Engineering.

All RAN activity ashore is focused fundamentally on the delivery of combat capability at and from the sea.

INDUSTRY

An effective relationship with national and international industry is vital for the development and support of sophisticated combat forces. Navies are particularly demanding in terms of skilled people, technology and manufacturing. Properly managed, however, the successful meeting of such demands on shipbuilding, system development and integration, as well as in-service support, brings substantial benefits for industry and the national economy.

Countries like Australia must nevertheless maintain a careful balance between generating combats capabilities and gaining long-term national industrial benefits. That navies seek to exploit the latest advances in technology is natural, but it also means the inevitable acceptance of technical risk. Success in meeting this challenge depends upon close cooperation among the Australain Defence Organisation, governments and industry.

A fleet is not a navy, and a nation cannot be said to possess an effective navy unless it also possesses a credible naval infrastructure.

MARITIME LOGISTICS

Logistic support exists to ensure that combat forces can meet readiness levels and be deployed, sustained and redeployed to meet the operational aims of the commander. Logistic support includes the provision of the stores and spare parts required by units, the supply and resupply of fuel and lubricants, ammunition and food, and the provision of medical support, maintenance support, personnel support and hotel services.

In practice, logistic support will often be conducted jointly and logistic issues may at times lend themselves to the economies of effort possible by integration of the needs of the three Services. There are, however, significant differences among the systems supporting these needs. The strategic, operational and tactical levels of logistics consist of many support organisations manned by contractors and uniformed and civilian staff. Continuity of logistic support is paramount to combat success.

An effective logistics system increases maritime combat power.

The naval logistics system is structured very differently to those of the other Services because of basic differences in the operating environment. Generally, the Navy's fundamental combat unit is a warship. Its logistics capability is inherent in its design. Ships deploy from their home ports with a spare parts inventory typically matched to an endurance level of 90 days, rations typically for 30 days and with the maximum quantity of fuel onboard. Warships are therefore largely self-sustaining particularly if supported by an underway replenishment group and the 'pull' forward of mission critical stores. This contrasts to the 'push' system used for land and air forces where the fundamental combat unit is either the soldier or the aircraft, both of which have limited capacity for self-support.

Australia's geostrategic circumstances reinforce the truism that the sea remains the principal medium for the movement of large quantities of material. This means that most logistic effort, whether directed towards maritime combat forces or not, will be by sea. Shipping must thus be considered a joint logistics asset. Its protection may well become a critical issue within a campaign that has few other apparent maritime dimensions.

The logistics capacity of navies can also act as a *force multiplier*. Ships can provide a large range of logistic support to land and air units and are especially useful in providing these services while the other Services' support units are deploying. That warships are largely self-reliant, and are not logistically disadvantaged by different operating areas to the same extent as land forces or air power remains a strategic advantage.

Sea Basing off East Timor, 1999

For the first three months of Operation STABILISE, naval units were the only source of the diesel and aviation fuel used by the INTERFET forces ashore. Moreover, with East Timor having few roads and airfields, and these often impassable or unusable in the monsoon season, seaborne resupply to regional centres was the only viable solution for supporting widely dispersed troops during the consolidation and sustainment phases of the campaign. The INTERFET Commander, Major General Peter Cosgrove, was typically straightforward about the crucial nature of sea basing:

> We surrounded East Timor with floating warehouses, gas stations, airports and docks and motels. It would have been a real struggle to maintain tempo and achieve sustainment ashore without our afloat logistics capability.

Shore Support

The logistic support process is founded directly upon shore support, a concept which embraces not only service facilities such as bases and supply depots, but private contractors, both domestic and international, as well as formal arrangements with allied governments for access to material and technical support. The sophistication of such support will depend upon the point within the logistics chain that it operates, as well as the urgency of the need.

Operation FALCONER, 2003

One of the finest examples of logistic support to a deployed RAN task group occurred during the 2003 Iraq War. Although staffed to support only two warships, in the weeks before combat operations began the Logistic Support Element (LSE) ashore found its responsibilities rapidly expanding to include three ships, a clearance diving team operating from numerous locations in Kuwait and Iraq, and an Army LCM8 watercraft detachment that also operated from different bases. This significant increase in responsibilities came at a time when the logistics infrastructure ashore was extremely stretched with over 120 coalition warships operating in the Arabian Gulf. The success of the RAN task group in combat operations could not have occurred without the remarkable logistical support provided by efforts of the Commander LSE, Commander Chris Percival, and his small Joint-Service team.

The operations of deployed warships can be greatly assisted by the provision of local *host nation* support. Even at its simplest, in the form of sheltered anchorages, such support can considerably reduce the difficulties of resupply and provide the opportunities for stand-downs and deep maintenance which will considerably increase the length of time which units can remain operationally efficient in area. It is also true, however, that such host nation support is not an absolute necessity for maritime forces, provided that sufficient seaborne support exists to accomplish the mission.

The RAN has long made use of regional shore facilities, such as Sembawang in Singapore.

Reach and Sustainment

However capable naval combat forces are, their potential is enormously increased by the presence of support vessels. Indeed, there are few modern maritime operations which can be conducted effectively without such support. At its most sophisticated, extending to repair ships as well as stores, ammunition, food and fuel supply ships, such support can make a naval force indefinitely independent. This level of capability is currently possessed in full measure only by the US Navy. Medium power navies, such as those of Australia, nevertheless achieve a high degree of force multiplication by the possession of replenishment ships which are

primarily configured to provide liquid fuels but can also supply limited amounts of ammunition, stores and food. A credible Australian surface task group for extended maritime operations will always require the inclusion of a replenishment ship.

Coalitions of maritime forces can achieve economies of scale in the critical areas of spares, stores support and repair expertise. Mechanisms exist for the stock holdings of vital spare parts to be identified, such that they can be transferred from one ship to another which has a defect. This procedure is regularly conducted during multinational exercises and operations and extends to the loan of expert maintainers to rectify difficult defects. The process is greatly assisted by commonality in equipment among navies.

The interoperability most navies achieve in replenishment is itself a significant force multiplier that allows for the rapid combination of coalition forces in an emergency (US Navy).

Chartered Shipping

Support capabilities can be improved by chartering or leasing merchant ships and modifying them to the extent required by an operation. Indeed, effective sea lift in strategic terms rests even more upon the ability to access commercial tonnage than it does upon naval vessels. Commercial vessels cannot replicate the capabilities of purpose-built replenishment ships, but they can play a vital role in maximising the capacity of the latter by acting as resupply units between shore bases and the operational area. Mechanisms need to exist for the identification of appropriate hulls within the national register and in these circumstances the possession of a substantial national flag merchant fleet can be an important strategic advantage. Nations like Australia with smaller merchant fleets are more likely to be forced to purchase or charter ships for these purposes from overseas sources. This expedient is easier if there is surplus capacity, but can be difficult to achieve in emergencies.

The availability of effective medical treatment is both a major morale factor for personnel and an enabler of sea power.

- Success at sea depends on creating and maintaining battlespace awareness.
- Effective maritime forces depend upon a balance of capabilities working together.
- Interoperability maximises the capabilities of navies working together.

BATTLESPACE AWARENESS

The key to understanding what maritime and, more specifically, naval forces can create and sustain in terms of combat power is the fact that they can perform multiple tasks simultaneously for extended periods. These attributes are particularly valuable when there is a requirement to gather information to build and maintain near real time battlespace awareness. The operations rooms of major surface combatants down to the level of destroyers and frigates can acquire, process and display information continuously to a level approached only by AEW&C aircraft or the largest and most sophisticated shore-based headquarters.

Command and Control

All ADF operations are commanded by the Chief of Joint Operations on behalf of the Chief of the Defence Force. The operational level *control* function is provided by Headquarters Joint Operations Command or equivalent allied or coalition headquarters. The tactical level C2 of assigned forces is conducted by *Joint Task Forces* (see section below on Task Organisations).

Effective maritime operations depend on information management, a clear operational picture and a continual awareness of the commander's intent. Superior C2 is the enabler that satisfies these demands by providing the means and procedures to pass and act on information more quickly than the adversary. It is a unifying concept that brings an accurate picture of the battlespace, timely and detailed mission objectives and the clearest view of the targets.

The volume of information that can be provided, shared and actioned is managed by a strong reliance on networked systems. These networks vary according to their purpose but are increasingly integrated to provide a synthesised picture of events. Each individual ship, aircraft and even guided weapon can be thought of as a node in the network that is capable of continuously receiving information, and that has the option of remaining passive or actively contributing with information derived from its own sensors.

The number of networks which are established to maintain local battlespace awareness will depend upon the size and composition of the forces in the area of operations, their distribution and competing demands for communications bandwidth. In the event that forces are widely dispersed, multiple networks will be created, exchanging data internally on different radio frequencies. The more effective these networks, the more scope given to commanders to operate some of their units or formations covertly. Forces which do not transmit on radio, radar or sonar and which deliberately reduce their acoustic, magnetic and infra-red signatures, are extremely difficult for any adversary to detect, identify and target. Thus they can be positioned or repositioned to achieve surprise and can rely upon information received from other networked elements to avoid being surprised in turn.

Maintaining battlespace awareness demands constant and unremitting effort by personnel.

The common operating picture from which maritime forces work is known as the wide area surveillance picture (WASP). This is generally organised by a shore headquarters with real time connections into a variety of intelligence systems and wide area surveillance systems such as the Jindalee Over-the-Horizon Radar network. The generated picture is up to date, but is not real time. Ships can and do contribute to this wide area picture, as do land and air units. This picture is fundamental to effective operational level command, but its primary tactical use is to focus local surveillance effort and manoeuvre in relation to adversary positions.

To use the wide area picture to its best effect, it is not necessary that all combatant units have access to every aspect, but it is essential for the local commander to possess the computer systems, bandwidth and trained people to make full use of the information. The requirements for an operation that involves land forces as well as air power and naval forces will be even more demanding. Large amphibious ships possess the capabilities to deal with this situation.

Information Security and Assurance

Information security and assurance are vital elements of successful C2. The growing dependence on information and information technology systems creates increased risks if their security is not considered. The physical security of systems is only part of the awareness necessary for security, system integrity and survivability. Information operations are now a vital area of warfare and must provide effective responses to threats ranging from amateur hackers to an adversary's sophisticated computer experts. Conversely, information operations also seek to exploit adversaries vulnerabilties.

Electromagnetic Spectrum Management

Command and control also involves effective management of the components of the electromagnetic spectrum allocated for an operation. Possible sources of interference within the force, as well as those generated by the force that have the potential to impact on civil infrastructure require accounting and isolation. Most importantly, bandwidth is itself a scarce commodity which requires careful administration.

Intelligence

Intelligence is vital to maritime operations. Intelligence can provide the required level of information about the adversary and the operating environment required to ensure the success of the mission and the security of the operation. The development, maintenance and communication of intelligence assessments at the strategic and operational levels are essential for advising commanders of the capability and intentions of adversary forces and other factors affecting the conduct of an operation. Once processed, intelligence reporting from strategic and operational assessment agencies, together with *combat information* and intelligence from multiple sources, contributes to overall force effectiveness and protection.

Confrontation, 1964-66

The initial stages of Indonesia's 'Confrontation' with Malaysia took the form of cross-border raids in Borneo, but by 1964 infiltration efforts had spread to the Malay peninsula and Singapore. The Malacca and Singapore straits, full of fishing vessels and an endless stream of international shipping, were ideal for the concealment of raiding vessels. Naval and air forces from several Commonwealth nations established a relatively dense series of patrols, but the operating environment remained a challenge. Superior operational intelligence, largely derived from cryptanalysis and interrogations, together with the determination of Commonwealth forces to defeat incursions, resulted in the interception of 80 per cent of infiltration attempts and the deterrence of many others. Australian ships, notably the minesweeper HMAS *Teal*, achieved several successful interceptions.

TASK ORGANISATION

The maritime forces available to the ADF represent, within certain limits, a highly effective balance of capabilities. The capabilities of individual submarines, ships and aircraft do not merely complement those of others but become considerably more effective in combination than they are in isolation. Because of this, both naval and *joint forces* are regularly operated in *task organisations*. A task organisation is a hierarchy of units. It is based on the *task force* (TF), which is divided and subdivided into subordinate components which are called *task groups* (TG), *task units* (TU) and *task elements* (TE) respectively. The mission or missions to be accomplished and the expected threat environment are normally the primary means by which the composition of particular components is decided.

Not only the composition of the formations but their command can be organised and varied according to the requirements of the job to be done. Active components can be detached or recalled when required, while dormant components can be set up and activated by assigning units from other tasks. Organisation by task also simplifies coalition operations in cases where units of different nations are not familiar with operating with each other. The extent to which units are mixed or integrated can easily be varied according to the situation. Organisation by task is a highly flexible system for organising joint and combined forces and it is used for practically every type of maritime operation in peace or conflict.
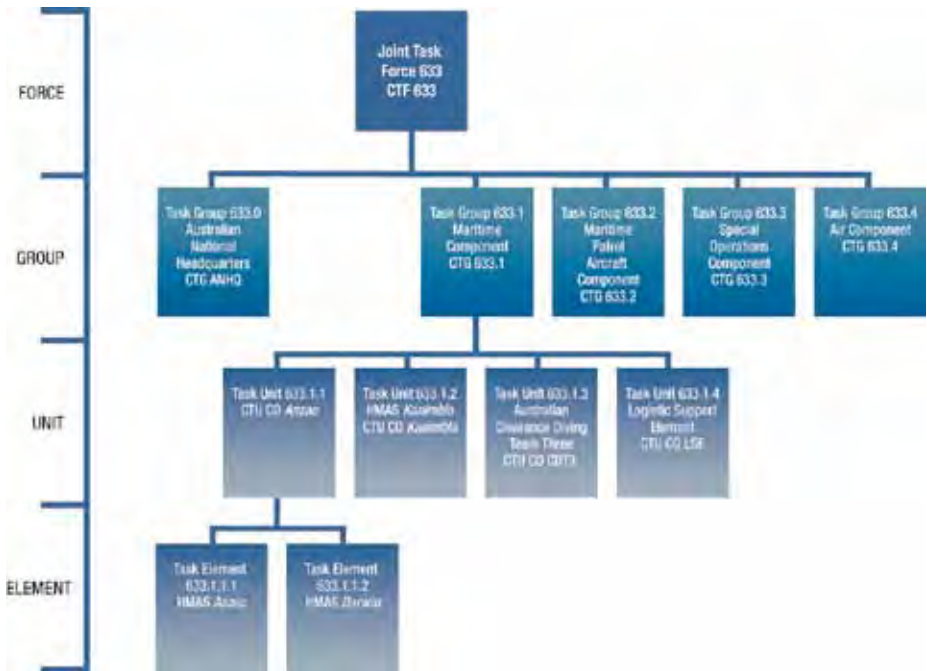
Figure 12.1 - Typical Australian task organisation.

