



AUSTRALIAN MARITIME DOCTRINE



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RAN DOCTRINE 1
2000

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RAN Doctrine 1

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FOREWORD

Australian Maritime Doctrine is the Royal Australian Navy's keystone work of doctrine. It is a guide to understanding what the RAN contributes to Australia's national security and how it does this. *Australian Maritime Doctrine* has been written to appeal to the widest possible audience, not only those within the RAN and the Australian Defence Force, but to all who have responsibilities for or are interested in Australia's national security and its instruments.

Australian Maritime Doctrine brings together for the first time in an Australian context the key concepts and themes of maritime power and explains them in a clear and straightforward fashion. This book lays out the ways in which the Navy operates as part of a joint and integrated ADF to accomplish the goals set by the Australian Government.

The careful linkages created by this book between our strategic circumstances, the national security policy and the nature and potential of maritime power act as the basis for explaining the organisation and operation of the Navy as an element of the ADF. *Australian Maritime Doctrine's* emphasis on the absolute dependence of our capability upon the people who serve in and support the RAN is one of the most important elements of the text. So, too, is the emphasis which the work puts upon ways in which maritime forces support and enable the effects which can be achieved by air and land forces, just as the air and land contribute to our efforts at sea.

Australian Maritime Doctrine will be a vital component of the training and education of the men and women of the RAN. It will be a foundation stone of our efforts to improve our knowledge of ourselves and our Service, and equally a key element in our work to ensure that all Australians understand better the issues of maritime power. I expect all officers and senior sailors to read *Australian Maritime Doctrine* and I urge them to discuss its contents with their juniors, with each other, with other members of the ADF and the Defence organisation and with Australians at large.

Just as doctrine at all levels is changing and evolving to meet new strategic, social and technological changes, so *Australian Maritime Doctrine* will change and evolve. In draft form the work has already benefited enormously from commentary from a wide range of sources, including Joint organisations, ships at sea and national and overseas academic experts. This edition of *Australian Maritime Doctrine* is special in that, for the first time in its history, the RAN has developed sufficient confidence to publicly

proclaim its understanding of maritime affairs as having reached an international standard. Readers should regard this as a coming of age. The Sea Power Centre is to be congratulated on its achievement.

I commend Australian Maritime Doctrine to you.



D.J. SHACKLETON AO

Vice-Admiral, RAN

Chief of Navy

04 October 2000

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The most important factor

EXECUTIVE SUMMARY

Australian Maritime Doctrine explains how the Royal Australian Navy thinks about, prepares for and operates in peace and conflict. It sets out Navy's place within a joint and integrated Australian Defence Force and its roles in Australia's military strategy. It shows the ways in which the RAN provides its unique and essential contribution to the overall ADF effort to protect Australia's security interests.

Chapter One:

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 Navy doctrine fits within that of the Australian Defence Force as a whole and how it complements the doctrine of the other services.

Chapter Two:

The Maritime Environment describes the physical, economic and social factors which define Australia's relationships with the maritime environment. It shows that Australia is an island continent in a maritime region. It explains the importance of the sea for access and transportation for the Asia-Pacific 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. This Chapter also describes the vital relationship between maritime affairs and international law.

Chapter Three:

Armed Conflict details the features of armed conflict in the modern world. It explains the concept of the Spectrum of Conflict and the ways in which changes in the nature of conflict are affecting maritime operations. It shows how navies must be prepared to face a wide range of contingencies. This chapter sets out the Principles of War and gives examples of their importance from the RAN's own experience of conflict.

Chapter Four:

Strategic Policy outlines the nature of Australia's security policy and proceeds from this to explain Australia's strategic environment and its enduring strategic interests. Australia's strategic characteristics and the influence of history on our national outlook

are described. The importance of maritime capabilities in achieving all the aims of Australia's Military Strategy is emphasised.

Chapter Five:

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 effective projection of power in a maritime environment, particularly when the sea is being utilised to transport or support land forces.

Chapter Six:

Maritime Operational Concepts explains the relationships between land, air and sea forces. It defines the unique characteristics of maritime power and the contribution which it can make. 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 limitations of maritime power and the way in which it is complemented by the strengths of air and land power. It sets out the means by which an effective Joint approach can achieve manoeuvre from the sea.

Chapter Seven:

The Span of 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 the flexibility to support many other activities of government, whether to forward the aims of foreign or domestic policy.

Chapter Eight:

The Most Important Factor explains the dependence of all naval capabilities upon the men and women who make up the Navy 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 ships' companies. It explains the way in which battle readiness is achieved and maintained and combat stress is managed.

Chapter Nine:

The Enablers of Maritime Forces describes the ways in which the structure and organisation of the Navy 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 Defence organisation in achieving its goals. 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 Ten:

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, whether of the various types of naval forces alone or of air and land forces as well.

Chapter Eleven:

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 Twelve:

Future Australian Maritime Forces sets out the likely challenges and opportunities facing maritime forces 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 maritime forces may increase their ability to directly influence events on land.

A Note on Sources:

A Note on Sources 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.

Glossary:

The *Glossary* includes definitions of key terms and concepts relevant to maritime operations. They are sourced from Australian Defence Force doctrinal publications. Where ADF guidance has not existed, these definitions have been either drawn from appropriate international works or developed specifically for this volume.



1

UNDERSTANDING MARITIME DOCTRINE

- Maritime doctrine contains the principles by which maritime forces guide their actions in support of national objectives.
- Maritime doctrine is derived from hard-won national and international experience.
- Comprehensive maritime doctrine is a key element of RAN capability.

THE PURPOSES OF MARITIME DOCTRINE

The Royal Australian Navy's (RAN) mission is to:

- be able to fight and win in the maritime environment as an element of a joint or combined force;
- assist in maintaining Australia's sovereignty; and
- contribute to the security of our region.

The RAN is developed, structured, trained and supported to deliver combat power at and from the sea. The Navy also needs to balance the maintenance of its combat preparedness with the many requirements of peacetime operations and future capability development. The successful fulfilment of every one of these elements depends upon comprehensive and thoroughly understood maritime doctrine. As the Australian Defence Force's (ADF) keystone document on the subject states:

‘Military doctrine helps planners and commanders approach stressful, dangerous, chaotic and unfamiliar situations with a clarity of thought based on rigorous analysis, and comprehensive knowledge of hard-won lessons from human history and national military experience.’¹

The ADF's definition of military doctrine is:

‘...the body of thought on the nature, role and conduct of armed conflict...[which] contains, among other things, the fundamental principles by which military forces guide their actions in support of national objectives.’²

¹ ADFP-D—*Doctrine* p. 1-1.

² *ibid.*

Military doctrine provides a basis for action founded in 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 operations at or over the sea are only of utility so far as they can affect the fundamental outcome of a campaign, whether directly or indirectly.

This book, RAN Doctrine 1—*Australian Maritime Doctrine* explains the key concepts for the conduct of maritime operations. This chapter explains the nature and the importance of maritime doctrine.

THE ORIGINS OF AUSTRALIAN MARITIME DOCTRINE

One of the principal themes of the RAN's experience of doctrine is that its origins have been largely international for most of its history. As a smaller navy, and one which had its roots in the Royal Navy and which has since frequently operated as part of alliance forces, it is impossible to expect the RAN 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. 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 utilise an expurgated version which allows any



Replenishment at sea is a skill shared by many navies

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 over the last half century. Australian warships can and have replenished under way with or from those of Malaysia, Singapore, Thailand and Indonesia, as well as with those of Canada, New Zealand, the United States and the United Kingdom. There are more than twenty other navies with which such operations either have been or could safely be conducted at little or no notice.³ Thus, Australian maritime doctrinal development is a synthesis—not just in a joint sense—of national effort with that derived not only from the country's major allies but a wide range of other sources.

A second theme of maritime doctrine is one of complexity. Many different elements go to make up the fundamental components of maritime doctrine, components which include many factors not apparently related to warfighting. These range widely. One example is that there are logistic and maintenance procedures which combine to determine whether ships are capable of extended activities at considerable ranges from their bases 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 Royal Navy's Manuals of Navigation. These give it a capacity for operations in shallow water and within the littoral generally that some other naval forces might hesitate to attempt. Thus, an activity related ostensibly to the safe passage of ships has direct implications for the Navy's combat potential in a key environment.

The Levels of Maritime Doctrine

ADF doctrine is a hierarchy of *keystone 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 itself readily allow for clear distinctions between the levels of command complicates the issue further. Elements of procedural doctrine can have fundamental implications for every other level, just as changes in philosophical doctrine will have ramifications elsewhere.

Maritime 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,

³ This includes the member navies of NATO, South Korea, Japan, South Africa and a number of Middle Eastern and South American states.

starting with the Royal Navy'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 Organisation (NATO), United States Navy (USN) and Allied publications to which the RAN had access. In the case of operations with the United States under ANZUS and with Singapore and Malaysia under the Five Power Defence Arrangement, considerable effort went into the development of mutually agreed procedures and tactics, effort validated by the regular exercises in which the various nations participated and which provided the basis for combined operations in the event of contingencies.

When Australia's strategic situation demanded a more self-reliant approach, the need for guidance tailored to the Australian circumstance was met at the tactical level by the development of *Australian Fleet Tactical Instructions*. Although this remained under the editorial guidance of the RAN's Maritime Command, it transmuted in 1994 into *Australian Maritime Tactical Instructions*, thereby recognising the inherently joint nature of all maritime operations and the extent to which it received Royal Australian Air Force (RAAF) and Army input. The issue of the *Australian Defence Force Publication (ADFP)* series, notably ADFP 6—*Operations* and ADFP 6 Supplement 1—*Maritime Operations* has created important linkages at the operational level, which will be completed by the forthcoming RAN Doctrine 2—*Australian Maritime Warfare*.