PLATFORMS, SYSTEMS AND CAPABILITIES

The following sections provide a brief description of particular platform and system types in the ADF maritime force structure before analysing the primary warfare areas in which they operate (for more information see *The Navy Contribution to Australian Maritime Operations: RAN Doctrine 2*). Notwithstanding the specific impact of individual units and their unique attributes, effective maritime forces invariably depend upon a balance of capabilities working together. The nature of that balance, of the particular capabilities chosen and the amount of resources allocated to each, will depend upon a nation's strategic situation. However, while it may appear relatively easy to dispense with a capability, it is by no means easy to acquire or resuscitate one. Effective maritime forces cannot be created overnight and the process of acquiring a new capability extends not only to the acquisition of different units and systems, but to training and integrated logistic support, to the building of maintenance systems and base facilities and to the development of operating doctrine. Above all, it involves highly trained people.

The Fall and Rise of Australian Amphious Capability, 1980s - 2010s

During the 1980s Government policy rejected an amphibious capability as inappropriate for Australia's defence force structure and in consequence decisions were made not to replace the heavy landing ship HMAS *Tobruk* (II) and the six heavy landing craft then in service when they reached the end of their operational lives. However, a succession of regional crises thereafter highlighted inadequacies in the ADF's strategic lift, expeditionary and intervention capabilities, leading not only to the retention of existing amphibious vessels, but also to the acquisition of additional capabilities. The RAN and the Australian Army have since devoted considerable efforts to the revival of a credible amphibious force, a process which has taken more than a decade and which still remains in train.

Surface Combatants

In recent years the RAN has operated up to 12 major surface combatants. The force consists of more than one class of ship and is generally in a state of transition, as older vessels retire from service and new ones are commissioned. All ships can carry at least one combat helicopter, which is an integral part of each ship's weapon and sensor systems and an extremely important force multiplier, particularly for surface and undersea warfare.

Surface combatants, such as the Anzac *and* Adelaide *class frigates, are vital tools of government policy across the spectrum of operations.*

Destroyer and frigate-sized vessels represent the minimum size of surface combatant which possess surveillance and combat capabilities in all three primary warfare areas (air, surface and undersea) and which are capable of sustained independent operations. They are also key elements in any TG that the ADF may deploy for maritime tasks. Their flexibility and versatility will often make these warships a first choice in contingencies.

Submarines

The RAN's submarine force currently consists of six long range diesel-electric boats equipped with both heavyweight torpedoes and anti-ship missiles. These heavy weapons, combined with the submarine's qualities of endurance and stealth, make RAN boats primary strike and deterrence assets, and extremely useful for intelligence gathering, surveillance and reconnaissance. Submarines may influence events ashore in their own right and can act as delivery, support and extraction platforms for special forces. In addition to these roles, submarines can also make an extremely effective contribution to other naval combat tasks, such as undersea and surface warfare.

Collins *class submarines excel in high-end warfighting tasks, such as surface and anti-submarine warfare.*

The ability of submarines to conduct sea denial missions, such as blockade, makes them a formidable asset. Their covert nature also enables them to operate with less risk in a hostile air, undersea or surface environment. Also relevant is that the possession of a submarine force by Australia significantly complicates the military planning challenges faced by any potential adversary. It increases the size and capabilities of the force they would have to be prepared to commit to attack us directly, or coerce, intimidate or otherwise employ military power against us.

Submarines will often operate in association with surface TGs, generally well separated in distance but positioned to provide the greatest levels of defensive or offensive support. These operations call for effective communications among ships, aircraft and submarines as well as careful waterspace management by the controlling authority to ensure that no confusion arises as to the identity of friendly forces.

Mine Warfare Forces

The RAN maintains a force of up to six coastal minehunters. These ships hunt for mines by means of a high definition sonar and remote controlled underwater vehicle, and also have a limited minesweeping capability. They are designed with the smallest possible acoustic and magnetic signature to reduce their vulnerability to mines actuated by these methods. Craft of opportunity, such as converted tugs, fishing vessels and other small craft, can also be used to tow devices to clear minefields or confirm that areas are clear of threats.

The RAN's Huon *class vessels are capable of conducting both minehunting and minesweeping operations.*

The activities of all these forces are controlled by a Mine Warfare Command Support System, a mobile shore command facility which is organised to plan and coordinate mine clearance operations and which can be moved rapidly around the country to the area under the greatest threat.

Clearance diving teams assist with the identification and rendering safe of explosive devices, particularly in shallow water and in ports and harbours. They can also conduct clandestine hydrographic surveys of beaches for amphibious operations and clear mines or obstacles. Other elements within clearance diving teams can conduct underwater battle damage repair of fleet units, as well as support tasks involving the repair and installation of underwater fittings. Rendering safe and disposing of all explosive ordnance, including improvised explosive devices, is a core skill of all clearance diving teams.

The ADF does not currently possess an offensive mine warfare capability.

Amphibious Forces

The full concept of amphibious forces encompasses not only the ships and helicopters which provide the lift, but also the land forces and air power which have been trained and prepared for such operations.

Each of Australia's two Canberra *class LHDs will be able to transport and support 1000 embarked troops, who can be landed ashore from a mix of embarked watercraft and aircraft. Other troops will remain onboard providing command, aviation, medical and logistic support.*

The naval elements of an amphibious force will include the larger more capable transport vessels and their surface combatant escorts, together with mine warfare and hydrographic force elements. The Army will provide the major *landing force* together with a number of other elements, including aviation, medical, logistics, ground-based air defence assets and special forces as required. RAAF support in the form of reconnaissance, *air superiority*, surveillance, air traffic control, strike and ground attack would also be essential for most amphibious operations.

Combat Logistics

Underway replenishment units represent vital force multipliers, particularly for Australia where practically every conceivable operation must be conducted at considerable distances from shore bases, and which will therefore require reach. The RAN operates one multipurpose replenishment ship, which is capable of transferring fuel, water and limited amounts of food, ammunition and stores. There is also a fleet tanker, which is designed primarily for the transfer of fuel and water only, although it can additionally provide small quantities of food and stores. Resupply of fuel is important not only for the endurance of the ships themselves, but also for their embarked helicopters. Combat logistic ships therefore carry separate supplies of both marine and aviation fuel.

The RAN's combat logistic ships increase ADF and allied capability by keeping other combatant ships at sea for longer periods and allowing them to operate at greater ranges from port (US Navy).

Patrol Combatants

The RAN operates 14 patrol boats. Compared to the major surface combatants these craft are relatively simple and do not carry sophisticated sensors or overly powerful weapons for their surveillance and domestic law enforcement roles. They nevertheless represent a vital and highly effective component of Australia's efforts to control its maritime domain. In a major conflict they could contribute significantly to local patrol and surveillance efforts, particularly for inshore and harbour defence. They can also be used to transport and insert small parties of land forces.

The Armidale *class patrol boats contribute to the security of Australia's offshore maritime areas by providing a surveillance, intercept and response capability in a range of sea conditions.*

Maritime Geospatial Information and Services

The RAN is the national authority responsible for the work required to meet Australia's international commitments within the Australian Area of Charting Responsibility (see Figure 12.2). This is one of the largest cartographic areas of responsibility in the world. Hydrographic ships are required to conduct offshore, coastal and inshore work and the Navy's force has been developed to ensure that all these areas are covered. In addition to two larger hydrographic ships there are four survey motor launches and the Laser Airborne Depth Sounder (LADS) system. More work is conducted by survey motor boats and shore parties deployed from the hydrographic vessels and other teams are often detached to
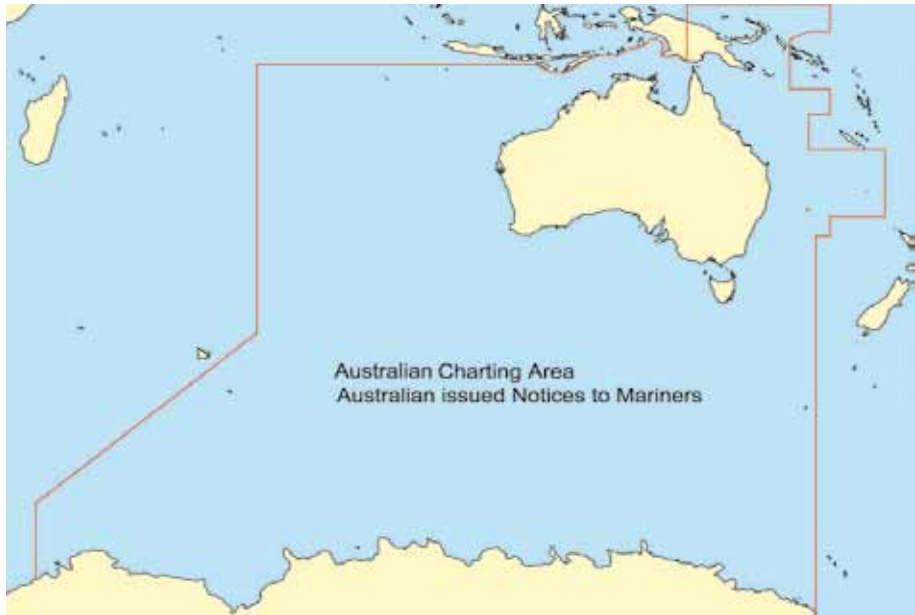
Figure 12.2 - Australian Area of Charting Responsibility.

areas such as the Antarctic to conduct surveys. Other units, including combatant forces, regularly collect oceanographic information, which is collated by the Australian Ocean Data Joint Facility. Meteorology and oceanography qualified officers also regularly deploy with naval task groups in support of operations.

Air Power

The RAN has operated with embarked combat helicopters for half a century, and flown them from frigate-sized vessels for more than thirty years. Naval utility helicopters have an even longer history, dating back to the early 1950s and the Korean War. Increasingly, the Army's battlefield utility, and attack and reconnaissance helicopters also operate from the larger naval flight decks.

Integral to Australian concepts of maritime warfare are the RAAF's MPA, strike, fighter and AEW&C aircraft. Indeed, both naval and air force operators crew the latter. The capabilities of air and naval forces tend to be complementary rather than supplementary because of the unique characteristics of each. The characteristics of naval forces have been discussed in Chapter 9 and those of RAAF air power are detailed in AAP 1000-D - *The Air Power Manual*.

Land Forces

Land forces can also make significant contributions to the conduct of maritime operations. In addition to providing conventional and special forces to interdict enemy naval forces ashore, they can seize and protect naval operating bases and control areas of land adjacent to choke points and focal areas. Specialised army units can also provide forces for logistic tasks and boarding parties, and supplement naval air warfare systems with ground-based air defence. This may be either in the form of permanent attachments to a ship's staff or in the form of detachments to particular ships for specific operations. In amphibious operations, Army units provide forces for ship-to-shore materiel and personnel transport in the form of both helicopters and landing craft.

In both the 1991 Gulf War and 2003 Iraq War,
Army RBS-70 missile detachments were deployed to
augment the air defences of the larger RAN units.

PRIMARY WARFARE AREAS

Air Warfare

The RAN no longer operates aircraft carriers and thus has no capability to embark manned fixed-wing aircraft. Thus the ADF must always plan for maritime air warfare on a joint basis. The provision of air cover for seaborne forces by land-based aircraft is highly demanding and becomes progressively more difficult, and eventually impractical, as the range between the air base and the theatre of operations increases and responsiveness and time on task decrease. Moreover, the provision of such cover must always be balanced against other air tasking. Naval forces must therefore ensure that they possess the capacity to defend themselves from air attack in the absence of *combat air patrols* (CAP).

CAP will be one part of the counter air operation undertaken by the air component of the joint force, which may also include offensive counter air activities to reduce the adversary's capacity to control the air. The CAP time on task can be extended by the provision of air-to-air refuelling. Their operations will be controlled either by air intercept controllers working in AEW&C aircraft, or embarked in major surface combatants.

The sensors and combat data systems fitted within major surface combatants enable them to develop and maintain a local recognised air picture, vital for the coordination of the air battle. Other networked units can contribute to this picture through external systems and sensors. The more diverse the systems available, whether air, land or naval, the more comprehensive will be the recognised air picture and the more capable the force of achieving the necessary level of control.

AEW&C aircraft and surface combatants are especially effective when operating in combination. This effectiveness will be even greater when units are eventually equipped with advanced networked capabilities such as the Cooperative Engagement Capability (CEC), which directly links and fuses sensor data between platforms and the SM-6 long-range anti-aircraft missile. The AEW&C aircraft possesses a much wider radar horizon, while the warship both carries more missiles than all but the largest formations of attack aircraft and significantly increases the AEW&C aircraft's operational envelope by providing protection beyond the range of land-based fighters. This synergy creates considerable defensive and offensive capability.

If available, the CAP will generally function as an outer element of a layered defence. Closer in, the varied missile and gun systems of the major surface combatants will provide further layers of *hard kill* against an incoming raid of aircraft or missiles. Ships fitted with modern surface to air missiles possess a substantial local *area defence* capability by which their missiles can be used to protect other ships in company. Area defence will be greatly

extended with the planned introduction of the long-range SM-6 missile and CEC. It is also an important advantage over point defence systems, such as the Evolved Sea Sparrow Missile, which are intended primarily to protect only the ship on which they are carried. Major surface combatants also possess sophisticated *soft kill* capabilities in the form of electronic decoys, and other systems that aim to divert missiles from their intended targets. Helicopters and other relevant units can contribute to these soft kill defences with their own systems.

In high threat conditions, amphibious and combat logistic ships will also be fitted with a range of defensive systems, both hard and soft kill. In a littoral situation, every effort will be made to coordinate TF air defence with the ground-based air defence provided by land forces.

Control of the air is an integral component of sea control. Very few maritime operations can be contemplated without consideration of air power.

Figure 12.3 - Hobart class destroyer combat system coverage (AWD Project).

Surface Warfare

The ADF has various means to conduct operations against enemy surface forces. Submarine-launched heavyweight torpedoes represent a formidable threat to the largest surface vessels. In addition to the attacks which can be conducted by fixed-wing aircraft with air-to-surface missiles or laser-guided weapons, submarines, naval combat helicopters and surface combatants are all capable of deploying anti-ship missiles. The difficulties of target identification and targeting, particularly in crowded or littoral waters, mean that short notice engagements will often be inevitable, increasing the importance of ship systems and embarked combat helicopters.

Undersea Warfare

Undersea warfare is generally the most difficult naval discipline, as the threat may neither be readily seen nor detected until after an attack has taken place. Undersea warfare falls into two main categories, anti-submarine and mine warfare. Both categories are complex, demanding and time consuming, requiring close coordination of many warfare assets and a very high level of understanding of environmental conditions.

Carefully positioned, submarines have considerable ability to detect adversary submarines by listening for generated noise on passive sonar equipment. The heavyweight torpedoes employed by RAN submarines are equally capable against surface and submarine targets.

Anti-Submarine Warfare

Submarines, naval combat helicopters and MPA are among the most effective platforms in searching for, deterring and destroying enemy submarines, the latter by means of radar, optical, magnetic and infra-red systems, or by monitoring the sonobuoys they drop into the sea to passively detect submarine generated noise. Some sonobuoys can also be used actively, generating a sound signal to echo range on an underwater target. Lightweight torpedoes are the MPA's primary *anti-submarine warfare* (ASW) weapon.

Naval combat helicopters embarked in surface combatants may likewise employ a variety of sensors, including sonobuoys and active/passive dipping sonar, and can also drop lightweight torpedoes. They will generally be used by the warship to investigate and engage an underwater contact while the ship remains out of submarine torpedo range.

Major surface combatants have torpedo defence systems, active hull-mounted sonar and carry lightweight torpedoes. These systems are primarily intended for self-defence, but may be employed to cover and protect other ships when they are escorting high value or *mission essential units* such as amphibious forces. In these circumstances a layered defence will probably be the most effective way to ensure that such units are successfully protected.

Mine Warfare

Defensive minefields are a very useful tool to complicate the task of enemy submarines because they can have a considerable deterrent effect, as well as reducing search areas. Mine warfare also has considerable potential for gaining and maintaining the initiative against an adversary. Pre-emptive sowing of even a limited number of mines outside their bases or in choke points can prevent an enemy's ships from deploying or returning to port and will force them to conduct time consuming and painstaking MCM. Mine warfare is subject to some restrictions under international law. Nevertheless, on more than one occasion it has been employed covertly by a State as a form of maritime terrorism.

MCM is most effective when forces possess a high degree of understanding of the environment, preferably in the form of route and local sea bottom surveys which can minimise the time taken to detect and identify mines. MCM operations will be limited to the minimum area required to be made safe to allow operations to resume or shipping movements to continue and they will be conducted so as to achieve the greatest possible threat reduction in the shortest possible time.

Mines, such as those fielded by Iraq in 2003, are relatively cheap and simple enough to be employed by the smallest nations or terrorist groups. They consequently represent a formidable challenge for maritime powers.

COMBINED FORCE INTEROPERABILITY

As discussed in Chapter 1, by sharing the same seas, navies frequently interact with one another and are at ease with the issues involved in multinational operations. Nevertheless, *interoperability* cannot be assumed and requires substantial and sustained effort to achieve common doctrine, procedures and communications. The greater the commonality in equipment and methods achieved, the less duplication of resources and the fewer delays there will be in achieving operational results when nations come together in contingencies.

Formal alliances are the primary mechanisms for achieving interoperability, but other approaches are possible through port visits, passage exercises and other cooperative activities. They can range from regular and highly sophisticated multinational exercises to exchange postings and information exchange agreements. Exchange postings and the use of liaison officers can be considered a *human network*, and deserve special consideration during contingencies because, in practice, workarounds will always be necessary when dealing with combined forces.

Operation STABILISE, 1999

Ten navies made up the INTERFET naval component and the Australian Naval Component Commander (NCC) in East Timor, soon found that coalition management was his biggest issue. Convoluted national command and control systems, the primacy of individual national objectives and limitations on tactical control could make flexible tasking difficult, but NCC took care to foster interoperability. To this end, and to avoid any impression that his was a purely Australian headquarters, NCC made foreign liaison officers an integral component from an early stage. These officers in turn formed a key part of the individual network of connectivity maintained by each national element and proved vital when negotiating workarounds.

Navy clearance divers are the human face of undersea warfare. As the RAN's own elite special forces they undertake minewarfare, reconnaissance, salvage and covert operations.

- Effective campaign planning requires full understanding of the relationships between strategic ends, operational ways and tactical means.
- All the elements of military force contribute to maritime campaigns, just as naval forces can contribute to land and air operations.

Maritime, air and land campaigns cannot be conducted in isolation, but must be considered according to the contribution that they can jointly make to the required end state. Even if a campaign can be considered to be primarily of one environment rather than another, it does not follow that it will not involve other elements. It is therefore vital for planners to seek to understand all the elements of military force — land, naval, air and others — if they are to become truly expert in their efficient employment. For the majority of ADF commanders maritime campaigning is the essence of the *operational art*.

CAMPAIGN PLANNING

A campaign is a controlled series of simultaneous or sequential operations designed to achieve an operational commander's objective. For the ADF, all campaigns and operations are commanded by the Chief of Joint Operations. Forces will be controlled either from Headquarters Joint Operations Command or from an equivalent allied or coalition headquarters.

Campaigns are normally limited in time and space. Campaign planning will coordinate the actions of air, land, sea and special forces as well as orchestrating the military effort with the other instruments of national power within a theatre. Campaign planners must consider the national strategic end state and ensure that the method chosen to achieve the military end state does not negate national post-conflict objectives. This relation of military actions to political ends is fundamental.

It follows that campaign planning is a dynamic and continuous process incorporating all the elements of operational design. Campaign planning requires sweeping vision and understanding of the relationship between strategic ends, operational ways and tactical means. It must account for the adversary's reactions and answer five questions:

- What military end state will achieve the strategic objectives?
- What ways are most likely to establish this end state?

- Are the forces assigned adequate to achieve the desired end state?
- What risks are acceptable?
- How should the assigned forces be applied within given constraints to best achieve the end state?

Campaign plans must be adaptable. They may be phased to allow for the sequential handling of multiple tasks or resource limitations; may contain a general concept for the entire campaign as well as a specific plan for the campaign's initial phase; and, as plans never survive first contact with the enemy, they must contain appropriate planning branches and sequels.

All these matters must be taken into account when planning a campaign, no matter whether the focus is primarily or even wholly maritime. Operating environments cannot be isolated from each other nor become entirely bound up in their unique conditions and circumstances. That said, skilful use of the sea and naval forces afford the campaign commander the opportunity for great flexibility across the whole spectrum of operations.

Maritime operations allow a commander to target an adversary's vulnerabilities, such that they become *decisive points* in achieving *operational objectives* and therefore the required end state. Under certain circumstances the commander is afforded the opportunity to control the tempo of operations, joining or breaking contact with an adversary when and where required. Effective C2 is essential for the optimum employment of naval forces. The commander can exploit the nature of maritime power in the campaign to get inside an adversary's decision making cycle, keeping them off balance and pressing forward to achieve the required end state.

Operation DAMASK, 1991

The 1991 Gulf War remains an outstanding example of successful campaign planning in maritime operations. At the peak of operations against Iraq there were more than 100 warships and auxiliaries from 15 nations inside the Arabian Gulf, operating some 200 fixed-wing and 300 rotary-wing aircraft. The operation was an unquestioned success and, despite the high intensity of the campaign and that it was an *ad hoc* rather than a formal coalition, there were no fatal friendly fire engagements at sea.

There are many factors which need to be considered in the planning process. Military resources and capabilities are finite and must be concentrated to achieve the aim. The operational planning imperative is to define the sustainability requirements and the capability trade-offs needed. To achieve this focus requires clear statements of the mission and the commander's intent. Ideally, there should be unity of command over all resources, including logistics.

Where C2 arrangements are complex, which inevitably they will be in both joint and combined operations of any scale, there must be close cooperation and coordination of activities to achieve the most efficient use of available assets and maintain the aim. Goodwill among the participants can overcome many difficulties.

CAMPAIGN TEMPO

The tempo of an operation is the rate at which events are driven. Generally, forces that can maintain high tempo, with fast decision making cycles, can seize the initiative and take advantage of uncertainty to exploit an adversary's weaknesses. Maritime forces are ideally suited to support high tempo operations because of their mobility and flexibility.

In July 1940 Captain John Collins, RAN, used the freedom of action given to him by his operational commander to delay a foray into the Gulf of Athens and keep HMAS Sydney *(II) close enough to support friendly destroyers sweeping westwards near Cape Spada. The result was the sinking of one Italian cruiser,* Bartolomeo Colleoni, *and damage to another.*

To achieve this high tempo, keep the initiative and exploit success, an operational commander must be prepared to devolve decision making, allowing subordinate commanders freedom of action. The operational level commander must also be aware that tempo may be constrained, not by the endurance and sustainability of the unit, but by the physical endurance of its crew.

DECISIVE POINTS

In the conduct of a campaign, consideration must be given to identifying an adversary's critical vulnerabilities and attacking them while protecting one's own. Indeed, the loss of any major ship in a force may prove decisive, as it may represent a significant portion of that force's capability. Awareness of such critical vulnerabilities is crucial to effective operational planning. Vulnerabilities may include:

- transport ships in an amphibious force
- ships capable of delivering combat power
- replenishment ships in a deployed force
- the willpower and cohesion of the forces and their commanders
- C2 capability
- intelligence, surveillance and reconnaissance units
- air warfare assets
- physical endurance of crews
- availability of vital, consumable stores
- geography.

It is rarely possible to plan in great detail beyond the first phase of a campaign because the outcome of that phase will shape subsequent plans. Part of the planning process must be the consideration of contingencies and this must be initiated early in the planning cycle. Once the plan has been set in motion, the commander must constantly study the unfolding situation, revise and reorder the plan as necessary. Maintaining flexibility is the key to success.

Tasman Sea, 1942-43

Following the opening of the Pacific War Australia's primary role was to act as channel through which men and materiel from the United States could be moved into the South-West Pacific theatre. Australia's critical vulnerability in terms of both national economy and defence was its sea lines of communication. Prosecuting the campaign in New Guinea, for example, required the unhampered movement of troops and supplies along the east coast, just as continued local steel production required the regular shipment of coal and iron ore. Australia's maritime defences were weak and had it faced an attack on the scale of the U-boat campaign in the Battle of the Atlantic it is probable that the country would have been rapidly isolated and reduced to strategic irrelevance. Fortunately, Japanese naval doctrine was relatively unsophisticated and remained focused primarily on fleet operations. The sporadic attacks on Tasman Sea shipping attempted by Japanese submarines were insufficient to shape the course of the campaign.

OPERATIONAL CONSIDERATIONS

Information

The single most important factor in a maritime operation, especially one involving diverse joint or combined forces, is information flow. Developments in *data links* and satellite communications have increased the speed with which information can be transferred to the commander and individual units (see Figure 13.1). This has improved their awareness of the battlespace and their ability to operate within it. Furthermore, networking developments are increasing the ability of all units to contribute to the achievement of battlespace awareness. Because of their diverse array of organic sensors and, equally important, their ability to display, manipulate and communicate the collected information, naval forces can provide considerable real time and near real time input to a joint commander's operational information and intelligence pictures.

Even the smallest warship has at least some interest in what is occurring within a radius of several hundred nautical miles. The *area of interest* to a TG commander easily extends to a radius of a thousand miles or more around the force, and the requirements for maritime *air support* and operational intelligence will take that into consideration. The key factors to consider are not just distance, but weather, relative velocity and the detection capabilities and engagement ranges of own and enemy forces.
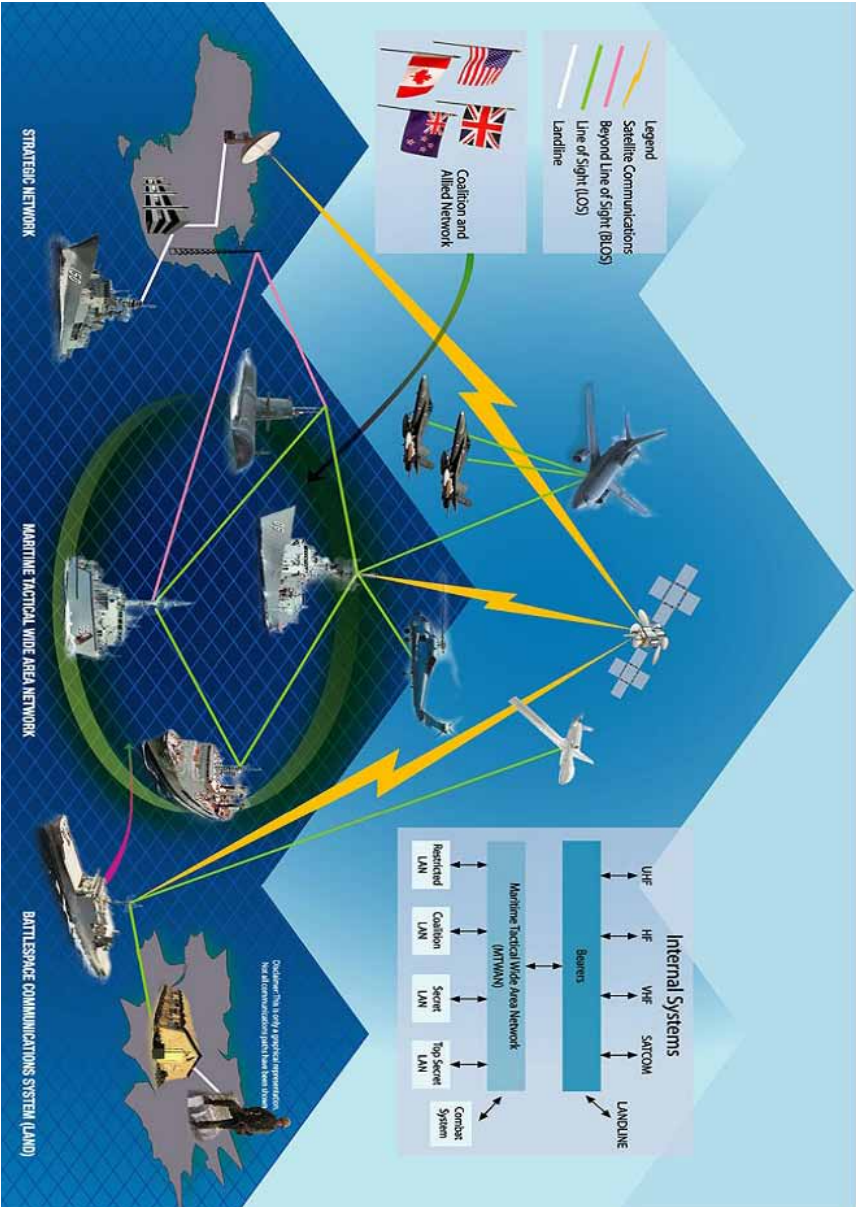
Figure 13.1 - Future maritime information systems will deliver a greater level of useability and flexibility to the warfighter at sea.