The *Collins* class submarines will be an important component of the ADF's strike and interdiction capabilities

Higher Level Maritime Doctrine

Keystone and *philosophical* doctrine have not enjoyed so long a formal existence as *application* and *procedural* doctrine but they are important in many ways. Higher level doctrine has educational purposes in addition to its direct utility for 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 be used to inform those within government and the wider community of the ways in which military force can be applied by the nation in exercising its national power.

The first comprehensive analyses of maritime strategic doctrine in the western world date to the late nineteenth century and the work of historians and commentators such as the British Vice Admiral Philip Colomb and the American Rear Admiral Alfred Thayer Mahan. Further assessments in Britain included Sir Julian Corbett's *Principles of Maritime Strategy* and the works of Admiral Sir Herbert Richmond, while later in the century there were increasingly sophisticated contributions from France in the work of Admiral Raoul Castex in the 1930s and from the Soviet Union by Admiral Gorshkov in the 1970s. These joined continuing efforts by American analysts such as Rear Admiral J.C. Wylie and Admiral Stansfield Turner to define maritime strategic concepts and match them to contemporary requirements. The post-war British *Naval War Manual* (the original BR 1806, issued in 1948, 1958 and 1969) was the principal source of higher level doctrine for many of the Commonwealth navies, including the RAN, in the period after World War II.

The body of higher level maritime strategic work has been extended further by contemporary thinkers and writers from Britain such as Professors Ken Booth, Colin Gray, Eric Grove and Geoffrey Till, and Rear Admiral Richard Hill. Within this country, Commodores Alan Robertson and Vernon Parker did pioneering work in the 1970s. More recently, Commodores Sam Bateman and Jack McCaffrie and Commander Dick Sherwood, partly through the mechanism of the RAN's Maritime Studies Program (now the Sea Power Centre) have done much to develop and enunciate Australian maritime strategic concepts and ideas.

RAN Doctrine 1—*Australian Maritime Doctrine* draws on all these sources and many others as the keystone doctrinal publication for the RAN. It stands at the summit of 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—*The Air Power Manual*, as well as the major elements of the *Australian Defence Force Publication* series. This book is designed to be read not only by those in the RAN and other elements of the ADF who have direct professional concern with it, but by all those with an interest in and a concern for the issues of Australian security.



Extreme conditions such as this place heavy demands on the seakeeping capabilities of surface ships

2

THE MARITIME ENVIRONMENT

- Australia is an island continent in a maritime region.
- Australia's area of strategic interest is vast.
- Australia and the nations of the region are dependent on the sea for transport; they draw heavily on the maritime environment for living and mineral resources.
- Maritime forces possess significant access and influence in our region.
- Australia requires maritime forces capable of meeting the challenges of our strategic geography.

THE PHYSICAL ENVIRONMENT

The importance of the maritime environment is both a worldwide reality and one with particular significance for Australia. 70 per cent of the surface of the Earth is covered by sea and this means that maritime power is frequently the most efficient means of applying force in a conflict. The areas in which maritime 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. The physical differences between these circumstances can pose very different challenges for naval forces, particularly in the *littoral*. This is defined as those areas on land which are subject to influence by units operating at or from the sea, and those areas at sea subject to influence by forces operating on or from the land. Platforms, systems and operating procedures that are configured for one condition may not be well suited for another.

Nevertheless, operational flexibility can be built into maritime forces and developed through training and doctrine. In general, larger platforms with primacy in blue waters can be adapted to be very effective in green and brown water conditions and thus within the littoral, but smaller units lack the sea keeping 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. In the Australian context, the relationship between the environment and maritime security is very



Naval forces conduct surveillance and enforcement operations in concert with several civil agencies. Among the most important is Coastwatch, which operates a number of patrol aircraft such as the DASH-8

complex. The area of direct interest to Australia's security encompasses a substantial percentage of the Earth's surface. Australia adjoins the Pacific Ocean in the east, the Indian Ocean in the west, the South East Asian archipelago in the north and—sometimes forgotten—the Southern Ocean. Our maritime jurisdictional areas alone comprise more than eight million square nautical miles (or almost 16 million square kilometres). Our security requirements are such that maritime forces can find themselves rapidly moving from one extreme of climate and local sea environment to another. Within a few weeks, major units may transit from the tropical calm and heat of the dry season in the South East Asian archipelago to the huge seas and swells of the Southern Ocean.



Australia is a maritime nation
in a maritime region

Distance is the most striking single fact about Australia's *strategic geography*. Australia is very big and very difficult to defend. It is also very difficult to attack. Nevertheless, Australia's *interests* involve even greater issues of distance than do our imperatives of territorial defence alone.

One major interest is the continuation of the free movement of shipping through maritime South East Asia. The most direct routes to Japan and Australia's other major trading partners in East Asia are through the archipelago. Interruption of or interference with international shipping would have immediate effects on Australia's economy and its export competitiveness.

The other environmental factor of great relevance to Australia is the fact that, for most of this country's northern coastal regions, as well as many parts of the archipelago to the north and the islands of the South West Pacific, the sea represents either the *only* means of access at all, or the *only* way in which any substantial numbers of people or amounts of cargo can be delivered.

Technological developments are increasing the capabilities of maritime forces to operate in close proximity to land, not only through better navigational techniques, but by improved environmental understanding and sensors and data exchange systems which allow seaborne units to 'look' inshore from the coastline over terrain to detect possible threats.

Although wide area surveillance systems are available to the great powers and increasingly to medium power nations, maritime units, particularly submarines, remain difficult to detect and track. By their ability to move and remain covert, maritime forces can take great advantage of the wide ocean in remaining undetected and unpredictable in their intent. If this is accompanied by shrewd exploitation of weather and oceanography, the problem for an adversary can be complicated still further.

SOCIAL

Approximately 70 per cent of the Earth's population live within one hundred and fifty kilometres of a coastline. In the case of Australia, this figure is well over 95 per cent and the figure is even higher for most of South East Asia. Our region is thus a *maritime-littoral* environment to a greater degree than any other in the world. These statistics mean that the sea gives *access* to centres of human activity and thus to governments. Australians have tended think of the sea in terms of living on the coast and enjoying Australia's beaches and surf. But the sea can be used for many purposes and the idea of our surrounding seas and oceans being a highway rather than a barrier is becoming increasingly well understood. The increasing incidence of illegal immigration has been an important factor in this process.

ECONOMIC

The sea remains the primary and far and away the most cost-effective means for the movement of international trade, both by value and weight. In Australia's case, more than 70 per cent of our exports and imports go by sea in terms of value and well over 95 per cent by bulk. Although Australia is largely self sufficient for most resources, it is increasingly dependent upon petroleum imports to meet domestic demand, particularly in heavy crude oil. The nation's economic well being depends upon the maintenance and expansion of export trade, while essential manufactured goods, industrial tools and high technology equipment are amongst our imports. 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 north.

The total value of Australian merchandise exports in 1998-99 was AUD\$86 Billion, and the total value of Australian merchandise imports was AUD\$97.6 Billion. Australian domestic coastal shipping cargo alone totalled 52.5 million tonnes. By comparison, scheduled international airline traffic carried a total of 630,000 tonnes of freight to and from Australia by air routes over the sea.

2000 Year Book Australia

East Asian nations' dependence on maritime trade is even more acute than that of Australia. Japan is absolutely dependent upon seaborne imports for energy and raw materials, as is South Korea. China is becoming increasingly reliant upon the sea, particularly for petroleum imports. Within South East Asia, the relative lack of land transport systems increases the dependence of the region upon the sea for the movement of goods and people.

Conditions in Australia's vast Exclusive Economic Zone range from the Antarctic to the tropics



The seabed is becoming an increasingly important source of resources. Australia depends upon offshore oil fields for much of its domestic petroleum production. Australia's Exclusive Economic Zone is one of the largest in the world and its surveillance and protection are placing increasing demands upon national resources. Although the waters of our EEZ are relatively poor in biomass, fisheries constitute an important part of the national economic effort. In 1997-98, our fishing production yielded nearly 223,000 tonnes, worth AUD\$1.86 billion. 81 per cent of that catch was exported, mainly to Asian markets.¹

ECOLOGY

The increasing exploitation of marine resources makes preservation of the marine ecology a vital issue for all nations in the region. Australia possesses a number of unique elements of the world's marine environment, including the Great Barrier Reef. The prevention of marine pollution is one fundamental requirement for their preservation, as well as for the maintenance of much of our tourist industry and for the quality of life of Australians generally. In addition, 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.

LAW AND INTERNATIONAL LAW

Australia's combat forces operate in accordance with both international and domestic laws which set out the rights and obligations of the ADF and govern the use of force. In addition, maritime forces operate within an increasingly complex legal environment. The long held concept of *Freedom of the Seas* has undergone important modifications in the last two decades, particularly as a result of the *1982 United Nations Convention on the Law of the Sea (LOSC)*.