In the event of combined operations, special equipment fits and the development of agreed procedures may be required to allow the successful integration of all units within a task force. Effective communication does not simply require common codes and having radios on agreed frequencies. It involves procedures that all partners can use, allowing compatible message and information exchange. The greater the degree of interoperability, particularly in communications, the less duplication of networks will be required and thus the less demand there will be on the limited bandwidth available.

Intelligence

Intelligence provides fundamental information about the adversary and the operating environment which is essential for the success of the campaign. Assessments of the adversary's capabilities, intentions and decision making mean that they can be worked into the planning process and such factors as the adversary's centres of gravity, objectives and end states properly understood. Effective mechanisms will be required to ensure that intelligence assessments are developed and communicated to all appropriate levels of command throughout the campaign.

Naval Forces

From a naval perspective the following operational characteristics need to be addressed in developing a maritime campaign concept:

- Units may require several days to deploy to a prospective *Joint Force Area of Operations*, depending on distance and readiness.

- Diverse environmental factors require special consideration to deal with the range of bathymetric and meteorological conditions which may be encountered. These may include suitability of hydrographic data, shallow and confined water operations, climatic variation and meteorological extremes.

- Prolonged, isolated operations will reduce the combat effectiveness of maritime forces through the degradation of personnel and equipment capabilities. Consequently, attention must be given to factors such as forward support and fatigue.

- Damage sustained by a major naval unit may make it necessary to redeploy that unit to a location with a suitable naval repair infrastructure.

- Limited availability of assets and the complexity of some maritime operations will invariably require direct allocation of scarce resources by the campaign commander. For example, the possession by an adversary of just one submarine of relatively limited capability would require an amphibious force to be provided with a comprehensive anti-submarine escort, including surface combatants and embarked helicopters, supported by MPA.

Air Power

It is important to consider issues relating to air power alongside the naval factors when assessing force requirements for campaign planning. They may include:

- Range limitations, the availability of aircraft, the endurance of aircrew and the effect of weather - in the operational area, en route to that area and at the operating base - may affect the availability of air support.

- Prolonged high intensity air operations require large supplies of aviation fuel and ammunition, which will almost certainly need to be moved by sea, particularly if the aircraft are working from a forward operating base.

- Fuel used by aircraft in transiting to operating areas reduces the time available for operational tasking - hence a naval force's interest in organic air capabilities or, failing that, well located forward operating bases.

- Modern aircraft are increasingly multi-role and therefore may be multi-tasked. This may result in the campaign commander allocating such scarce resources to other high priority tasking.

Land Forces

There are also considerations for land forces in maritime campaign planning. The support of army operations from the sea is affected by:

- Availability of ships, including naval and commercial vessels, capable of transporting and sustaining troops and equipment.

- Capacity and configuration of available tonnage — it may not be possible to load army units such that they can be unloaded in a tactically ready sequence.

- Speed and vulnerability of selected ships.

- Continuing availability of resources such as cranage, lighterage, landing craft, helicopters and any other ship-to-shore assets required to embark and disembark troops and equipment.

- The suitability of army equipment for sea transport and operations from ships.

- Offensive support resources.

- Endurance of embarked personnel and equipment — sending troops to sea and keeping them at sea can have considerable effects on their fitness and battle readiness if matters are not managed carefully.

- Defensive support resources (especially for air warfare).

Maritime support to land operations can also include support to special forces and *naval gunfire support* (NGS), as well as land attack. Additionally, in a maritime campaign, land forces may be involved in aspects such as *logistics over the shore* support and the securing of forward bases, for naval forces or air power, or to deny such bases to an adversary.

Areas of Operations

If a Joint Force Area of Operations, with its associated boundaries, is established, it is vital that it be consistent with the tasks, assets and both primary and secondary roles assigned by the commander. A fundamental consideration in the assignment of operating areas is that of sea room - the space necessary for ships to manoeuvre and engage an adversary whose movement may be unrestricted. A balance has to be developed which will not compromise the integrity of the mission or the tactical commander's freedom of action. Maritime operating areas will necessarily be large and they must - for both ships and aircraft - be constructed so as not to inhibit operations in area or in transit.

Iraq War, 2003

Prior to the opening of conflict in March 2003, Australian ships were required to maintain an almost permanent presence in Iraq's shallow territorial waters. Conducting maritime interception operations in the prevailing high wind and sea states posed a challenge, particularly when the need to keep open fire control radar arcs restricted manoeuvrability. To expand their sea room, successive commanding officers conducted their own rapid survey on flood tides, running over some shoals in an attempt to increase the amount of water they had available. Providing further assurance, the British survey vessel HMS *Roebuck* conducted a rapid environmental assessment, which added another 30 per cent to the water available. This increased command confidence by providing greater freedom of manoeuvre, an important consideration when the threat of anti-ship missile and small boat attacks weighed heavily on the operational commander's mind.

Rules of Engagement

As noted in Chapter 4, Rules of Engagement (ROE) are directions to operational and tactical level commanders which delineate the constraints and possible freedoms in the application of force. Consideration of the requirements for ROE must begin at the start of the campaign planning process. They must be established only after a thorough appreciation of the situation has been conducted.

ROE offer considerable scope to maritime operations through the ability of maritime forces to employ graduated levels of force and response. Dormant ROE, which can be activated as situations develop, are an important means of providing flexibility in changing circumstances.

ROE within a concerted multinational operation are likely to be more contentious than in a formalised alliance. National policies might not always coincide and some deployed forces may have severe limitations imposed on the equipment they can use, where they can (and more importantly cannot) go and what they can do to support the campaign.

Logistics and Maintenance

Maritime logistics is a fundamental and critical part of the conduct of operations and must be planned for accordingly. Although warships deploy as self-contained units, they do require the resupply of fuel, provisions and consumable stores. Ammunition requirements will vary according to consumption rates, but ships normally endeavour to remain fuelled and stored to the highest practicable levels to maintain the maximum flexibility for tasking.

Deployed warships may be resupplied from an afloat support force, or from a LSE ashore. Generally, the smaller and less sophisticated the ship, the greater its reliance on external support. Some small specialised vessels, such as landing craft or mine warfare ships, may require their own dedicated support. In any sustained campaign, the LSE will become vital, particularly as it may include a maintenance unit which can assist with assuring optimised operational performance through repair, maintenance, and upgrade. If a deployment is distant from a naval force's normal operating base, then the LSE must be forward deployed.

Naval capability is reliant upon technology and hence requires well trained and experienced people.

Although purpose-built ships normally form the core of an effective afloat support force, on occasion merchant ships can be chartered and adapted to meet specific naval requirements. The simplest example of this may be the conversion of a freighting oil tanker to include an underway replenishment capability.

Maritime logistics is also essential to the strategic mobility and sustainability of deployed joint forces. The movement of resources by shipping will be a fundamental enabler of joint logistics during the majority of ADF operations. In these cases sea lift will account for the majority of the total cargo delivered to an operational area.

Preparations for a Campaign

When mounting maritime operations, the naval force commander will coordinate all activities to ensure the arrival of the force in theatre at a level of preparedness that will enhance the likelihood of a successful outcome. Elements of preparedness include readiness, response times and sustainability.

THE CAMPAIGN

There are typically eight stages of a maritime campaign:

1. Identification of a Crisis
2. Force Generation
3. Deployment
4. Sea Control Operations
5. Power Projection
6. Support to Operations Ashore
7. Rotation
8. Withdrawal

Identification of a Crisis

Although some crises will appear with little or no prior warning, there will probably be at least some indications that a crisis is developing. Intelligence gathering and analysis can provide warning of changes in operating patterns and exercise programs and allows for strategic level identification and evaluation of potential crises. Maritime forces operating in international waters can gather useful intelligence and provide a significant surveillance capability — sometimes the only reliable source of evidence and thus a critical element in identification and assessment.

Operation SPITFIRE, 1999

In late August 1999 the frigate HMAS *Darwin* was tasked with participation in Operation SPITFIRE, a planned Service Assisted Evacuation from East Timor and a precursor to Operation STABILISE. Arriving on station on 6 September, *Darwin* patrolled a box near the Wetar Strait for the next 12 days. Initially positioned to provide search and rescue, flight deck and basic medical support for army helicopters transiting from Australia, the frigate was also well placed to escort the chartered fast ferry HMAS *Jervis Bay* (II) should it be required to embark evacuees. Equally important in view of the subsequent INTERFET insertion, *Darwin* began building and maintaining a comprehensive surveillance picture. Because she remained outside Indonesian territorial waters she was under no obligation to move.

Force Generation

The size and composition of the forces that are force assigned to the Chief of Joint Operations in response to a crisis will be shaped by:

- government policy objectives and strategic concepts
- understanding of the military conditions for success and end state
- assessment of the threat
- the forces available and their readiness
- the time available to respond
- the likely duration of a campaign and the rotation of forces to maintain capability.

A robust C2 system, together with the potential duration of the campaign, the need to sustain or increase force levels and logistic support arrangements will also have a profound influence on *force generation*.

Deployment

Deployment to a theatre of operations involves:

- mounting, embarking and sailing the force from home bases (although maritime forces have often been diverted directly from their current locations)
- passage to the area of operations
- transit and arrival in the theatre of operations in a posture appropriate to the threat and mission.

Coordination of the deployment will require careful planning and liaison with diplomatic posts, other civil authorities and allied organisations. *Force protection* must be ensured, including the security of the bases from which the deployment is being mounted. Consideration must be given to legal issues, selection of ROE and the use of civil transport. The routing of forces must be carefully organised to ensure security and force protection during transit.

Sea Control Operations

Wherever the freedom of action of a naval force is challenged and, in particular, as it approaches the area of operations, there will be a requirement to establish levels of sea control that will be sufficient to ensure its protection and to enable subsequent operations. Without sea control, the ability of maritime forces to manoeuvre, concentrate for offensive action, apply *leverage*, project power ashore and deny the same to the opponent will be constrained and battlespace dominance will not have been achieved.

Power Projection Operations

With the establishment of appropriate levels of sea control, naval forces are able to project power ashore. Power projection can take a number of forms, including amphibious operations, maritime air support and surface and sub-surface land attack. A robust C2 system that, in the case of amphibious operations, must be capable of commanding forces ashore, gathering intelligence, concentrating combat power and generating influence over the battlespace, is critical for power projection operations. Indeed, by exercising command from afloat it may be possible to avoid the requirement for a shore headquarters. In any case, coordination and synchronisation with land and air operations will also be required.

Support to Operations Ashore

Once the focus of an intervention campaign moves ashore, the emphasis of naval forces will shift from enabling operations to providing support. This is not to say that the tasks assigned to maritime forces will necessarily alter significantly, but the wider purpose will change. Expressed in the most appropriate doctrinal terms, maritime power can contribute to all the components of capability required for the conduct of operations ashore. In particular, the focus will be on enhancing the manoeuvrist characteristics of the land campaign by intelligent application of the principal attributes of maritime power, in particular its ability to enhance manoeuvre and apply force where it is least expected.

Rotation

The considerable inherent powers of endurance of both personnel and systems, allow forward deployed naval forces to remain effective for months. Nevertheless, operational relief is required at intervals, which will be more frequent in higher intensity operations. Personnel will generally show signs of strain before their ships, provided that the latter have arrived on station at high levels of maintenance readiness, but neither will last indefinitely and longer periods on station will have progressively greater effects. A contingency of any duration will therefore require a well considered program of rotation/roulement to allow rest, maintenance and refresher training. In considering the commitment to operations, such considerations will be a key determinant of force levels if a sustained and consistent presence is required.

An approximately six-monthly rotation and 30 separate deployments allowed Australia to maintain a consistent presence in the Northern Arabian Gulf between 2001 and 2008. The adaptability of the warships deployed provided for great flexibility in tasking (US Navy).

Withdrawal

Naval forces are inherently easier to deploy and withdraw from a remote campaign than land or air forces. Nevertheless, the withdrawal of forces will need to be planned as carefully as the deployment to the area of operations. If success has not been achieved, and withdrawal is to be made in the face of continuing or escalating conflict, it will be even more problematic. There may be a need to increase combat power ashore to stabilise the situation before withdrawal can take place. C2 will be difficult and fragmented and an afloat headquarters may provide the most secure and capable communications to assist. There will also be a requirement to provide protection, both for the naval forces supporting the withdrawal and for the forces being withdrawn. Protection of a withdrawal, like a landing but in reverse, requires the establishment of sea control.