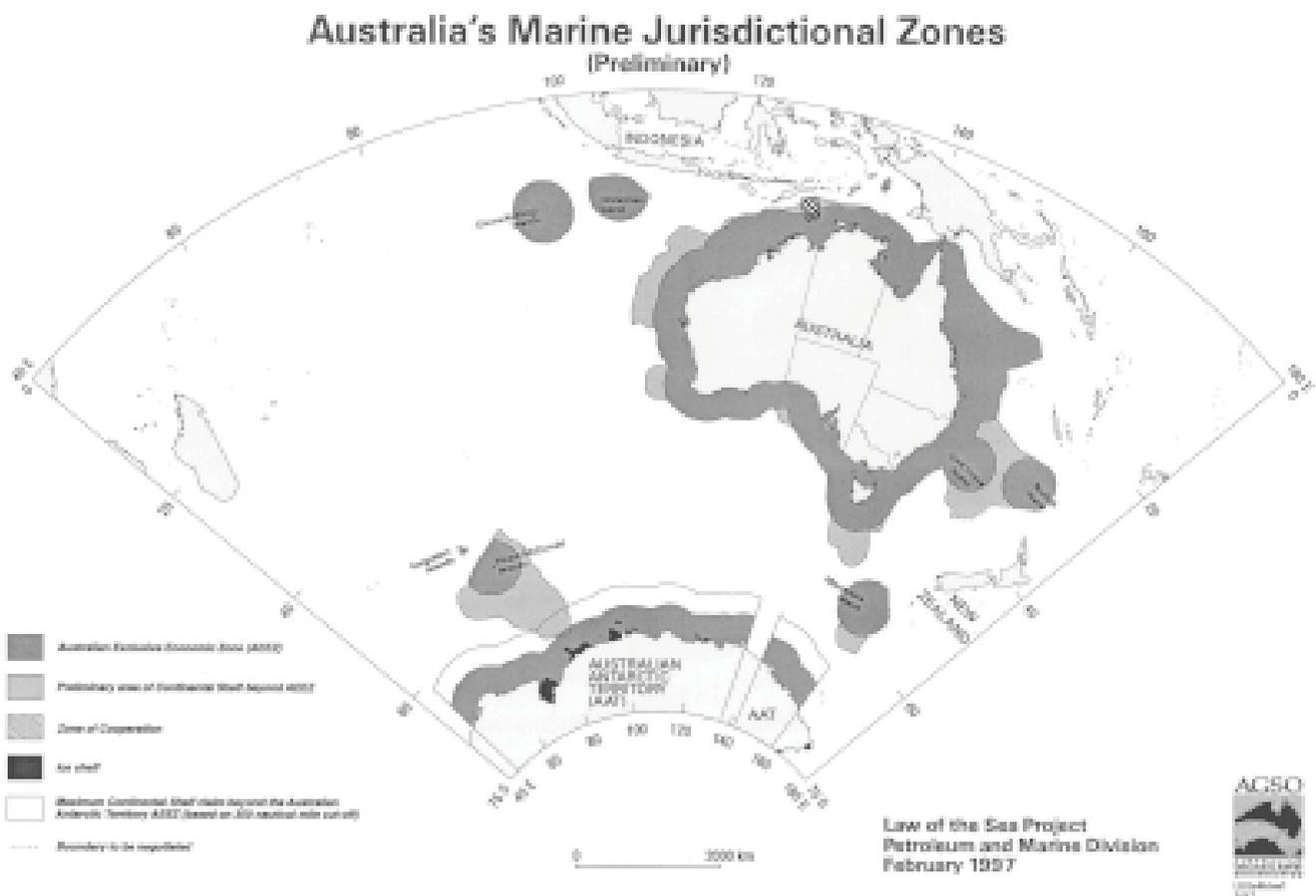
Historically, maritime forces have been prohibited from conducting operations within the *territorial sea* of a neutral state. This restriction has become more significant with the extension of the limit of territorial sea to twelve miles and the introduction of *archipelagic waters*, to which other rules apply. Warships may pass through such areas, but they must not delay their transit or operate weapons or some active sensors. There are designated *Archipelagic Sea Lanes* and also *International Straits* to which such rules do not apply, although some limits on action remain, such as the requirement to transit 'expeditiously'. Maritime forces can also be affected through their organic and supporting air assets by the existence of air space control regimes, which may mean

¹ *2000 Year Book Australia*, Australian Bureau of Statistics, Canberra, 2000, pp. 464-468.

additional restrictions on operations. In addition to these restrictions, however, there remain rights of access for maritime forces to sea areas, provided that such access is not prejudicial to the interests of the neutral coastal states involved. Thus, while the *activities* which maritime forces may engage in have been affected by LOSC, the *movement* that those forces can undertake has been less confined. This is an important factor in estimating the utility and the *access* of maritime forces in contingencies.

Within the *Littoral Zones* and EEZs of neutral states, maritime forces must operate with regard to the rights of those states. In general, this regard is compatible with the general care which belligerents are required to apply to the natural environment.

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. Australia has significant claims to territory and maritime zones in the Antarctic. 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, it is too early to be certain how such regimes will operate effectively.



3

ARMED CONFLICT

- Armed conflict remains a reality of international relations.
- Armed conflict may take many different forms and vary in intensity and scale. This is known as the Spectrum of Conflict.
- Maritime forces are useful at every level of the Spectrum of Conflict.
- Modern developments in the way conflicts are manifested are creating both challenges and opportunities for maritime forces.

The Navy exists as part of the Australian Defence Force to fight and win in any armed conflict in which Australia is involved. Since the formation of the United Nations, much effort has been expended to govern the form and extent of conflict through international treaties and conventions and Australia has been a leading actor in such work. Nevertheless, the experience of the last few decades has demonstrated that conflict remains a perennial aspect of international relations.

THE FEATURES OF ARMED CONFLICT

By its nature, conflict possesses intrinsic and inseparable features that in combination make it a unique phenomenon in human affairs. The first element of conflict is the *adversary*. Other features derive from the environment in all its aspects and the maritime elements have been discussed in [Chapter Two](#). In this section we concentrate on the human aspects, particularly in the effects that are generated by or manifest within conflict.

The Adversary

Australia does not currently face an identifiable direct military threat. While this eases the national security problem in one context, it means that Australia's combat forces must be capable of meeting a range of contingencies which could arise at little or no notice and of preparing and adapting themselves to meet longer term threats. One of the major contributions of intelligence is the provision of assessments on the likelihood and nature of such threats.

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 in conflict by training and operations which are as challenging and realistic as possible. For maritime units, this will bear dividends not only in combat, but also in facing the dangers of the sea.

Friction

Friction is a concept that is very difficult to understand without the personal experience of conflict. It is defined as the features of war that resist all action, make the simple difficult and the difficult seemingly impossible. Carl von Clausewitz (1780-1831) in his book *On War* explained friction by pointing out that what was important in war was very simple and that in war the very simple became progressively more difficult to achieve. This process was not only due to the multitude of problems which arise in attempting any complex activity in an uncertain and changing environment, but because of the presence and actions of an unpredictable adversary and, most important of all, because of the effects, both conscious and subconscious, of fear. The challenges of going down to the sea in ships and operating over the sea in aircraft mean that some of the experience of friction is an ever present reality for maritime forces even in time of peace. Thus, navies and air forces which allow their people every opportunity to practice their profession at, under and over the sea, to test their skills and extend their operating envelopes even in ways which do not seem directly connected with warfighting will be better prepared for conflict.

Uncertainty

The concept of *uncertainty* is related to *friction* and 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 dealt with when there is insufficient time for complete planning and investigation of the issues. In particular, commanders need to be *risk aware* rather than *risk averse* in order to conduct operations in this atmosphere of uncertainty and complexity. The best preparation for this problem is not only to understand its practical inevitability in time of conflict, but to ensure that unity of command and understanding of the aim are supported by coherent and comprehensive *doctrine* and practised by realistic and demanding exercises.

THE SPECTRUM OF CONFLICT

All the factors described above are present to a greater or lesser extent in any conflict and must be taken into account in dealing with the situation. The varieties of conditions which can create and sustain conflict are such that we need to think of it as a *spectrum of conflict*. Within this spectrum are a number of differing conditions or levels. The categories that are particularly useful when considering the maritime environment are *peacetime conditions*, *low intensity operations*, *operations at the higher level* and *general war*.

Within *peacetime conditions* changes in the international situation occur in a controlled way, aided and to some extent directed by the processes of negotiation. Force is only employed within the context of the domestic legal system or the international order. Threats of force are confined to the normal processes of *deterrence*.

Low intensity operations are operations that are limited in aim, scope and area. They often include sporadic acts of violence. They are just as likely to be conducted on a multilateral basis as that of the single state and they will often be under the mandate of the United Nations or the aegis of some other supranational organisation. They may involve a significant number of non-state actors, as protagonists or for relief work. Examples include the Australian led operations in East Timor in 1999.



Meeting the challenges of the spectrum of conflict requires a high degree of joint cooperation. Here soldiers board a *Blackhawk* helicopter aboard HMAS *Tobruk (II)*

Higher level operations in the maritime environment may be much more intense and involve organised combat operations between ships and/or aircraft on both sides deploying major weapons. They remain limited in aim, scope and area but are very demanding in nature. An important maritime example was the Gulf War in 1991.

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 also by far the most serious type of conflict.

The various forms of conflict 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 characterised 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 circumstances, maritime forces may have important roles to play in each part of the continuum.

LEVELS OF COMMAND

In terms of directing, commanding and managing an armed conflict, it is a useful mechanism to consider it 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 nation-state as a whole 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 military-political interface and downwards to the operational level.

The operational level of command has to do with the planning and conduct of campaigns and key operations in order to achieve the strategic aim. Within the ADF, activities at this level will inevitably be commanded and directed on a joint basis. The operational level of war is particularly concerned with the issue of resources as the enablers for tactical efforts to achieve the objectives set. It thus provides 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.

In many circumstances it is possible either to define or perceive clear distinctions between 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.

Even the smallest maritime units have a span of interest and of combat influence that can be significant in terms of 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 operations in East Timor in 1999, for example, frequently demonstrated compression of the three levels of command.

FUTURE DIRECTIONS OF WARFARE

Unless a conflict is wholly confined to the land—a rare circumstance in an era of globalisation and increasing economic interdependence—then maritime forces will be involved. The RAN's experience since 1945 has ranged from strike and interdiction operations and the provision of fire support to land forces in Korea and Vietnam to counter-insurgent operations in Malaysian waters during Confrontation, sanctions operations before and after the 1991 Gulf War and logistic support and the provision of cover to the forces in East Timor in 1999. For all of their history, the Navy and the RAAF have played fundamental roles in the defence of Australia's maritime communications.

Some strategic analysts have suggested that the nature of armed conflict is changing fundamentally and away from outright confrontation between nation-states, with all that this implies by the 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 organisations, such as 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 nation states and reduce their preoccupation with what is often termed 'symmetric warfare'.

The difficulty with this argument is that it over-simplifies the problem. All the indications are that such phenomena are manifest in many areas of the world. But these events come in addition to the realities of potential inter-state conflict, not instead of them and Australia has experienced this already. Three of the major armed conflicts of the late twentieth century, the Falklands War, the Iran-Iraq War and the Gulf 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. They will need to do more, not less to meet the challenges of the *spectrum of conflict*. It is for this reason that the Australian Defence Force maintains a wide range of capabilities.

For navies the challenge must be to deal with the reality that low intensity conflicts do not necessarily mean low technology, 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 Twelve Future Australian Maritime Forces](#), but the result of these developments for a *maritime* nation in a *maritime* region is to increase the span of responsibility for *maritime* forces. Contingencies ranging from people smuggling to environmental disasters, through the need to assist or intervene in failed states, to state against state 'conventional' conflicts will, in Australia's situation, all have a maritime element. The following chapters explain what this means and how Australia's maritime forces can meet their responsibilities.

THE PRINCIPLES OF WAR

The 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 in relation to Australian 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 ten Principles are very relevant to modern maritime warfare. The following list of the Principles gives examples of their employment during the operational history of the RAN.

Selection and Maintenance of the Aim

Military action is never an end in itself; it is always a means to an end. It is of fundamental importance that the end always be kept clearly in view. This cardinal principle applies with equal force at the strategic, operational and tactical levels of conflict.

When the news came through to the first Australian Imperial Force convoy in the Indian Ocean of the German cruiser *Emden's* attack on the wireless station at Cocos in November 1914, the escort commander in HMAS *Melbourne (I)* was sorely tempted to detach his own ship in pursuit. Captain Mortimer Silver remembered, however, his responsibility as escort commander for the protection of the ships containing the lead elements of the First AIF on their way to Egypt. He thus remained with the convoy, ensuring its safe and timely arrival, but leaving the glory of a successful action to the unit he detached for the purpose, the cruiser HMAS *Sydney (I)*.

Co-operation

Co-operation—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 war. Only in this way can the resources and energies of each be harnessed so as to achieve victory.



The German cruiser SMS *Emden*, beached at Keeling Island 1914

The amphibious operations conducted in the South West Pacific area during the Second World War were marked by a degree of joint and combined co-operation that became steadily more sophisticated and integrated. Training, the development of standard operating procedures and the allocation of expert liaison staff ensured that the three Australian services and their Allies worked together to extraordinary effect. Australian naval forces, including sea transport, escort and bombardment, mine countermeasure and surveying units, were the enablers for a highly effective campaign of manoeuvre warfare that resulted in the defeat or isolation of substantial Japanese forces.



HMAS *Australia (II)* bombarding the Mokmer airstrip, Biak Island, 27 May 1944 during the amphibious campaign in the South West Pacific

Offensive Action

Offensive action is action by a military force to gain and retain the initiative. Offensive action is essential in most circumstances to the achievement of victory.

On patrol in the Mediterranean in 1940, Captain John Collins in the cruiser HMAS *Sydney (II)* was concerned that his orders put him too far away from the half flotilla of British destroyers he had been ordered to cover. On his own initiative, Collins moved *Sydney* and her accompanying destroyer two hundred miles south. As a result, *Sydney* was within an hour's steaming when the destroyers encountered two Italian cruisers and was able to intervene with decisive effect in the Battle of Cape Spada. The action resulted in the destruction of the Italian cruiser *Bartolomeo Colleoni*. Collins' decision was a difficult one because he had to consider the possibility 'of something happening...that would require our presence two hundred miles to the northward where the C-in-C would expect the ships to be'.¹ Nevertheless, he assessed that the more likely threat was in the south and acted accordingly.

Concentration of Force

Success in combat depends on the concentration of superior force. Concentration of superior force is the ability to apply decisive military force at the right place, at the right time, and in such a way as to achieve a decisive result.

¹ Vice Admiral Sir John Collins, *As Luck Would Have It*, Angus & Robertson, Sydney, 1965, p. 85



HMAS *Sydney (II)* in the Mediterranean in 1940

During the Allied invasion of the Philippines in October 1944, the Imperial Japanese Navy made a desperate attempt to interfere with the initial assault operations in Leyte Gulf. American and Australian surface units, including the cruiser HMAS *Shropshire* and the destroyer HMAS *Arunta (I)* were moved from their shore bombardment stations to meet the Japanese force steering north through Surigao Strait. In the night action which followed, which was the last capital ship surface encounter in history, the *Shropshire* fired no less than 32 eight gun 8-inch broadsides into the Japanese battleship *Yamashiro* in the space of 14 minutes. The Allies' combination of overwhelming firepower and technological superiority in the form of search and fire control radars 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.

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 amongst the departing troops would have been very heavy. Amongst the 'last 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 can produce results out of all proportion to the effort expended.

In September 1951, the United Nations' amphibious landing at Inchon on the west coast of Korea achieved strategic surprise and took the initiative away from the invading North Korean forces by threatening their tenuous lines of communication and outflanking them from the sea. Inchon represents an outstanding example of the use of the mobility provided by seaborne forces to achieve surprise. The destroyers HMAS *Bataan* and HMAS *Warramunga (I)* were amongst the naval forces which conducted the preparatory operations and provided cover to the transport and landing forces.

Economy of Effort

Economy of effort is the prudent allocation and application of defence and civil resources to achieve the desired results.

The support provided by 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 cruiser ensured that Vichy French forces 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.



HMAS *Adelaide (I)*

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.

In August 1941, Allied forces occupied Persia (now Iran) to prevent the country and its valuable oil fields from falling into German hands. The Australian-manned armed merchant cruiser *Kanimbla (I)* was the major unit in the force sent to secure the port of Bandar Sharpur. At the same time as local naval forces were being neutralised and shore positions occupied by landing parties, *Kanimbla's* remaining crew were involved in a desperate effort to prevent the sinking of scuttled and burning German and Italian merchant vessels. Their work resulted in seven out of eight ships in the port being saved for Allied service.

Sustainment

Sustainment includes support arrangements necessary to implement strategies and operational plans. These arrangements include those logistic and personnel aspects necessary for the efficient support of a force committed to operations.

Separate operations into the Southern Ocean in 1997 demonstrated the Navy's capability to conduct sustained operations at very long distances from its base ports. In January, the frigate HMAS *Adelaide (II)* rescued two yachtsmen some 1400 nautical miles away from the Australian continent. Later that year the frigate HMAS *Anzac (III)* apprehended two illegal fishing vessels in the Heard and McDonald Island Exclusive Economic Zone (EEZ), some 2200 miles from Fremantle. In both cases, the frigates refuelled from the fleet tanker HMAS *Westralia (II)* in order to achieve the endurance required.

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.

A high-angle, fisheye photograph looking down into a circular hatch on a ship's deck. A woman with short brown hair, wearing a dark uniform, is sitting inside the hatch and smiling up at the camera. The hatch is surrounded by various mechanical components, including a large white wheel and some yellow equipment. The deck is made of grey metal plates.

High morale is a vital factor for successful operations on, over and under the sea

When the destroyer leader HMAS *Stuart (I)* returned to Australia in 1941 after a deployment in the Mediterranean, the ship's company epitomised the value of high morale. A contemporary newspaper wrote, 'During 23 hectic months, HMAS *Stuart* escaped without a single casualty, though she ran the gauntlet of 2 full-scale naval battles, 4 bombardments, 9 definite attacks against submarines, 65 air attacks (excluding air bombings while [in harbour] at Malta, Piraeus, Haifa, Tobruk and Mersa Matruh) and [the] Libyan, Greek, Crete and Syria Campaigns. All of the men praised their captain [Captain H.M.L. 'Hec' Waller DSO, RAN] and expressed a keen desire to be under his command again. They regard *Stuart* as "the luckiest ship in the Mediterranean". And it was a ship which was referred to at the outbreak of war as "this old crock" kept together with "pieces of string". (*Argus*, 29 September 1941).

Capable maritime forces are fundamental to the successful fulfilment of the ADF's roles



- 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.
- Maritime forces are vital enablers for the execution of Australia's Military Strategy.

The roles of maritime forces in the protection of Australia and its interests are derived from the Government's overall security policy. Australia's military strategic policy covers those elements of that policy which 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 utilised 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 military strategies, as well as the nature of that contribution.

NATIONAL SECURITY

National Interests

A government's first duty is to provide for the security and well being 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 some 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 nation-states. The Australian Defence Force provides the military capability of Australia's national power.

AUSTRALIA'S STRATEGIC ENVIRONMENT

A nation's strategic environment may be defined as the context within which it must exist and interact with other nation-states 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. While it is thus possible to make judgements about the fundamental security challenges facing Australia, many of the judgements and national courses of action relating to those challenges and interests are inherently dynamic and must constantly be revisited and reassessed.

The fundamentals of Australia's strategic environment according to strategic policy guidance are:

- **Asia-Pacific.** Australia has key interests in the security and stability of the Asia-Pacific, including South East and North East Asia, the South West Pacific and North America. Furthermore, our physical security is directly related to the security and stability of maritime South East Asia and the South West Pacific.
- **Regional Economic Development.** The economic development of East Asia is the key driver of change in the Asia-Pacific strategic system. The political and social change



Warships can demonstrate sustained presence without violating other nations' sovereignty. They are an excellent instrument for demonstrating national intent

which results from that development will bring about the evolution of new international power relationships, the most important of which will involve the United States, China and Japan.

- Indonesia. By reason of its geography and demography, Indonesia is a defining element within Australia's strategic environment.
- South West Pacific. Australia's history, proximity to and continuing relationships with the South West Pacific result in our commitment to support the security and stability of the nations of the region. In particular, our relationship with Papua New Guinea is central to Australia's security interests.