Gallipoli, 1915 and Singapore, 1942

Throughout the Gallipoli campaign the Allied navies maintained control of the Eastern Mediterranean. This allowed not only the initial mounting of the expedition, but also its continued sustainment and, more importantly, the safe withdrawal of the land forces in December 1915 when the situation ashore became untenable. By contrast, in February 1942 the Allied powers had insufficient maritime strength to contest control of the waters around Singapore in the face of the Japanese onslaught. As a result there was little the Navy could do to prevent the fall of Malaya and Singapore, and the subsequent harsh imprisonment of some 15,000 Australian soldiers.
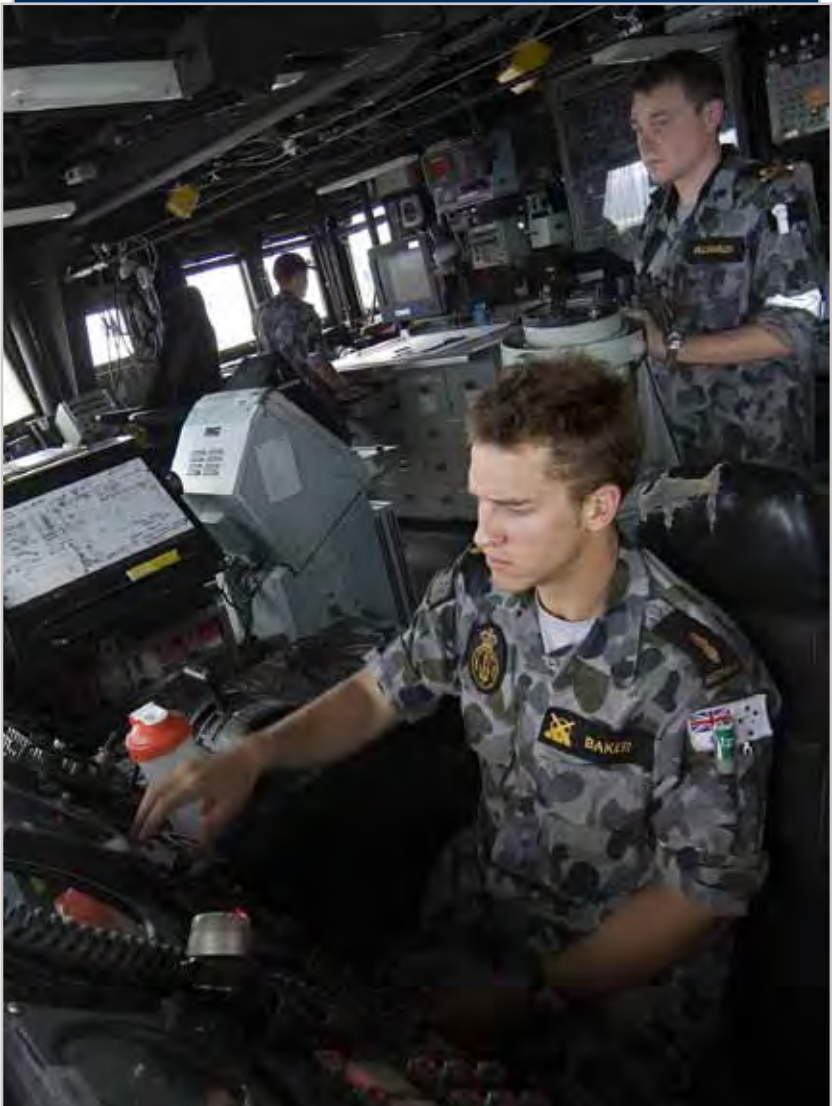
Sea based command and control is inherently flexible and robust.

14 THE FUTURE NAVY

14

Naval forces depend on technology, and are thus sensitive to technological change and the challenges and opportunities it offers. War at sea has long been a continual seesaw between offence and defence, particularly since the advent of asymmetrical threats just over a century ago in the form of the self-propelled torpedo and then the submarine. The thrust of recent technological development and particularly that related to network concepts has increased the sophistication of threats, but at the same time it has created many opportunities for the future employment of warships and enhanced the utility of navies. Some aspects have special significance for a medium sized power such as Australia.

BALANCING PRESENT AND FUTURE

One continuing conundrum is the requirement to balance the allocation of resources between current capability and future development. Despite the rapid advances in information systems and the increase in computer processor power, the development and acquisition of new technology for maritime combat is relatively protracted, particularly when compared with the speed at which the strategic environment can change. Moreover, the useful lives of warships have been increasing progressively over the past fifty years. This has meant that ships acquired within one strategic context have been routinely used under completely different circumstances, often carrying very different weapon and sensor packages than those with which they were first commissioned.

There is no simple division between the existing force, the enhanced force and the future force, because at any point the requirement for the employment of combat capabilities may emerge at short notice, and almost certainly at less notice than is required for the acquisition of these capabilities from scratch. The various resources required to achieve real capability in maritime warfare have already been noted in Chapter 12. Navies must therefore ensure that they maintain appropriate

levels of current capability for preparedness while ensuring that they acquire sufficient future capability to avoid block obsolescence. This effectively means that naval force development must be regarded as a continuum, rather than a series of distinct steps marked by ship and aircraft acquisition.

When they enter service after 2014, the Hobart *class destroyers will be among the world's most capable multi-role warships. Transformational weapons and sensors will allow them to fully exploit the potential of networked systems* (AWD Alliance).

FUTURE TRENDS

The increased effectiveness of information exchange networks and of long range surveillance systems presents both opportunities and challenges for naval forces. The same technology which allows for the early detection and tracking of surface, air and sub-surface elements also allows those same units to maintain battlespace awareness and thus the ability to employ their combat capabilities at short notice without the requirement to transmit. The key issue of maritime combat is no longer one of weapons capability but of knowledge.

Advances in capabilities are being driven by the information revolution and related technologies. A high priority is being placed by the ADF on the development of knowledge dominance. This relates to the effective exploitation of information technologies to allow Australia to use its relatively small combat forces to maximum effect. Knowledge dominance is also about using that knowledge effectively to make and implement faster and better decisions than the adversary. Knowledge dominance will exist when there is a comparative advantage in those factors that influence decision making and its effective execution.

Knowledge dominance is not only technological but has many influences. It relies upon effective organisation and doctrine, and upon properly trained and educated people who have the confidence to work within a culture which fosters initiative and professional mastery. Collectively, these factors place great emphasis on non-technological aspects.

Guided Missile Destroyers, 1965-2001

Designed in the 1950s and ordered in the early 1960s to provide limited area air defence for the Australian fleet, the three *Perth* class guided-missile destroyers (DDGs), provide an excellent example of the long-term flexibility of a well designed warship. All three were employed during the Vietnam War providing maritime interdiction and naval gunfire support. During the 1970s and 1980s the ships received regular weapon, sensor and C2 upgrades, and remained extremely effective ships. One, HMAS *Brisbane* (II), served in the 1991 Gulf War providing air defence and fighter control for US Navy aircraft carriers. The last DDG continued to serve until 2001, her final withdrawal due to high personnel requirements and the increasing cost of mechanical upkeep rather than the obsolescence of her warfare systems.

PEOPLE

People will thus remain the most important factor. Demographics and social change mean that the competition for talented recruits will become increasingly intense. The ADF, and the RAN in particular, face great challenges in recruiting and retaining the men and women of quality that will be needed. Meeting these challenges, and becoming the employer of choice, will require a process of continual adaptation and improvement that balances the needs of people against the demands of maritime operations. This will be a vital element of the Navy's plans for the future.

The RAN must continue to place the greatest store in the quality of its people.

THE SEA, THE LAND AND THE AIR

Technological innovation has increased the potential of warships to provide support to operations ashore and in the air, as well as to project power in their own right. Force networking, particularly in conjunction with airborne systems, means that warships are continuing to improve their capabilities to look over the horizon, around terrain and to cover inland areas with standoff weapons.

UAVs, some of which can be deployed from ships, show great promise for a wide range of uses, as do unmanned underwater vehicles. Amphibious forces will further exploit the benefits of littoral manoeuvre by conducting amphibious operations from over the horizon, employing embarked helicopters and landing craft.

These developments maximise the potential of naval task groups to achieve strategic effects and will be particularly important for the ADF as it seeks to transform from a joint to an integrated force. The operations of land force and air power elements have much to gain from sea power, and the ADF will accomplish most when all its components work together in as seamless a manner as possible.

Yet developments in networking and long-range precision munitions also mean that traditional linkages between particular platforms and their combat capabilities are becoming weaker. A precision weapon can equally be fired from a surface combatant or submarine, from a piloted or unmanned aircraft, or from fixed or mobile platforms on land. Thus the platforms operated by the individual Services must increasingly be thought of as components of joint systems, working together to achieve integrated effects. The enablers for operations, such as C2, will likewise need to be considered as capabilities which are ubiquitous to all environments and which support the activities of all elements. In these circumstances, the inherent capabilities of platforms, and in particular their flexibility, will be critical in determining which are most suitable in the future.

Recent ADF equipment acquisitions, such as the Wedgetail AEW&C aircraft, will provide significant improvements in detection and engagement ranges for surface combatants, and do much to hasten the ADF's transition to an integrated force.

IMPLICATIONS FOR A MEDIUM POWER

Maintaining and operating an effective navy is highly demanding of national research, industrial and technological capabilities. Swiftly applying emergent technology is even more difficult, particularly as it brings with it the prospect of risk and failure. But properly directed expenditure on naval systems and platforms can itself encourage industrial growth and technological development, creating additional strengths and opportunities for a nation's economy. For a medium sized power with limited resources, such as Australia, a careful balance will need to be drawn between the achievement of combat power and the development of national industry.

Hence, choices need to be made between attempting innovation solely on a national basis, engaging in cooperative development with friendly and allied nations and accepting without substantial modification the systems developed by others. For Australia, this means the development of a much more sophisticated approach to the problem of maintaining defence capability than has traditionally been employed, particularly when we were able to rely upon great power alliances for much of the infrastructure and technical and doctrinal innovations that modern navies, and sophisticated combat forces in general, require. This challenge, it should be emphasised, is not one only for the RAN.

Sea control is multi-dimensional in nature (CEA Technologies).

What must forever be kept in mind is that the physics and economics of transportation will always require an overwhelming proportion of military and commercial equipment and goods to travel by sea rather than by air. Although the tactics of war at sea will continue to change, Australia's need to achieve sea control will remain, simply because any adversary may have some capacity to interfere with our seaborne communications.

The future RAN will continue to rely on effective support from the families of its people.

Glossary

SOURCES

AAP-6	*NATO Glossary of Terms and Definitions* (2009)
ADDP 3.2	*Amphibious Operations* (2009)
ADDP 3.8	*Peace Operations* (2004)
ADDP 6.4	*Law of Armed Conflict* (2006)
ADDP-D	*Foundations of Australian Military Doctrine* (2005)
BR 1806	*British Maritime Doctrine* (Third Edition 2004)
JDP 0-01.1	*United Kingdom Glossary of Joint and Multinational Terms and Definitions* (Seventh Edition 2006)
JP 1-02	*Dictionary of Military and Associated Terms, USA Doctrine* (2008)
LOSC	*United Nations Law of the Sea Convention* (1982)

Note: Where no source is shown in brackets after the definition, the origin of the definition is this document, *Australian Maritime Doctrine: RAN Doctrine 1 - 2010*.

Access

The ability to approach and manoeuvre to achieve military aims within a designated environment.

Advance Force

A temporary organisation within the amphibious task force which precedes the main body to the objective area. Its function is to participate in preparing the objective for the main assault by conducting such operations as reconnaissance, seizure of supporting positions, minesweeping, preliminary bombardment, underwater demolitions and air support. (AAP-6)

Aim (Military)

A single unambiguous military purpose that must be established before a plan can be developed at any level of command for a military operation. (JDP 0-01.1)

Airborne Early Warning and Control (AEW&C)

Air surveillance and control provided by airborne early warning aircraft which are equipped with search and height-finding radar and communication equipment for controlling weapon systems. (AAP-6)

Air Superiority

That degree of dominance in the air battle of one force over another which permits the conduct of operations by the former, and its related land, sea and air forces at a given time and place without prohibitive interference by the opposing force. (AAP-6)

Air Support

All forms of support given by air forces on land or sea. (AAP-6)

Amphibious Assault

The principal type of amphibious operation which involves establishing a force on a hostile or potentially hostile shore. (AAP-6)

Amphibious Demonstration

A type of amphibious operation conducted for the purpose of deceiving the enemy by a show of force with the expectation of deluding the enemy into a course of action unfavourable to them. (AAP-6)

Amphibious Force

A naval force and landing force, together with supporting forces that are trained, organised and equipped for amphibious operations. (AAP-6)

Amphibious Operation

A military operation launched from the sea by a naval and landing force embarked in ships or craft, with the principal purpose of projecting the landing force ashore tactically into an environment ranging from permissive to hostile. (AAP-6)

Amphibious Raid

A type of amphibious operation involving swift incursion into or temporary occupation of an objective followed by a planned withdrawal. (AAP-6)

Amphibious Ready Group (ARG)

A tactical grouping of one or more amphibious ships and their escorts for the purpose of conducting an amphibious operation.

Amphibious Task Force

A task organisation of naval forces and a landing force, with their organic aviation and other supporting forces, formed for the purpose of conducting an amphibious operation. (AAP-6)

Amphibious Withdrawal

A type of amphibious operation involving the extraction of forces by sea in naval ships or craft from a hostile or potentially hostile shore. (AAP-6)

Anti-Submarine Warfare (ASW)

Operations conducted with the intention of denying the enemy the effective use of their submarines. (AAP-6)

Archipelagic Sea Lanes

Sealanes and air routes designated by an Archipelagic State that are suitable for continuous and expeditious passage of foreign ships and aircraft in their normal mode of operation through or over its archipelagic waters and the adjacent territorial sea.

Archipelagic Waters

Those waters enclosed by archipelagic baselines drawn in accordance with Article 47 of the *United Nations Law of the Sea Convention 1982*. The sovereignty of an archipelagic state extends to the waters enclosed by the baselines, regardless of their depth or distance from the coast, as well as the associated seabed, subsoil and airspace. (ADDP 6.4)

Archipelago

A group of islands, including parts of islands, interconnecting waters and other natural features which are so closely interrelated that such islands, waters and other natural features form an intrinsic geographical entity, or which historically have been regarded as such. (LOSC)

Area Defence

That principle of tactics where a formation is deployed to occupy an area within which it seeks to gain a tactical dominance and so weaken the enemy to the extent that offensive operations can be resumed or sustained.

Area of Influence

A geographical area wherein a commander is directly capable of influencing operations, by manoeuvre or fire support systems normally under their command or control. In maritime operations, such an area may be fixed or moving. (AAP-6)

Area of Interest

The area of concern to a commander relative to the objectives of current or planned operations, including their areas of influence, operations and/or responsibility, and areas adjacent thereto. (AAP-6)

Area Operation

In maritime usage, an operation conducted in a geographical area and not related to the protection of a specific force. (AAP-6)

Armed Conflict

Conflict between States, or between a State and organised, disciplined and uniformed groups within a State such as an organised resistance movement, in which at least one party has resorted to the use of armed force to achieve its aims. (ADDP-D)

Asymmetric Threat

A threat emanating from the potential use of dissimilar means or methods to circumvent or negate an opponent's strengths while exploiting their weaknesses to obtain a disproportionate result. (AAP-6)

Attrition

The reduction of the effectiveness of a force caused by loss of personnel and materiel. (AAP-6)

Balanced Fleet

A naval force that can be generated and sustained with the range of capabilities required to provide the national government with the range of military options required to meet national security and military strategic goals. Inherent in the force is the flexibility to deal with both symmetric and asymmetric threats in the maritime battlespace.