ENDURING STRATEGIC INTERESTS

The Australian Government has identified a number of enduring strategic interests that require to be pursued in order to prevent attack on or coercion of this country. These are:

- Avoidance of destabilising strategic competition developing between the United States, China and Japan as the power relationships between the three evolve and change.
- Prevention of the emergence within the Asia-Pacific region of a dominant power, or group of powers whose strategic interests are hostile to those of Australia.
- Maintenance of a benign environment in South East Asia, particularly maritime South East Asia, which respects the territorial integrity of all states.
- Prevention of the positioning of extra-regional military forces in neighbouring countries which might be used contrary to Australia's strategic interests.
- Prevention of the proliferation of weapons of mass destruction (WMD).

While Australia's strategic environment and the enduring strategic interests related to that environment can generally be considered as existing within geographic boundaries, there remain linkages and dependencies upon events elsewhere within the world. In the economic and maritime contexts, in particular, the free movement of shipping between major trading blocs all over the world is vital to the economic well being of the Asia-Pacific region, while the majority of the states within it are dependent upon the uninterrupted passage of oil supplies, particularly from the Middle East, for their very existence.

Thus, these strategic interests recognise both the need for unilateral action, generally as a last resort, and the requirement to act co-operatively with other states within the region and with more distant allies. Co-operative action, in particular, may require the operation of Australia's combat forces in areas not only within but well outside the Asia-Pacific region, but for reasons which derive from our strategic interests, such as Australian involvement in the Gulf War in 1991.

Australia's concern for the security of the archipelagos to the north and north-east is not new. The campaign to secure the German colonies in New Guinea and the South West Pacific in August 1914 was the first Joint operation in Australian history, 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 (ANMEF) 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 *Australia (I)*, whose firepower acted as an effective deterrent to the German cruiser squadron attempting to dispute the result or enter Australian waters.

STRATEGIC CHARACTERISTICS

What the ADF and, in particular, Australia's maritime combat forces can achieve is influenced by Australia's strategic characteristics. These characteristics can be defined as being the elements which, in conjunction, make Australia a unique entity within the Asia-Pacific strategic environment. They include, but are not limited to the national political system, its economy, population and national support base, its foreign policy and the influence of its history. The influences which go together to make up what is sometimes termed as Australia's *strategic geography* are also vital and these have been discussed in [Chapter Two](#).

Political System

Australia is a sophisticated liberal democracy with one of the longest histories of democratic government in the Asia-Pacific region. Its military forces have an absolute



The submarine *AEI* with HMA Ships *Australia (I)* and *Yarra (I)* during operations to capture German New Guinea in August 1914

commitment to upholding the Australian 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.

In terms of the organisation of the ADF, this adherence to legitimacy and the democratic nature of the Australian nation state is a particular strength. It is a historical fact that liberal democracies have been more successful in the development and operation of maritime forces than other forms of government, principally because the intensity and complexity of the sustained effort required for these capabilities places heavy demands upon a nation's systems of state credit, its technological and industrial infrastructure, and its educated population. Sophisticated combat forces, in other words, depend directly upon the support of the people for their continued existence.

Economy, Population and National Support Base

Dependent upon the maritime environment for economic well being and security, Australia's limited population and demography mean that the levels of human resources allocated to defence in peacetime will be limited and must be very carefully managed. Furthermore, national capabilities will not in the foreseeable future be sufficient to maintain all force elements at the required technological levels by Australian efforts alone. As with other countries, external support through access to technology, manufacturing and logistic support will be required to ensure that the fighting edge of national forces is maintained at a reasonable price and without making excessive demands on the domestic economy. The most important relationship in this regard for Australia is and will be the United States of America. The balance between self-reliance and external support will inevitably be dynamic and one of the key considerations for the Government.

Foreign Policy

The Government operates under the fundamental objective that attacks on Australia or its interest will be prevented and the possibility of such attacks occurring will be minimised. Australia is thus not an aggressive nation, but it is prepared to use armed force for its own self-defence, in the defence of allies and friends and to defeat or deter international aggression when diplomacy has failed. Maritime forces, through their ability to demonstrate sustained *presence* without violating other nations' sovereignty, represent a highly appropriate mechanism for demonstrating such national *intent* in many circumstances.

The Influence of History

Such usage of armed force is borne out by Australia's history, which is one that shows that Australians are, although not lightly, prepared to protect their national interests. Australians thus accept that some circumstances may require the application of force.

Nevertheless, the nature of the Australian military experience in general and our naval history in particular create special challenges for policy makers. The achievements of the First and Second Australian Imperial Forces in their *expeditionary* roles in both world wars were only possible because of the maritime supremacy of the alliances in which Australia operated. Much more attention has been paid to the story of the Flanders trenches and to the Western Desert than to the fact that hundreds of thousands of Australian soldiers and their equipment were not only safely convoyed by sea over vast distances, but their operations in theatre sustained by maritime means, whatever the threats to that passage. This applied to the campaigns in New Guinea and the South West Pacific between 1942 and 1945 and to operations in Korea, Malaya and Vietnam. It also applied to the operation in East Timor in 1999. It was when that maritime supremacy was threatened, as in 1941-42, that Australia was in most peril. This lack of understanding of our history has minimised the importance of the maritime environment for Australian national security.

THE AUSTRALIAN MILITARY STRATEGY

The *Australian Military Strategy (AMS)* has been developed by Australian Defence Headquarters to meet Australia's unique national security requirements. Its aim is to *SHAPE the strategic environment, CONDUCT military support operations and PROVIDE combat ready forces* to accomplish the five major strategic tasks. These tasks in combination provide the basis for a comprehensive military strategy to meet the range of contingencies and span the spectrum of challenges that might threaten Australia or its national interests. They have been constructed with full regard to Australia's strategic environment and because of this have an inherently *maritime* focus.

The five major tasks expected of the ADF are:

- Defeat of Attacks on Australia (DAA)
- Defence of Regional Interests (DRI)
- Defence of Global Interests (DGI)
- Protection of National Interests (PNI)
- Shaping of the Strategic Environment (SSE)

Maritime forces will play an integral part in the execution of every major task in the Australian Military Strategy. In achieving the desired degree of *strategic control* in a



Patrol boats have many key roles to play in the Australian Military Strategy. Every day they are amongst the forces committed to protecting Australia's sovereignty and resource zones

strategy which is intended to be proactive rather than reactive by taking the battle to the adversary well offshore, warships, together with aircraft, would play a leading role in the *Defeat of Attacks on Australia (DAA)*. This would include both the projection of force and defensive measures to protect seaborne communications and national territory, including the measures to ensure that our land forces possess sufficient *maritime mobility* to accomplish their tasks.

In *Defence of Regional Interests (DRI)*, the maritime nature of our region means that conflict will likely manifest itself on or over the sea. 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 maritime forces, whether in their own right against seaborne adversaries or as enablers for the projection of air or land power.

In *Defence of Global Interests (DGI)*, the requirements for preparedness and credible capability, as well as their reach and the ease with which maritime forces can be integrated into multinational operations mean that they may be the first options considered by government when Australia's interests require participation in a contingency. Many of the unique characteristics of maritime forces described in [Chapter Six](#) bear directly upon their utility in these circumstances.

In the unremitting effort required in *Protection of National Interests (PNI)*, maritime forces are among the most active and effective elements of the ADF. 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. As immediately visible and readily identifiable symbols of national power, maritime forces also play a vital part in shaping world opinion to the benefit of Australia's national interests during peace and humanitarian operations.

Maritime forces are also fundamental in the strategic task of *Shaping of the Strategic Environment (SSE)*. They are particularly flexible instruments of *military diplomacy*. In Australia's case, maritime forces allow national interests to be demonstrated and asserted across significant parts of the globe. This use of *presence* can be critical in the process of *shaping* events to accord with Australia's national interests. Because of the ease with which navies interact with each other, maritime forces are a very effective means of achieving international engagement through exercises and cooperative training. They are well adapted for both creating and developing improved mutual confidence between nations, even when the interests of individual states are not readily compatible.

5

MARITIME STRATEGIC CONCEPTS

- Sea Control, Sea Denial and Power Projection are the basic tasks of maritime forces.
- Sea Control, the ability to use the sea and deny its use to an opponent, is fundamental to Australia achieving its strategic goals in conflict.
- Sea Control will be an essential element of practically every campaign or major operation in which Australia will be involved.
- Sea Control operations may be required across the spectrum of conflict.
- Sea Control minimises Risk—but does not eliminate it.

THE ORIGINS OF MARITIME STRATEGIC THOUGHT

The development of strategic theory for maritime warfare was a phenomenon of the late nineteenth century. The motivations of many of the early theorists are the subject of continuing scholarly debate. What is certain is that they were influenced by the land oriented works on the study of war by Carl von Clausewitz and Antoine Henri de Jomini (1779-1869) and that their efforts collectively produced a systematic approach to explaining and understanding the workings of maritime strategy. The most important early actors in this process were the British historian Sir John Knox Laughton (1830-1915) and the naval officer and analyst Vice Admiral Philip Colomb (1831-1899). Their work was considerably extended by Rear Admiral Alfred Thayer Mahan (1840-1914) of the United States Navy in his seminal book *The Influence of Sea Power upon History 1660-1783*, which sought to analyse the relative success of France and Britain in exploiting sea power during their long contest for supremacy in the seventeenth and eighteenth centuries. Mahan's efforts were followed by Sir Julian Corbett (1854-1922) and Admiral Sir Herbert Richmond (1871-1946), as well as the French strategist Admiral Raoul Castex (1878-1968).

COMMAND OF THE SEA

A modern analyst has noted that all these commentators were interested in war and they were concerned with dominance.¹ They were acutely conscious of the historical advantages that lay with the utilisation 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*. This is defined as the possession of such a degree of superiority that one's own operations are unchallenged by the adversary, while the latter is incapable of utilising the sea to any degree.

Command of the sea was theoretically achievable through the complete destruction or neutralisation of the adversary's forces, but it was a concept that, however historically valid, became increasingly unrealistic when naval forces were being faced by a range of *asymmetric threats* brought about by technological innovations such as the mine, the torpedo, the submarine and the aircraft. Furthermore, attempting to command 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 was in relation to the *use* of the sea for movement and not for *possession* of the sea itself. Julian Corbett, in particular, recognised these dilemmas. He pointed out that all naval conflict was fundamentally about *the control of communications*. With this in mind, Corbett qualified the concept of command of the sea, a process which led in the 1970s to the development of the contemporary term *sea control*.