Balanced Force

A military force that has all the necessary capabilities to carry out a particular mission without unnecessary redundancy. (JDP 0-01.1)

Baseline

The line from which the seaward limits of a state's territorial sea and certain other maritime zones of jurisdiction are measured. (LOSC)

Battlespace

The environment, factors and conditions that must be understood to apply combat power, protect a force or complete a mission successfully. Note: It includes the land, maritime, air and space environments; the enemy and friendly forces present therein; facilities; terrestrial and space weather; health hazards; terrain; the electromagnetic spectrum; and the information environment in the joint operations area and other areas of interest. (AAP-6)

Battlespace Awareness

Knowledge and understanding of the battlespace that enable timely, relevant, comprehensive and accurate assessments in order to successfully apply combat power, protect the force and/or complete the mission. (AAP-6)

Battlespace Dominance

The degree of control over the dimensions of the battlespace that enhances friendly freedom of action and denies the enemy freedom of action. It permits power projection and force sustainment to accomplish the full range of potential missions. (JDP 0-01.1)

Belligerent

In time of crisis or war, an individual, entity, military force or state engaged in conflict. (AAP-6)

Benign Operation

The use of armed force for the capabilities not directly associated with combat that they can provide.

Blockade

An operation intended to disrupt the enemy's economy by preventing ships of all nations from entering or leaving specified coastal areas under the occupation and control of the enemy. Blockade is an act of war and the right to establish it is granted to navies under the traditional laws of war. This law requires, inter alia, that the blockade must be effective, that it is to be declared by the belligerent so that all interested parties know of its existence and that it is confined to ports or coasts occupied by the enemy. The expression is used more broadly to mean a combat operation carried out to prevent access to, or departure from the coast or waters of a hostile state. (BR 1806)

Campaign

A set of military operations planned and conducted to achieve a strategic objective within a given time and geographical area, which normally involve maritime, land and air forces. (AAP-6)

Capstone Doctrine

The single, foundational doctrine publication which sits at the apex of the doctrine hierarchy, and from which all other doctrine is delivered. (ADDP-D)

Centre of Gravity

Characteristics, capabilities or localities from which a nation, an alliance, a military force or other grouping derives its freedom of action, physical strength or will to fight. The centre of gravity at each level of conflict may be diffused or surrounded by competing decisive points. (AAP-6)

Clearance Diving

The process involving the use of divers for locating, identifying and disposing of mines. (AAP-6)

Close Blockade

A blockade that denies an enemy access to or from their ports. See distant blockade. (BR 1806)

Close Escort

Escort of shipping where the escorting force is in company with escorted shipping and can provide a measure of direct defence. (BR 1806)

Coalition Operation

An operation conducted by the forces of two or more nations, which may not be allies, acting together for the accomplishment of a single mission. (ADDP-D)

Coastal State

A state party within the terms of the *United Nations Law of the Sea Convention 1982* with a coastline under its lawful jurisdiction.

Coercion

The use of force, or the threat of force to persuade an opponent to adopt a certain pattern of behaviour, against their wishes. (JDP 0-01.1)

Combat

Military combat is a contest in which parties attempt to achieve mutually incompatible aims through the organised use of violence by armed forces. (BR 1806)

Combat Air Patrol (CAP)

An aircraft patrol provided over an objective area, the force protected, the critical area of a combat zone, or in an air defence area, for the purpose of intercepting and destroying hostile aircraft before they reach their targets. (AAP-6)

Combat Fatigue

The state of an individual or group of individuals seriously suffering from the stress of battle.

Combat Information

That frequently perishable data gathered in combat by, or reported directly to, units which may be immediately used in battle or in assessing the situation. Relevant data will simultaneously enter intelligence reporting channels. (AAP-6)

Combat Support Elements

Those elements whose primary missions are to provide combat support to the combat forces and which are a part, or prepared to become a part, of a theatre, command or task force formed for combat operations. (JP 1-02)

Combined Operation

An operation conducted by forces of two or more allied nations acting together for the accomplishment of a single mission. (ADDP-D)

Command

The authority which a commander in the military Service lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organising, directing, coordinating and controlling military forces for the accomplishment of assigned missions. It also includes responsibility for health, welfare, morale and discipline of assigned personnel. (ADDP-D)

Command and Control (C2)

The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission. (JP 1-02)

Command of the Sea

The ability to use the sea in its entirety for one's own purposes at any time and to deny its use to an adversary. Command of the Sea implies that dominance has been achieved to such a degree that the risk to one's own forces from enemy action are negligible or non-existent. (JDP 0-01.1)

Component Force

Each Service element of a Joint Force is called a component force or a Joint Task Force and is titled maritime, air, land or other component as appropriate.

Concerted Multinational Operation

An operation in which the forces of more than one friendly or allied nation are operating in the same theatre but without formal arrangements to coordinate operations or an integrated command structure. They cooperate to the extent that mutual interference may be minimised, information may be exchanged and some logistic support and mutual training offered. (BR 1806)

Conflict

An armed struggle or clash between organized groups within a nation or between nations in order to achieve limited political or military objectives. Although regular forces are often involved, irregular forces frequently predominate. Conflict often is protracted, confined to a restricted geographic area, and constrained in weaponry and level of violence. Within this state, military power in response to threats may be exercised in an indirect manner while supportive of other instruments of national power. Limited objectives may be achieved by the short, focused, and direct application of force. (JP 1-02)

Consolidation

The replenishment of organic logistic shipping by freighting vessels. (BR 1806)

Constabulary Operation

The use of military forces to uphold a national or international law, in a manner in which minimum violence is only used in enforcement as a last resort and after evidence of a breach or intent to defy has been established beyond reasonable doubt. The level and type of violence that is permitted will frequently be specified in the law, mandate or regime that is being enforced. Also called policing.

Containment (Military)

The geographical restriction of the freedom of action of enemy forces. (BR 1806)

Containment by Distraction

Containment achieved by posing so great a threat to an enemy in one area (particularly in home waters or close to critical vulnerabilities) that enemy forces are retained in defence allowing friendly forces elsewhere to be unmolested. (BR 1806)

Contiguous Zone

In a zone beyond and adjacent to the territorial sea, described as the contiguous zone, the coastal state may exercise the control necessary to prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea; and punish infringement of the above laws and regulations committed within its territory or territorial sea. The contiguous zone may not extend beyond 24nm from the baselines from which the breadth of the territorial sea is measured. (ADDP 6.4)

Continental Shelf

An area of the seabed and the subsoil adjacent to the coast but beyond the territorial sea in which the coastal state has sovereign rights for the purpose of exploration, control and exploitation of the living and natural resources. The extent of the area can be defined by formulae developed by LOSC.

Control

The authority exercised by a commander over part of the activities of subordinate organisations, or other organisations not normally under their command, which encompasses the responsibility for implementing orders or directives. All or part of this authority may be transferred or delegated. (AAP-6)

Convoy

A number of merchant ships or naval auxiliaries, or both, usually escorted by warships and/or aircraft, or a single merchant ship or naval auxiliary under surface escort, assembled and organised for the purpose of passage together. The intent of convoy is to reduce losses through enemy action, to make best use of protective forces and to increase losses of enemy attacking forces. (AAP-6/BR 1806)

Coordinated Multinational Operation

An operation in which participating friendly or allied nations share objectives to the extent that formal arrangements can be made to apportion tasks or areas of responsibility and to provide mutual assistance. However, there is no integrated command structure. (BR 1806)

Counter Air Operation

An air operation directed against the enemy's air offensive and defensive capability in order to attain and maintain a desired degree of air superiority. (AAP-6)

Counterinsurgency

Those military, paramilitary, political, economic, psychological and civic actions taken to defeat insurgency. (AAP-6)

Counter-piracy

Those military, paramilitary, political, economic, psychological and civic actions taken to defeat piracy.

Counterterrorism

All offensive measures taken to neutralise terrorism before and after hostile acts are carried out. Note: Such measures include those counterforce activities justified for the defence of individuals as well as containment measures implemented by military forces or civilian organisations. (AAP-6)

Cover

The action by land, air or sea forces to protect by offence, defence or threat of either or both. Cover may extend to actions in the electro-magnetic spectrum. (AAP-6)

Covering Force

A force operating apart from the main force for the purpose of intercepting, engaging, delaying, disorganising and deceiving the enemy before they can attack the force covered. (AAP-6)

Covert Operation

An operation that is so planned and executed as to conceal the identity of, or permit plausible denial, by the sponsor. A covert operation differs from a clandestine operation in that emphasis is placed on concealment of the identity of sponsor rather than on concealment of the operation. (JP 1-02)

Crisis

A situation, which may or may not be foreseen, which threatens national security or interests or international peace and stability, and which requires decision and action. (JDP 0-01.1)

Customary International Law

Those laws that represent the long-standing and consistent practice among most States with respect to a particular subject and which are accompanied by the belief of such States that the practice is obligatory. A long-continued practice acquiesced in by other States may create customary international law irrespective of the intent of those States. A State, as a member of the community of nations, may therefore be said to have tacitly consented to it. Customary international law is one of the principal sources of international law.

Damage Control

Measures necessary aboard ship to preserve and re-establish watertight integrity, stability, manoeuvrability and offensive power; to control list and trim; to effect rapid repairs of materiel; to limit the spread of, and provide adequate protection from, fire; to limit the spread of, remove the contamination by, and provide adequate protection from toxic agents; and to provide for care of wounded personnel. (AAP-6)

Data Link

The means of connecting one location to another for the purpose of transmitting and receiving data. (JP 1-02)

Deception

Those measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce them to react in a manner prejudicial to their interests. (AAP-6)

Decisive Point

A point in space and time, identified during the planning process, where it is anticipated that the commander must make a decision concerning a specific course of action. (AAP-6)

Defence in Depth

The siting of mutually supporting defence positions designed to absorb and progressively weaken attack, prevent initial observations of the whole position by the enemy, and to allow the commander to manoeuvre their reserve. The siting of units for defence in depth at sea can be either relative to other units for a force in transit or geographical for a force in an operating area. It will rely upon the mutual support provided by layered defence. (AAP-6)

Demonstration

An attack or show of force on a front where a decision is not sought, made with the aim of deceiving the enemy. (AAP-6)

Deny

To prevent enemy use of an area, feature, route or facility or combat capability in a particular environment, by a physical or implied presence, firepower, obstacles, contamination, destruction or a combination of these measures. See Sea Denial.

Destroyer

High speed warship designed to operate offensively with strike forces, with hunter-killer groups, and in support of amphibious operations. Destroyers also operate defensively to screen support forces and convoys against submarine, air and surface threats.

Deterrence

The prevention from action by fear of the consequences. Deterrence is a state of mind brought about by the existence of a credible threat of unacceptable counteraction. (JP 1-02)

Distant Blockade

A blockade that denies the enemy passage through a sea area through which all ships must pass in order to reach the enemy's territory. (BR 1806)

Distant Escort

Escort of shipping where the protective forces are not sufficiently close to provide a measure of direct defence but effect protection by deterrence through the threat of reprisals. (BR 1806)

Distraction

Situation in which an enemy is unable to concentrate forces in a time and place of their choosing because of the threat of attack elsewhere. (JDP 0-01.1)

Distributed Operations

An operational approach that enables influence over larger areas through spatially separated small units, empowered to call for and direct fires, and to receive and use real-time and direct intelligence, surveillance and reconnaissance.

Doctrine

Fundamental principles by which military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgement in application. (ADDP-D)

Electronic Warfare (EW)

Military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Electronic warfare consists of three divisions: electronic attack, electronic protection, and electronic warfare support. (JP 1-02)

Embargo

A prohibition on the entry or egress of shipping into a port. Nowadays frequently used for prohibitions of certain categories of cargo such as munitions. (JDP 0-01.1)

End State

The set of required conditions that defines achievement of the commander's objectives. (JP 1-02)

Endurance

The time an aircraft can continue flying or a ground vessel or ship can continue operating under specified conditions, for example without refuelling. (AAP-6)

Escalation/de-escalation

A qualitative transformation in the character of a conflict where the scope and intensity increases or decreases, transcending limits implicitly accepted by both sides. (JDP 0-01.1)

Escort

A combatant unit or units assigned to accompany and protect another force. Used colloquially as a generic expression for a destroyer or frigate. (AAP-6)

Exclusion Zone

A zone declared by a military force or nation, the entering of which zone by forces of a potential enemy would be regarded as hostile intent or a hostile act. The zone may be moving or stationary and may include airspace above it.

Exclusive Economic Zone (EEZ)

An area beyond and adjacent to the territorial sea, subject to the specific legal regime established in Part V of the *United Nations Law of the Sea Convention 1982*, under which the rights and freedoms of the coastal state are governed by the relevant provisions. The EEZ shall not extend beyond 200nm from the baselines from which the breadth of the territorial sea is measured. (ADDP 6.4)

Expeditionary Force

A force projected from the home base capable of sustained operations at distance from that home base. (JDP 0-01.1)

Expeditionary Operation

A military operation which can be initiated at short notice, consisting of forward deployed, or rapidly deployable, self-sustaining forces tailored to achieve a clearly stated objective at a distance from a home base.

Fire Support

The application of fire, coordinated with the manoeuvre of forces, to destroy, neutralise or suppress the enemy. (AAP-6)

Fleet in Being

The use of options provided by the continued existence of one's own fleet to constrain the enemy's options in the use of their fleet. (BR 1806)

Focal Area

A trade route, or a confluence of such trade routes, whose geographic features are such that it can be closed or controlled with comparative ease, to strategic effect.

Fog of War

Uncertainty and confusion generated in wartime by a combination of limited, incomplete, inaccurate and contradictory information, deliberate deception and the mayhem and stress caused by combat. (BR 1806)

Force Generation

The process of providing suitably trained and equipped forces, and their means of deployment, recovery and sustainment to meet all current and potential future tasks, within required readiness and preparation times. (JDP 0-01.1)

Force in Being

The use of options provided by the continued existence of one's own forces to constrain the enemy's options in the use of their forces.