¹ Rear Admiral J.R. Hill, *Maritime Strategy for Medium Powers*, Naval Institute Press, Annapolis, 1986, pp. 34-35.



Surface combatants are vital instruments in the control of maritime communications

SEA CONTROL

Control of the sea can be limited in place and in time and the required extent is determined by the task to be done. *Sea control* is defined as 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 opponent. The state includes the air space above and 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

Given that some maritime powers might have as their aim the prevention of the use of the sea against them, a related concept evolved in the form of *denial of the sea*, or *sea denial*. This is defined as that condition which exists when an adversary is denied the ability to use an area of sea for his own purposes for a period of time. Clearly, a nation may conduct sea denial operations in one area, while undertaking sea control in another, so sea denial is an aspect of sea control rather than an entirely separate concept. Nevertheless, it 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.

FORCE IN BEING

An important variation of 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 forcing the latter to divert its own forces to contain the force in being, or to provide additional protection for its vulnerabilities.

The Force in Being: 1914–1918

The four year stand-off in the North Sea in the First World War is one of the most important examples of the 'fleet in being'. The threat posed by the High Seas Fleet forced the British to put much of their naval strength into the Grand Fleet, preventing it from being employed to support offensive operations elsewhere or, in the case of cruisers and light forces, in the protection of shipping against the emerging U-Boat threat. The battle cruiser *Australia (I)* and the light cruisers *Sydney (I)* and *Melbourne (I)* joined units of the Royal Navy in their long watch over the North Sea.

SEA CONTROL AND THE SPECTRUM OF CONFLICT

The ability to ensure sea control will be needed across the complete spectrum of conflict. This is the key theme enunciated by the most thoughtful of modern maritime strategists. Much of their work has focused on the utility of navies across the spectrum of conflict and their ideas are explored further in [Chapter Seven](#).

One of their judgements is that sea control may be required in circumstances other than conflict between nation states. For example, sea control measures may well prove necessary to prevent pirates from interfering with the flow of merchant shipping. The forces required to exercise control of the sea are not easily prescribed, but it will generally take the application of high technology capabilities to be successful. What is certain is that the nature of the threat as much as the overall task defines the forces which will be employed. In any event, sea control operations will be required whenever Australia's national freedom of action at sea is threatened.



Sea control operations will be required whenever Australia's national freedom of action at sea is threatened

RISK

The essential difference for military planners between *control* and *command* of the sea is that the achievement of control does not exclude outright the existence of *risk*. Despite the advances of technology, the maritime environment is one that favours the covert. The degree of control needed must depend upon the level of risk acceptable in

the context of the task required to be done. At times, that risk may be very high and there may be many assets lost or damaged in achieving an objective.

This is an important point. Ships and aircraft must be regarded as tools for the operational commander that can be risked and lost in battle. While ships and their crews cannot be wasted, preservation of material and personnel must not become priorities that obscure strategic goals. Navies which have proved themselves risk averse in their employment have not enjoyed any degree of success, either at the tactical level or, most critically, in the operational and strategic contributions they have been able to make. Unlike land warfare, there is at the tactical level no inherent advantage for the defence over the offence in sea combat, although this relationship becomes more complex in the littoral environment. In maritime combat, it is axiomatic that defence exists to buy time for the offence to perform and be effective.²

The Evacuations from Greece and Crete 1941

The British and Australian units of the Mediterranean Fleet took heavy losses from air attack during their efforts to evacuate the British, Australian and New Zealand forces from Greece and Crete in April and May 1941. The Australian cruiser *Perth (I)* and the destroyers *Napier* and *Nizam* were among those damaged. Nevertheless, the operations continued. The British Commander in Chief, Admiral Sir Andrew Cunningham, declared 'Whatever the risks, whatever our losses, the remaining ships of the Fleet would make an all-out effort to bring away the Army'. They did and some 17,000 personnel were brought away from Crete.

² Wayne P. Hughes, Jr *Fleet Tactics and Coastal Combat*, USNI Press, Annapolis, Maryland, 2000, p. 191.



HMAS *Nizam*
enters
Alexandria
with troops
evacuated from
Crete, May 1941

SEA LINES OF COMMUNICATION

Sea control will be an essential element, whether as object or precondition, of almost any conceivable campaign or operation which will be mounted by Australian forces, whether acting unilaterally or in coalition. This requirement can be described as the protection of *sea lines of communication* or *SLOCs*. In many circumstances, sea control will be pre-existent, but it is important that its status not be uncritically assumed.

Furthermore, SLOCs do not have a physical existence and their defence must be considered only in terms of the ships which use them. Such protective processes, except in regard to facilities such as ports and harbours and smaller and more confined *focal areas* and *choke points*, are inherently dynamic, in contrast to the fixed defensive methods which may apply to lines of communication on land, such as roads and railways, and to air fields and bases. *There are no lines on the sea.*

Australia's sea communications have two important vulnerabilities. The first is that shipping moving to and from our trading partners in East Asia must pass through many archipelagic choke points to reach its destinations. The only alternative is to divert through much longer, time and fuel consuming deep ocean routes. The second is that shipping in the Indian and Pacific Oceans can be identified from some distance away as being bound only for Australia or New Zealand.³

There are no lines in the sea, but merchant ships seek to save time, fuel and money by taking the most direct routes between ports



³ This effect is known as the 'Sandison Line' and was defined by J.M. Sandison. See his article in the *Pacific Defence Reporter*, April 1986, p. 4.

THE SEA THE LAND AND THE AIR

The steady blurring of the boundaries between environments and the accompanying drive towards the integration of all elements of combat power has led to the concept of *battlespace dominance*. The idea of the *battlespace* incorporates both space and the electromagnetic spectrum. The attainment of sea control is the necessary maritime component of battlespace dominance.

MARITIME POWER PROJECTION

A contemporary maritime strategist has summed up this reality: 'Navies fight at sea only for the strategic effect they can secure ashore, where people live'.⁴ Some of the activities which take place in maritime conflict may be only indirectly linked with effects on the shore but, sooner or later, that link is established and a terrestrial result accomplished. Sea control, once achieved, establishes the environment for more direct efforts in relation to the land. Maritime forces can shape, influence and control this environment, as well as deliver combat force ashore if necessary. The delivery of force from the sea is defined as *maritime power projection* and can take the form of the landing of amphibious or special forces or the delivery of seaborne land forces, or bombardment by guided or unguided weapons from seaborne platforms. Their covert nature means that submarines can play an important part in the projection of maritime power. In the Australian national context, attacks by organic aircraft will not normally be a component of maritime power projection, but naval forces can be expected to act in close concert with air forces to project power. Australian forces may also operate in a combined context with allied aircraft carrier forces. In these ways, they can play an integral part of the *air campaign*, a part which may expand in the future with new technology seaborne weapons such as long-range land attack cruise missiles.

Maritime power projection has utility in the degree to which force can be implied or threatened, as well as asserted. It is thus a tool applicable across a range of contingencies and conflicts. Maritime power projection forces can be despatched at an early stage of a crisis to give a clear signal of resolve and they can remain *poised* for long periods with the ability to react at short notice. The sophistication with which maritime power projection can be exercised gives great strategic advantage to those skilled in its application.

⁴ Professor Colin Gray, *The Leverage of Sea Power: The Strategic Advantage of Navies in War*, New York, 1992, p. 1.

CONTEMPORARY DEVELOPMENTS AND CLASSICAL MARITIME STRATEGY

Two key developments are having profound influences on contemporary strategic concepts. It is important, however, particularly for smaller powers with unique requirements such as Australia, that the differing nature of those developments be clearly understood, even if their effects appear similar.

The first is the way in which technology is increasing the ability of seaborne forces to influence events on land and in the air. This is not only concerned with the development of extended range projectiles, such as cruise missiles and guided munitions, which can be fired from ships. It also has its origins in the prospects for passing over the slow and difficult terrain of the shore in amphibious operations by the use of hovercraft and tilt rotor aircraft to deliver ground forces well inland in a battle ready state. Given the other inherent advantages of seaborne power, particularly its *mobility in mass*, these increases in reach mean that naval and amphibious forces have new utility in a wide range of situations. Both aspects are also closely tied into the development of much improved battlespace management systems and the way in which seaborne units are increasingly able to 'view' and intervene in the land and land-air battles despite intervening terrain.

This new potential for seaborne forces needs to be balanced against the improvements in surveillance and anti-ship weapon systems which pose challenges for surface units. The effective use of seaborne forces in a threat environment will require a careful assessment of the adversary and the balancing of offensive and defensive capabilities.



The amphibious transports *Manoora (II)* and *Kanimbla (II)* will be vital enablers in Australia's ability to deploy land forces by sea

This means integrating not only the efforts of the ships themselves but the activities of intelligence, surveillance and airborne platforms in particular.

The second development is the end of the Cold War and the collapse of the Soviet Navy as an effective blue water force. The result of the demise of the primary rival against which the United States and NATO navies were matched has been that the USN in particular, but also the major navies of Western Europe, now operate in an environment in which they effectively enjoy maritime supremacy. This situation is one that has not applied since the late 1870s and the *Pax Britannica*. It means that the USN is in a position to assume the existence of sea control as a given as part of its drive to achieving *battlespace dominance* to the extent that it is effectively in *command of the sea*. It can therefore concentrate on projecting power from the sea with little need to divert resources towards the protection of maritime communications. This concentration on *expeditionary warfare* has been the focus of a succession of the strategic documents which began with *From the Sea: Preparing the Naval Service for the 21st Century* in 1992 and in the United States Navy's series of doctrinal publications, led by *NDP 1: Naval Warfare (1994)*. Similar concepts, adapted and modified for their circumstances, have been taken up by the United Kingdom and are laid out in the latest (second) edition of *BR 1806: British Maritime Doctrine (1999)*. These documents recognise strategic realities, but they are realities which may well change at some point in the future with the growth of other maritime powers whose interests are not those of the United States or the West.

THE AUSTRALIAN CONTEXT

Australia's maritime strategic requirements are closely tied up with the concepts of sea control and of sea denial. Many of the ideas centred on 'defence of the sea air gap' to the north of Australia which were articulated in the mid-1980s are based on denial of the maritime approaches to any would-be aggressor. But, because Australia is an island continent fundamentally dependent upon the sea for communications and because it exists within a region which as an entity is equally dependent upon the sea, it is control of the sea which more closely bears upon our national situation, whether the context is defensive or offensive.

For Australia, apart from the issues of cost and scale, the contemporary strategic context is even less clear than the technological one. Our region includes a large number of nations with significant maritime and air 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 United States and Europe, it will be necessary for Australia to maintain in the immediate future a greater focus on fundamental issues such as sea control—including control of the air—at the same time as we seek to increase our ability to directly influence events on land.



6

MARITIME OPERATIONAL CONCEPTS

- Maritime forces bring unique capabilities to the Joint environment.
- The advantages of maritime forces include readiness, access, flexibility and adaptability.
- Maritime forces can transport and sustain combat power over long distances.
- Maritime forces can poise and be persistent.
- Maritime forces provide many options to strategic decision makers.

THE RELATIONSHIP BETWEEN LAND, AIR AND MARITIME POWER

The environments within which the services operate and fight are interconnected and cannot be considered in isolation. Indeed, Australia is attempting to ensure seamless warfighting approaches such that virtual integration is achieved to maximise the effectiveness of our forces. Furthermore, the trend of technological development is such as to make the operating environments and methods more alike. The fundamental differences between the land and the other two environments used to be that land warfare tended to be linear and focused on *gaining or holding ground*, while air and maritime warfare tended to be *non-linear, dynamic and platform focused*. Furthermore, as noted in [Chapter Five](#), there are tactical relationships between the offence and defence on land which differ in nature from those on the sea or in the air. As all environments become more technologically sophisticated, such distinctions are beginning to disappear, with land warfare becoming more dynamic and non-linear and all three environments becoming more *organised as networks* in order to achieve *battlespace dominance*. Space based assets and over-the-horizon sensor systems are becoming important elements of the process. Forces from all environments are increasingly developing the capacity to manoeuvre, acquire and engage targets throughout the battlespace. Nevertheless, these processes are still in their early stages and there remain key differences between land, air and maritime operations.

Probably the most important factor for maritime forces is that the nature of maritime operations leads more readily to organisation and command by task rather than within specified geographical *boundaries*. The more detailed aspects of this for command

and control will be discussed in [Chapters Ten](#) and [Eleven](#), but the key issue is that both the capabilities and the vulnerabilities of maritime forces must always be considered in terms of both *space* and *time*.

CHARACTERISTICS OF MARITIME POWER

By their nature, seaborne forces possess characteristics and attributes in combinations and to an extent which are not necessarily present in the other environments. For the Australian context, the characteristics of land forces are described in Land Warfare Doctrine 1—*The Fundamentals of Land Warfare* and of air forces in Australian Air Publication 1000—*The Air Power Manual*. For units on or under the sea these characteristics include:

Mobility in Mass

Ships are *mobile*. Warships may only transit at less than a thirtieth of the speed of jet aircraft, but even moderate sized ships 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 large cargoes over long distances, but the capacity of warships to carry considerable *combat power* in the form of their organic weapons and munitions over similarly long distances. This is a very important aspect for smaller forces which 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, being capable of sustaining their progress almost indefinitely. Seaborne forces can move at several times the speed of large land forces over long distances, an aspect of considerable significance for *amphibious operations*. Even at a moderate speed of 15 knots (28 kilometres per hour), a naval task force can travel 360 nautical miles (more than 660 kilometres) in a single day. In conjunction with organic and shore based aircraft, particularly airborne early warning and control aircraft, and with the support of non-organic systems such as over-the-horizon radar and submarines, the idea of a 'moving bubble' of approximately 1000 nautical miles (or nearly 2000 kilometres) radius is a realistic way of thinking about the scope of geographic influence of a maritime force.

Submarines, too, carry considerable combat power. They can transport and insert small special forces units and can operate covertly. By comparison with surface forces, however, conventional submarines transit much more slowly, although they have excellent endurance.

Readiness

Warships can be *ready*. While the Navy's normal operating and maintenance cycles may make it more difficult to surge an entire order of battle than is the case for aircraft, the Navy's customary operating patterns and exercise levels mean that ships that are not in maintenance and have completed their normal training can very rapidly be prepared and deployed for a contingency. In the 1990-91 Gulf War, the first RAN ships were ready to sail within 48 hours of the Government's decision to despatch them. Because they do not need to establish initial forward operating bases, warships can often be *operational in theatre* before any other forces despite their apparently longer transit times. Being on scene early helps contain escalation and prevent widening of a conflict.

Access

Warships can operate wherever there is sufficient depth of water to float and are only restricted in their operations in the internal waters and territorial seas of other countries. This gives them immediate *access* to some 70 per cent of the earth's surface, an effect magnified by the fact that the vast majority of the world's population lives within a hundred and fifty kilometres of the sea. Warships do not create a 'footprint' on other nations' territories or in their airspace and thus do not challenge sovereignty in the way that land forces or forward deployed or over-flying air forces must do. Restrictions on airspace and ground facilities may mean in some circumstances that warships are the *only* military option available to the Australian Government. Furthermore, the extent of that access can be expanded when maritime units are operating with organic air power and amphibious forces. The ability to control conflict without the need to adopt measures requiring land forces to be physically committed is an important strategic advantage.



Warships are responsive and sensitive to Government direction. They can transition to high scales of readiness without any external indications

Flexibility

Warships are *flexible*. Warships are immediately responsive and sensitive to government direction in a subtle way not always applicable to other military assets. Even in an era of satellite surveillance, warships are difficult to locate and identify, particularly near busy shipping lanes, and even more difficult to track continuously. Warships can be deployed into area covertly or overtly; they can be withdrawn at will; and they may be as easily operated so as 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. Modern high capacity communications now permit a very high degree of responsiveness to higher direction.

Adaptability

Warships can transition from a peacetime state to the highest degree of battle readiness, without giving any external indication of their increased readiness. This is a very important consideration for any would-be adversary. They can change their employment from the most benign of international activities to offensive action within a similar period and with equally little warning to an adversary. By organising naval units into *task formations*, the capabilities of particular platforms can be combined to achieve effects which can not only be matched to the job to be done, but which mean that a higher level of threat can be accepted and commensurate stress can be applied to others.

Reach

Reach may be defined as the distance from home bases at which operations can be carried out.¹ Warships carry much of their logistic support with them. This ability gives them considerable inherent capability to conduct *sustained* operations, whether working individually or in *task formations*, at long distances and for extended periods from home bases, thus conferring *reach*. Such reach can be extended in distance and time by the provision of replenishment vessels and by the rotation of combat forces into and out of theatre.

Poise and Persistence

Warships can *poise* and be *persistent*. These qualities relate directly to the size of the vessels involved but, to a greater or lesser degree, all warships are almost wholly self contained and can operate without recourse to the shore for periods of weeks or even months. In a recent Australian example, the heavy landing ship *Tobruk* spent 65 days in the area of operations off Bougainville in the course of a single 73 day deployment

¹ Rear Admiral J.R. Hill, *Maritime Strategy for Medium Powers*, Naval Institute Press, Annapolis MD, 1986, p. 149.

in 1998. Embargo operations have been conducted without interruption for years, even in modern times. The endurance of warships can be readily increased further by the provision of fuel, ammunition and food, and vital stores from replenishment ships. All modern ocean going navies possess such supply ships as fundamental elements of their fleet. This ability 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 be proactive as well as reactive in a way that is unique. Poise does not always require a physical presence on station but relates to the continuing ability of naval forces to intervene in a situation to achieve the required effects.

Resilience

Warships are *resilient*. Not only are they designed and their crews trained to control and alleviate the effects of damage, they are much less mission sensitive in terms of defects than airborne units. All ships are characterised by a degree of redundancy in both their equipment and manning and the extent of this redundancy tends to increase dramatically with hull size. Furthermore, just as most ships have multiple weapon and sensor capabilities and can perform several tasks *concurrently*, so even major defects or damage may not mean that a unit ceases to be able to make a contribution to the force as a whole.

The British guided missile destroyer *Glamorgan* was struck by an *Exocet* missile in June 1982 during the Falklands War. The missile may have failed to explode, but unburnt propellant started a major fire and burnt out the hangar and part of the after superstructure, damaging her primary missile system and some of her propulsion plant. Nevertheless, she was still capable of manoeuvring at high speeds, while her search sensors, gun armament and close range weapons remained operational. Battle damage repairs from a forward based depot ship restored the primary missile system within a few days.



HMS *Glamorgan* after being hit by an Argentinian land launched *Exocet* missile

THE LIMITATIONS OF MARITIME POWER

Maritime power also has a number of inherent limitations.

Transience

Maritime forces cannot 'hold the sea' in the way that occupying troops can 'hold ground' on land. Although *persistence* has been described as an important characteristic of maritime units and one not readily achieved by air forces, it must be considered as a tactical or operational tool and not as an element for final strategic decision except if that decision is susceptible to achievement by seaborne means alone. The blockade of an entity which 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 not always apparent in their effects. The success of operations such as blockade in particular are very difficult to measure, not only because the effects of seaborne power sometimes take a very long time to achieve but because they can also require close coordination with a range of other measures to be fully effective.

The primary danger of indirectness is that it tends to disguise the critical nature of the maritime environment in most conflicts. This is particularly true in relation to the requirement for the maintenance of uninterrupted sea communications to support campaigns on *land*, a requirement that has applied to practically the entirety of Australia's military experience since 1900.