Force Multiplier

A platform or system with latent capabilities which, when applied in conjunction with other assets, has a multiplier effect on applied capability. For example, underway replenishment ships have a force multiplier effect on surface combatant capability.

Force Protection

Actions taken to prevent or mitigate hostile actions against the Australian Defence Organisation. Force protection does not include actions to defeat the enemy or protect against accidents weather or disease.

Forward Presence

Strategic choice to maintain forces deployed at distance from the home base or stationed overseas to demonstrate national resolve, strengthen alliances, dissuade potential adversaries, and enhance the ability to respond quickly to contingencies. (JDP 0-01.1)

Freedom of Navigation Operations

Operations of naval diplomacy designed to challenge an attempt to restrict free use of the seas by the passage of combat forces. Freedom of navigation operations may be symbolic or coercive. (JDP 0-01.1)

Freedom of the Seas

The right of aircraft, ships and submarines to travel freely respectively above, on or in the high seas.

Friction

Features of war that resist all action, make the simple difficult, and the difficult seemingly impossible. Friction may be mental (such as indecision) or physical (such as enemy fire). Friction may be imposed by enemy action or a variety of other physical and human factors. Fear is a key factor in the appearance of friction in military operations.

Frigate

Escort vessel designed to provide air, surface and undersea defence to naval forces and convoys. It is capable, if required, of conducting sustained independent operations to achieve a variety of missions.

Full Command

The military authority and responsibility of a commander to issue orders to subordinates. It covers every aspect of military operations and administration and exists only within national Services. Note: the term 'command' as used internationally, implies a lesser degree of authority than when it is used in a purely national sense. No international or coalition commander has full command over the forces assigned to them.

Group

A number of ships, submarines and/or aircraft, normally a subdivision of a force, assigned for a specific purpose. (JP 1-02)

Guerre de Course

A campaign directed at the merchant shipping of the enemy. It may have the intent of achieving leverage by damaging their international trade or be an outright effort to cut off supplies to their domestic economy.

Gunboat Diplomacy

A colloquial expression for naval diplomacy. (BR 1806)

Hard Kill

The use of explosive or kinetic weapons to achieve physical destruction of a target.

Harmonisation (of ROE)

The process whereby the rules of engagement of more than one nation taking part in a multinational operation are compared and altered where possible to achieve similar levels of permission and prohibition through the various national systems. (BR 1806)

High Seas

All parts of the sea which are not included in the territorial seas or internal waters of States. All States have the freedom to navigate or conduct other activities, subject to certain restrictions, on the high seas. Where States have declared other zones beyond the territorial sea (contiguous zone, exclusive economic zone, continental shelf), the traditional high seas freedoms are affected by the rights that Coastal States can exercise in such zones. (BR 1806)

Host Nation

A nation that receives the forces and/or supplies of allied nations, coalition partners, and/or NATO organisations to be located on, to operate in, or to transit through its territory. (JP 1-02)

Human Network

A social structure composed of individuals, friends, collaborators and organisations connected through technology using a variety of communication devices. It is the intersection of communications networks and social networks.

Hydrography

The science which deals with the measurements and description of the physical features of the oceans, seas, lakes, rivers and their adjoining coastal areas, with particular reference to their use for navigational purposes. (AAP-6)

Infrastructure

A term generally applicable to all fixed and permanent installations, fabrications or facilities for the support and control of military forces. (AAP-6)

Innocent Passage

Innocent passage entitles a warship to traverse another State's territorial seas 'continuously and expeditiously'. Passage is innocent as long as it is not prejudicial to the peace, good order or security of the coastal or island State. (ADDP 6.4)

Insurgency

An organised movement aimed at the overthrow of a constituted government through one of subversion and armed conflict. (AAP-6)

Interdiction

Actions to divert, disrupt, delay or destroy the enemy before he can affect friendly forces. (JDP 0-01.1)

Internal Waters

All waters actually within the territory of a state such as harbours, rivers and lakes; together with all other waters to landward of the baseline from which the state's territorial sea is measured. They are an integral part of the territory of the state in which the laws of the land apply with little exception.

International Strait

Straits which are used for international navigation between one part of the high seas or an EEZ and another part of the high seas or EEZ. In these straits all ships and aircraft enjoy the right of transit passage, which shall not be impeded; except that, if the strait is formed by an island of a state bordering the strait and its mainland, transit passage shall not apply if there exists seaward of the island a route through the high seas or through an EEZ of similar convenience. (ADDP 6.4)

Interoperability

The ability to operate in synergy in the execution of assigned tasks. (AAP-6)

Intervention

A campaign or operation with limited objectives, involving the entry of another state where opposition is expected. (JDP 0-01.1)

Joint

Connotes activities, operations, organisations, etc in which elements of more than one Service of the same nation participate. (When all Services are not involved, the participating Services shall be identified, for example Joint Army-Navy.) (AAP-6)

Joint Force

A general term applied to a force composed of significant elements of the Navy, Army and Air Force, or two or more of these Services, operating under a single joint force commander.

Joint Force Area of Operations

That portion of a theatre necessary for joint military operations and their administration as part of a campaign.

Joint Task Force

A force composed of assigned or attached elements of two or more Services established for the purpose of carrying out a specific task or mission.

Landing Force

The task organisation of ground and aviation units assigned to an amphibious operation. (AAP-6)

Latent Capabilities

Capabilities that are not always used in the primary role, but which are inherent, intrinsic, and accessible through adaptation and multi-role employment.

Law of Armed Conflict

The international law regulating the conduct of States and combatants engaged in armed hostilities. Often termed 'law of war'.

Layered Defence

The disposition of protective assets possessing a mixture of anti-submarine, anti-surface and anti-air capabilities in layers of screens and patrol areas about units of high value or crucial waters. (BR 1806)

Levels of Conflict

The recognised levels of conflict from which the levels for the planning and command of operations are derived. They are strategic, operational and tactical.

Leverage

Disproportionate strategic or operational advantage gained by the use of a form of military power to exploit its geographical circumstances. (BR 1806)

Lift

The capability to move resources between two points. (JDP 0-01.1)

Limited War

Armed conflict, short of general war, confined to a single theatre of operation involving the overt engagement of the forces of two or more nations. (JP 1-02)

Lines of Communication

All the land, water and air routes that connect an operating military force with one or more bases of operations, and along which supplies and reinforcements move. (AAP-6)

Littoral

The areas to seaward of the coast which are susceptible to influence or support from the land and the areas inland from the coast which are susceptible to influence or support from the sea.

Littoral Manoeuvre

The use of the littoral as an operational manoeuvre space from which a sea-based joint amphibious force can threaten, or apply and sustain, force ashore.

Logistics

The science of planning and carrying out the movement and maintenance of forces. (AAP-6)

Logistics Over the Shore Operation

The loading and unloading of ships without the benefit of fixed port facilities in friendly or non-defended territory, and, in time of war, during phases of theatre development in which there is no opposition by the enemy.

Mandate

The terms of a UN Security Council resolution and any further direction given by the relevant international organisation or other international agreement.

Manoeuvre Warfare

A warfighting philosophy that seeks to defeat the enemy by shattering their moral and physical cohesion — their ability to fight as an effective, coordinated whole — rather than by destroying them physically through incremental attrition. (JDP 0-01.1)

Manoeuvrist

A term describing an approach that employs the principles of Manoeuvre Warfare. (BR 1806)

Maritime Domain

The series of jurisdictional zones that surrounds the coast of a State. It includes territorial seas and the EEZ. (BR 1806)

Maritime Domain Awareness

The effective understanding of anything associated with the maritime domain that could impact the security, safety, economy, or environment of a nation. (JP 1-02)

Maritime Forces

Forces whose primary purpose is to conduct military operations at, over and from the sea. The expression includes surface combatants, submarines, auxiliaries, chartered vessels, organic aircraft and helicopters, shore installations intended for coastal and maritime defence and land forces, shore based aircraft and helicopters assigned to maritime tasks.

Maritime Geospatial Information

Geospatial information which is necessary for the planning and conduct of maritime operations.

Maritime Operation

An action performed by forces on, under or over the sea to gain or exploit control of the sea or to deny its use to an enemy. (AAP-6)

Maritime Patrol Aircraft (MPA)

Surveillance, undersea and surface warfare aircraft capable of operating in maritime areas at extended distances from their base.

Maritime Power Projection

Power projection in and from the maritime environment, including a broad spectrum of offensive military operations to destroy enemy forces or logistic support or to prevent enemy forces from approaching within enemy weapons' range of friendly forces. Maritime power projection may be accomplished by amphibious assault operations, attack of targets ashore, or support of sea control operations. (JP 1-02)

Maritime Reconnaissance

The acquisition of information of intelligence interest employing aircraft, surface vessels, submarines and underwater detection devices.

Maritime Strategy

The comprehensive direction of all aspects of national power to achieve national strategic goals by exercising some degree of control at sea.

Maritime Superiority

The capability of a State to establish sea control at will in any area of importance to that State. (BR 1806)

Merchant Ship

A vessel engaged in mercantile trade except river craft, estuarial craft or craft which operate solely within harbour limits. (ADDP 6-4)

Military Strategy

That component of national or multinational strategy, presenting the manner in which military power should be developed and applied to achieve national objectives or those of a group of nations. (AAP-6)

Mine Countermeasures (MCM)

All methods for preventing or reducing damage or danger from mines. (JP 1-02)

Mission

A clear, concise statement of the task of the command and its purpose. One or more aircraft ordered to accomplish one particular task. (AAP-6)

Mission Essential Unit

A unit, the destruction, serious damage or withdrawal from operation of which would prevent the successful completion of the mission.

Mobility

A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfil their primary mission. (AAP-6)

National Interests

The general and continuing ends for which a State acts.

National Security

The ability to preserve the nation's physical integrity and territory; to maintain the economic relations with the rest of the world on reasonable terms; to protect its nature, institutions, and governance from disruption from outside; and to control its borders. (ADDP-D)

Naval Cooperation and Guidance for Shipping (NCAGS)

The provision of military cooperation, guidance, advice, assistance and supervision to merchant shipping to enhance the safety of participating merchant ships and to support military operations. (BR 1806)

Naval Diplomacy

The use of naval force in support of diplomacy to support, persuade, deter or coerce.

Naval Forces

Seaborne military forces including surface combatants, submarines, amphibious and mine warfare units, hydrographic and oceanographic units, organic helicopters and auxiliaries.

Naval Gunfire Support (NGS)

Gunfire provided by surface combatants in direct support to operations ashore.

Naval Surface Fire Support

Fire provided by naval surface gun, missile and electronic warfare systems in support of a unit or units tasked with achieving the commander's objective.

Normal Mode (of Operation)

The normal activities of warships and military aircraft, including but not limited to conducting weapons and other exercises, flying operations, military training, coastal surveillance and manoeuvres. This implies that submarines are operating submerged. Normal mode is employed outside the territorial sea and internal waters of a coastal state.

Objective

A clearly defined and attainable goal for a military operation, for example seizing a terrain feature, neutralising an adversary's force or capability or achieving some other desired outcome that is essential to a commander's plan and towards which the operation is directed. (AAP-6)

Officer in Tactical Command (OTC)

In maritime usage, the senior officer present eligible to assume command, or the officer to whom he has delegated tactical command. (AAP-6)

Operation

A military action or the carrying out of a strategic, tactical, service, training, or administrative mission; the process of carrying on combat, including movement, supply, attack, defence and manoeuvres needed to gain the objectives of any battle or campaign. (AAP-6)

Operational Art

The employment and coordination of military forces to achieve strategic ends through the design, organisation, integration and conduct of campaigns and major operations. It is particularly concerned with the identification, provision and allocation of resources.

Operational Command

The authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to reassign forces, and to retain or delegate operational and/or tactical control as the commander deems

necessary. Note: It does not include responsibility for administration. (AAP-6)

Operational Control

The authority delegated to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks which are usually limited by function, time, or location; to deploy units concerned, and to retain or assign tactical control of those units. It does not include authority to assign separate employment of components of the units concerned. Neither does it, of itself, include administrative or logistic control. (AAP-6)

Operational Level of Conflict

The level of conflict at which campaigns and major operations are planned, conducted and sustained to achieve strategic objectives. It is particularly concerned with the operational ways to achieve strategic ends by tactical means.

Operational Objectives

These are the objectives that need to be achieved in the campaign to achieve the military strategic end-state. Correct assessment of operational objectives is crucial to success at the operational level.

Organic

In the naval context this is used to mean capabilities that are borne within a naval force or formation. It is most frequently used in relation to ship-borne aircraft and helicopters, but can also refer to logistics, weapons and sensors.

Overt Operation

An operation conducted in such a manner that detection by a potentially hostile unit or force is either desired or is not a factor to be considered in the conduct of assigned missions.

Peacebuilding

A set of strategies which aim to ensure that disputes, armed conflicts and other major crises do not arise in the first place or if they do arise that they do not subsequently recur. It includes:

a. Pre-conflict peacebuilding refers to longer-term economic, social and political measures which can help States deal with emerging threats and disputes.

b. Post-conflict peacebuilding involves rehabilitation and construction assistance generally, support for various kinds of institution building and specific practical programs like de-mining. (ADDP 3.8)

Peace Enforcement

The coercive use of civil and military actions by legitimate, international intervention forces, to assist diplomatic efforts to restore peace between belligerents, who may not consent to that intervention. These actions will take the form of a graduated response to conflict resolution: from the imposition of civil sanctions, followed by military support of sanctions, military sanctions and finally collective security actions. (ADDP 3.8)

Peacekeeping

A non-coercive instrument of diplomacy, where a legitimate, international civil and/or military coalition is employed with the consent of the belligerent parties, in an impartial, non-combatant manner, to implement conflict resolution arrangements or assist humanitarian aid operations. (ADDP 3.8)

Peacemaking

An operation conducted after the initiation of a conflict to secure a ceasefire or peaceful settlement, that involves primarily diplomatic action supported, when necessary, by direct or indirect use of military assets. (AAP-6/ADDP 3.8)

Peace Operation

An operation that impartially makes use of diplomatic, civil and military means, normally in pursuit of UN Charter purposes and principles, to restore or maintain peace. (ADDP 3.8)

Piracy

An act of boarding or attempting to board any ship on the high seas with the apparent intent to commit theft or any other crime and with the apparent intent or capability to use force in the furtherance of that act.

Poise

An attribute of seaborne forces which permits them to remain deployed and positioned for long periods such that they are able to influence events or withdraw at will without the risk of embroilment.

Presence

The exercise of naval diplomacy in a general way involving deployments, port visits, exercising and routine operating in areas of interest to declare interest, reassure friends and allies and to deter. (BR 1806)

Preventive Deployment

The deployment of military forces to deter violence at the interface or zone of potential conflict where tension is rising among parties. Forces may be employed in such a way that they are indistinguishable from a peacekeeping force in terms of equipment, force posture, and activities. (JP 1-02)

Principles of War

The Principles of War are guides to action and fundamental tenets forming the basis for appreciating a situation and planning, but their relevance, applicability and relative importance change with circumstances. (JDP 0-01.1)

Psychological Operation

A planned psychological activity in peace and war directed to enemy, friendly and neutral audiences in order to influence attitudes and behaviour affecting the achievement of political and military objectives. It includes strategic psychological activities, consolidation psychological operations and battlefield psychological activities. (AAP-6)

Quarantine

Expression used loosely to mean a restriction on the egress of certain types of cargo. Also used to mean embargo enforcement. (BR 1806)

Reach

The ability to operate for extended periods at considerable distance from shore support. (JDP 0-01.1)

Readiness

The time within which a unit or formation can be made ready to perform unit-type tasks. This time is simplified or measured by indicators of a unit's current personnel, materiel and training state. The time does not include transit time. Ships and their organic helicopters will have the required combat load and other logistic materiel embarked or appropriately positioned. (BR 1806)

Recognised Picture

The fullest achievable agreed level of identification and tracking of all air, surface and sub-surface contacts in the area of interest.

Reconnaissance

A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy; or to secure data concerning the meteorological, hydrographic or geographic characteristics of a particular area. (AAP-6)

Replenishment at Sea (RAS)

Those operations required to make a transfer of personnel and/or supplies when at sea. (AAP-6)

Roulement

The rotation of personnel or units in the front line with those in reserve in order to maintain the fighting effectiveness of the forces engaged in an operation. (JDP 0-01.1)

Rules of Engagement (ROE)

Rules of engagement are directions endorsed by Government and issued by commanders, which delineate the circumstances, and limitations within which military force may be applied to achieve military objectives. They do not inhibit or replace but are part of the command function. ROE may be framed to limit certain actions; alternatively, they may authorise actions to the full extent permissible under domestic and international law. (ADDP 6.4)

Sanction (United Nations)

A penalty imposed on a State with the intention of influencing that State to comply with a UN Security Council Resolution or otherwise to abide by international law.

Screen

An arrangement of ships, aircraft and/or submarines to protect mission essential units or a convoy.

Sea Basing

In amphibious operations, a technique of basing certain land force support functions aboard ship which decreases shore based presence. (JP1-02)

Sea Control

That condition which exists when one has freedom of action to use an area of sea for one's own purposes for a period of time and, if required, deny its use to an adversary. The state includes the air space above, the water mass and seabed below as well as the electro-magnetic spectrum. To an increasing degree, it also includes consideration of space based assets.

Sea Denial

That condition which exists when an adversary is denied the ability to use an area of the sea for their own purposes for a period of time.

Seakeeping

The dynamic characteristics of a ship in surviving and operating in various conditions of swell, wave height, wave length and wind.

Sea Lift

The movement of resources between points by shipping.

Sea Lines of Communication (SLOC)

The most efficient navigable routes followed by shipping from their points of departure to their destinations. SLOCs may refer in military operations to the maritime supply routes between operational forces and their supporting bases. The term is also used to describe the major commercial shipping passages of the world. SLOCs do not have a physical existence and should not be considered in the same way as lines of communication on land.

Sea Power

The sum of all physical, demographic, geographic, economic, and military resources that are derived from or related to the sea and that are used by a nation to advance its national interests. More specifically sea power expresses a nation's ability to defend, by means of a navy and its adjuncts, its maritime interests.

Sea Room

Unobstructed space at sea adequate for tactical manoeuvring a ship.

Shake Down

The period of crew training on first proceeding to sea after a long period in harbour, a major change in personnel and/or extensive maintenance on systems. It ensures that personnel and materiel have achieved the necessary standards to allow the ship to operate safely and proceed to more intensive training for operations.

Shaping

Creating the conditions for mission success. (BR 1806)

Ship to Objective Manoeuvre (STOM)

Projecting combined-arms forces by air and surface directly to critical operational objectives, dislocating adversaries in space and time.

Soft Kill

Efforts using other than explosive or kinetic systems to destroy or neutralise a target. They may include electronic measures.

Special Forces

Specially selected military personnel, trained in a broad range of basic and specialised skills, who are organised, equipped and trained to conduct special operations. Special forces can be employed to achieve strategic, operational or tactical level objectives across the operational spectrum.

Spectrum of Operations

Operations covering the full range of potential violence from stable peace, through various forms of conflict, and up to and including general war.

Strategic Level of Conflict

The strategic level of conflict is that level of war which is concerned with the art and science of employing national power. (ADDP-D)

Strike

An attack which is intended to inflict damage on, seize or destroy an objective. (ADDP-D)

Surveillance

The systematic observation of aerospace, surface or subsurface areas, places, persons or things, by visual, aural, electronic, photographic or other means. (AAP-6)

Tactical Command

The authority delegated to a commander to assign forces under their command for the accomplishment of the mission assigned by higher authority. (AAP-6)

Tactical Control

The detailed and, usually, local direction and control of movements and manoeuvres necessary to accomplish missions or tasks assigned. (AAP-6)

Tactical Level of Conflict

The tactical level of conflict is concerned with the planning and conduct of battle and is characterised by the application of concentrated force and offensive action to gain objectives. (ADDP-D)

Task Element (TE)

The fourth and lowest level in which units are grouped within a task organisation. A task element may consist of any one ship or independent unit.

Task Force (TF)

A temporary grouping of units, under one commander, formed for the purpose of carrying out a specific task or mission. In a task organisation, a task force is the highest level in which units are grouped. (AAP-6)

Task Group (TG)

The second highest level in a task organisation, a task group is a grouping of units under one commander subordinate to task force commander, formed for the purpose of carrying out specific functions.

Task Organisation

A command organisation in which the various units and formations are organised by task into task forces, task groups, task units and task elements.

Task Unit (TU)

The third level in which units are grouped in a task organisation. A task group is normally divided into two or more task units according to the tasks required to be accomplished.

Territorial Sea

An area of waters adjacent to a state over which it exercises sovereignty, subject to the right of innocent passage. Every state has the right to establish the breadth of its territorial sea up to a limit not exceeding 12nm, measured from the baselines. (ADDP 6.4)

Theatre

A designated geographic area for which an operational level joint or combined commander is appointed and in which a campaign or series of major operations is conducted. A theatre may contain one or more joint areas of operations. (ADDP-D)

Transit Passage

All vessels and aircraft have the right to unimpeded transit passage through and over straits used for international navigation. Transit passage must be continuous and expeditious and vessels and aircraft must not threaten or use force against nations bordering the strait. Transit passage is in the normal mode and includes activities such as fuel replenishment, submerged transit for submarines, organic flying operations and tactical manoeuvring. (ADDP 6.4)

Unmanned Aerial Vehicle (UAV)

A powered, aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or non-lethal payload. Ballistic or semi-ballistic vehicles, cruise missiles, and artillery projectiles are not considered unmanned aerial vehicles. (JP 1-02)

Versatility

The ability to change fighting posture quickly without recourse to outside resources. (BR 1806)

Warship

A surface vessel or submarine forming part of the armed forces of a sovereign state armed and equipped to engage in combat.

Work Up

The training program, both in harbour and at sea, by which naval units are brought to the required level of operational capability.

Further Reading

Australian Maritime Doctrine: RAN Doctrine 1 has been written with the unique circumstances of Australia and its maritime security firmly in mind at all times. Among other issues, this means that the limits and the restraints on capacity faced by a medium power navy can never be ignored. Nevertheless, *Australian Maritime Doctrine* has been informed by, and owes much to, many other works on strategic, maritime and military issues, both from Australia and overseas.

The following list is not an exhaustive summary of sources or guidance, but will do much to assist the reader with filling in the gaps. Those wishing to further extend their knowledge of maritime and naval affairs should consult the *Royal Australian Navy Reading List*, available from the Sea Power Centre - Australia (SPC-A). The SPC-A website (www.navy.gov.au/spc) contains this and many of its other publications available for free download.

Classical Works on Maritime Strategy

Alfred T Mahan, *The Influence of Seapower upon History 1660-1783*, Little, Brown and Company, Boston, 1890 (numerous later reprints).

PH Colomb, *Naval Warfare: Its Ruling Principles and Practice Historically Treated*, WH Allen and Co, London, 1891 (reprinted 1990 by the United States Naval Institute in two volumes with an introduction by Barry M Gough).

Julian S Corbett, *Some Principles of Maritime Strategy*, Longmans, Green and Co., London, 1911 (reprinted 1988 by the Naval Institute Press, Annapolis, with an introduction by Eric Grove).

Reginald Custance, *War at Sea: Modern Theory and Ancient Practice*, William Blackwood, London, 1918 (reprinted 1970 by Conway).

Raouel Castex, *Strategic Theories* (translated by Eugenia Kiesling) Naval Institute Press, Annapolis, 1994 (abridgement of his original five volume study published 1931-39).

Bernard Brodie, *A Guide to Naval Strategy*, Princeton, University Press, Princeton, 1944 (numerous later reprints).

Herbert Richmond, *Statesmen and Sea Power*, Clarendon Press, Oxford, 1946 (reprinted 1974 by Greenwood).

Stephen Roskill, *The Strategy of Sea Power*, Collins, London, 1962.

JC Wylie, *Military Strategy: A General Theory of Power Control*, Rutgers University Press, New Brunswick, 1967 (reprinted 1989 by Naval Institute Press).

Ken Booth, *Navies and Foreign Policy*, Croom Helm, London, 1977.

Sergei G Gorskov, *The Seapower of the State*, Pergamon Press, Oxford, 1979.

Contemporary Works on Maritime Strategy and Military Affairs

Richard Hill, *Maritime Strategy for Medium Powers*, Naval Institute Press, Annapolis, 1986.

Eric Grove, *The Future of Sea Power*, Naval Institute Press, Annapolis, 1990.

John B Hattendorf (ed), *Mahan on Naval Strategy: Selections from Writings of Rear Admiral Alfred Thayer Mahan*, Naval Institute Press, Annapolis, 1991.

Colin S Gray, *The Leverage of Sea Power: The Strategic Advantage of Navies in War*, Macmillan, New York, 1992.

James Cable, *Gunboat Diplomacy*, Macmillan, London, 1994.

Wayne P Hughes, *Fleet Tactics and Coastal Combat*, Naval Institute Press, Annapolis, 1999 (2nd edition).

Norman Friedman, *Seapower as Strategy: Navies and National Interests*, Naval Institute Press, Annapolis, 2001.

John B Hattendorf (ed), *US Naval Strategy in the 1990s: Selected Documents*, Newport Papers 27, Naval War College, Newport, 2006.

Bruce A Elleman and SCM Paine (eds), *Naval Blockades and Seapower: Strategies and Counter-strategies, 1805-2005*, Routledge, New York, 2006.

Geoffrey Till, *Seapower: A Guide for the Twenty-First Century*, Routledge, London, 2009 (2nd edition).

PW Singer, *Wired for War: The Robotics Revolution and Conflict in the Twenty-first Century*, The Penguin Press, New York, 2009.

Australian Works on Sea Power

Sam Bateman and Dick Sherwood (eds), *Strategic Change and Naval Roles: Issues for a Medium Naval Power*, Canberra Papers on Strategy and Defence no. 102, Strategic and Defence Studies Centre, Canberra, 1993.

Jack McCaffrie, *Maritime Strategy into the Twenty-First Century: Issues for Regional Navies*, Working Paper no. 297, Strategic and Defence Studies Centre, Canberra, 1996.

David Stevens (ed), *In Search of a Maritime Strategy: The Maritime Element in Australian Defence Planning since 1901*, Canberra Papers on Strategy and Defence no. 119, Strategic and Defence Studies Centre, Canberra, 1997.

John Reeve, *Maritime Strategy and Defence of the Archipelagic Inner Arc*, Working Paper no. 5, Sea Power Centre - Australia, Canberra, 2001.

Alan Robertson, *Centre of the Ocean World: Australia and Maritime Strategy*, Seaview Press, Henley, Beach, 2001.

David Stevens and John Reeve (eds), *Sea Power Ashore and in the Air*, Halstead Press, Sydney, 2007.

Andrew Forbes (ed), *Sea Power: Challenges Old and New*, Halstead Press, Sydney, 2007.

Gregory P Gilbert, *Ancient Egyptian Sea Power and the Origin of Maritime Forces*, Sea Power Centre - Australia, Canberra, 2008.

Naoko Sajima and Kyoichi Tachikawa, *Japanese Sea Power: A Maritime Nation's Struggle for Identity*, Sea Power Centre - Australia, Canberra, 2009.

Current Doctrine

To access the most recent doctrine information from Australia and overseas the following links may be useful:

Australian Defence Force

www.defence.gov.au/adfwc/

Australian Army

www.defence.gov.au/army/lwsc/

Royal Australian Air Force

airpower.airforce.gov.au/

United States Navy

www.nwdc.navy.mil/

United States Marine Corps

www.usmc.mil/

Royal Navy

www.royalnavy.mod.uk/

Canadian Navy

www.navy.forces.gc.ca/

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The second edition of *Australian Maritime Doctrine* has again involved its circulation in draft form both inside and outside the RAN. The final text has been much improved by the criticism and commentary which the various drafts received. While any errors or omissions are entirely the responsibility of the SPC-A, some of the best elements of this book owe much to the various organisations and individuals who generously made their time and expertise available.

Except where noted, all images were sourced from within Defence. Figures and maps developed specifically for this doctrine were created by DesignEmergency. The document was edited and typeset by SPC-A staff.

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Amendments

Readers are encouraged to submit proposed amendments to *Australian Maritime Doctrine: RAN Doctrine 1*. Contributions should be forwarded to:

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www.navy.gov.au/spc