Speed

Although maritime 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 and airborne forces. There will be circumstances in which the response time of maritime forces will be measured in days or even weeks, rather than the few hours of immediately ready air mobile forces. The comparison is complicated, however, by the fact that the balance between range and payload remains a difficulty for air forces, which require forward bases, mobile operating platforms or asset-intensive air-to-air refuelling to add *reach* to their speed. In the circumstances where distance becomes a major consideration—something that will almost always be the case for Australia—the operational commander will need to make a careful judgement as to the key characteristics needed to achieve the task. In uncertain situations, the more effective the political-military interface the more likely that maritime forces will be deployed sufficiently early to allow their effective use.

MANOEUVRE IN THE MARITIME ENVIRONMENT

In maritime warfare, *manoeuvre* is a strategic and operational concept rather than one directly relevant to the tactical level and the distinctions between *attrition* and *manoeuvre* are different to those in land warfare. Manoeuvrist effects can be achieved in the naval environment if overwhelming force can be deployed against an opponent's critical vulnerabilities without warning. Examples of this could include the pre-emptive sowing of minefields outside an adversary's bases. Since, however, they are inherently highly mobile and not readily susceptible to the same morale factors as ground troops, naval forces will generally require to be engaged with superior firepower to achieve their neutralisation.

Manoeuvre as a concept in the maritime environment, or *maritime manoeuvre*, principally relates to the inherent capability of maritime forces 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 an adversary's will or capacity to resist. It is thus inherently a land-sea or a land-sea-air concept and has particular relevance for Australia because of the *maritime-littoral* nature of so much of this country's strategic environment. Sometimes described as *manoeuvre from the sea*, it will be fundamental to most Australian operations in conflict.

The Battle of the Coral Sea 5–11 May 1942

The Battle of the Coral Sea marked the point at which the Japanese advance into the South West Pacific was arrested when Japanese naval forces were confronted by American carriers supported by American and Australian surface formations. The Japanese failed to achieve the degree of sea control necessary to undertake their seaborne assault on Port Moresby, despite the fact that the United States Navy suffered greater losses than the Imperial Japanese Navy in the battle.

ATTRITION IN THE MARITIME ENVIRONMENT

In this maritime context, *attrition* is also more properly a strategic or operational concept for naval forces than tactical, because at the latter level either the presence of superior force—generally reckoned in terms of the effective range and destructive effect of the weaponry carried—or the achievement of *surprise* is required to achieve a victory between naval forces. That victory will normally result in the serious disabling or destruction of the loser. Such destructiveness is one of the key themes of the historical

experience of maritime warfare and it is important to remember this reality in the context of determining *risk*. On the other hand, the object of naval warfare is not a 'vessel count'. It is establishment of the control of a dynamic environment in order to achieve the required end-state. 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 *awareness* of the *battlespace* 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. It is very much the reality of maritime operations.



Organic helicopters act as force multipliers when their capabilities are combined with those of surface ships and other units

- The warfighting capabilities of maritime forces provide the basis for their use in a wide range of other missions.
- Maritime forces are valuable instruments of both foreign and domestic policy.
- Maritime forces contribute to diplomatic efforts and are unique symbols of national sovereignty and national interest.
- Maritime forces play significant roles in enforcing domestic and international law.
- Maritime forces can contribute substantially to peace operations

THE SPAN OF MARITIME OPERATIONS

Maritime forces possess considerable utility in a wide range of situations that span not only the *spectrum of conflict*, but also much peaceful human activity. Contemporary strategic thinkers, notably Ken Booth, 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 *policing* (or *constabulary*).¹ The Royal Navy makes the distinction in a slightly different fashion, dividing the roles of maritime forces into *military*, *constabulary* and *benign*.² In Australian Joint doctrine, the distinction is drawn in a third way, between *combat* operations, *military support* operations and *shaping* activities. However, when discussing maritime activities, the idea of *constabulary* operations is particularly valuable because it emphasises the historically close—and continuing—relationship between maritime forces and domestic and international law enforcement. The differentiated category of *benign* roles within *diplomatic* operations is also important in comprehending just how flexible navies can be.

The table on the next page is laid out as a 'triangle of sea usage' to show the *span of maritime operations*. The foundation of this triangle on the basis of military capability is deliberate. The ability of maritime forces to undertake constabulary and diplomatic

¹ Ken Booth, *Navies and Foreign Policy*, Croom Helm, London, 1977, p. 16.

² BR 1806 *British Maritime Doctrine* (Second Edition), The Stationery Office, London, 1999, p. 51.

operations depends substantially on their ability to carry out their combat roles. The capability to do these things is thus largely a by-product of the resources and core skills developed for warfighting.

The major activities of maritime forces that fall into each of these three categories are shown adjoining the triangle. Although the circumstances surrounding benign operations are clear enough, the crossovers from military to constabulary roles and back are not always so distinct. As Sir James Cable has suggested, the distinction between combat and non-combat activities applies when the infliction of damage becomes an end in itself.³ The other important difference between military and constabulary activities is that the latter depend upon legitimacy deriving from a legal domestic mandate or an internationally agreed order, while the former, whatever the degree of force implied, threatened or exercised, is defined primarily by the national interest.

COMBAT OPERATIONS AT SEA

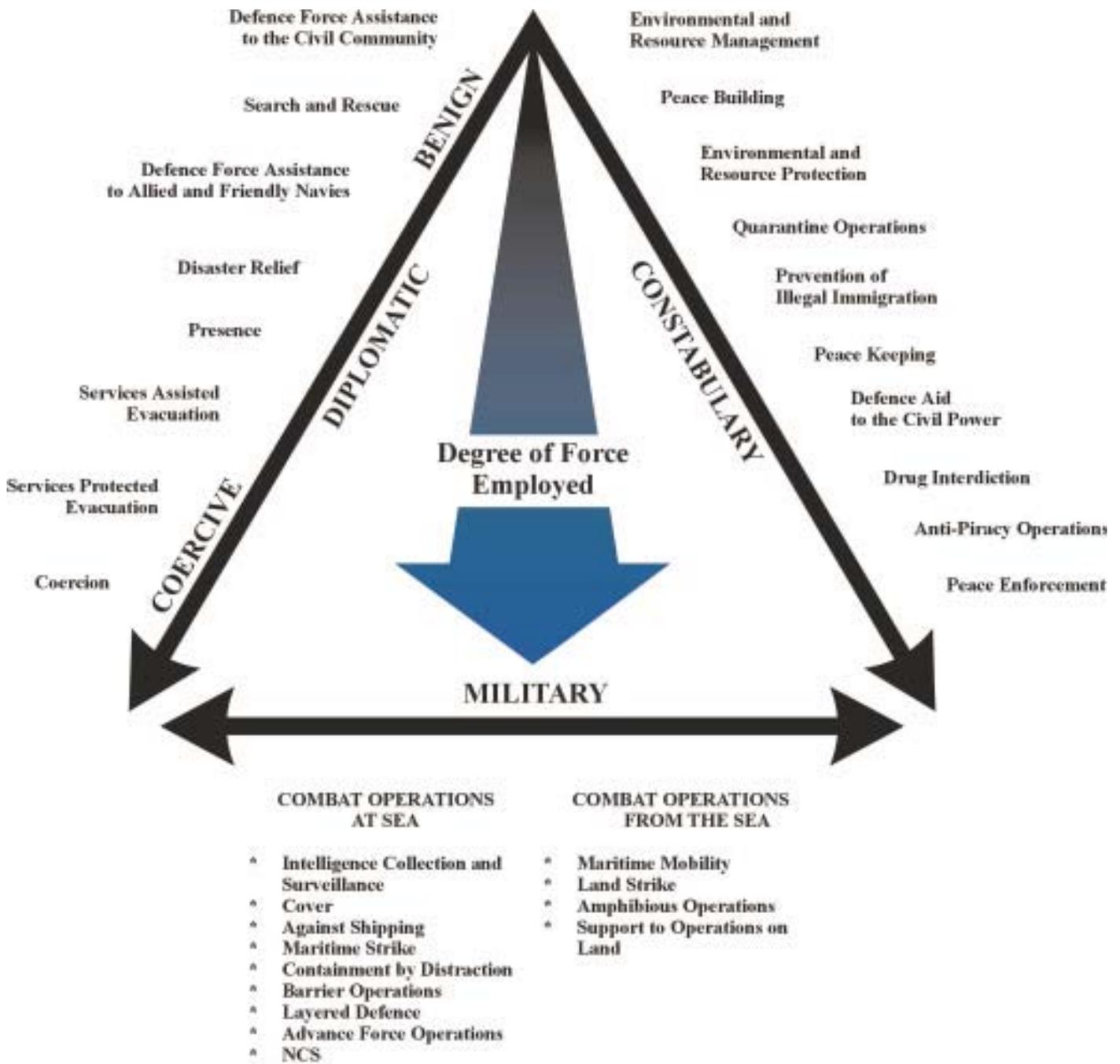
Intelligence Collection and Surveillance

Although intelligence collection, surveillance and geographic information activities are conducted in both peace and conflict 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 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 assets, over-the-horizon systems, signals intelligence and other systems play a vital and increasingly important role, particularly in the provision of cueing information which allows local assets to be concentrated and focused against a particular threat or target. Submarines, because of their ability to remain covert, are particularly effective in intelligence collection within their localities, while maritime patrol aircraft, surface combatants and their organic helicopters are the principal maritime contributors to surveillance operations over wide areas.

Cover

Cover is defined as the provision of support for less capable forces to ensure their protection and the completion of their tasking without interference from an adversary. This may require the deployment of *covering forces* in the proximity of the units requiring protection, but, given appropriate capabilities, cover may be effectively exercised through the simple threat of intervention. This is particularly applicable to situations

³ Sir James Cable, *Gunboat Diplomacy 1919-1979*, Macmillan and IISS, London, 1981, pp. 33-40.



The Span of Maritime Operations

Note: This concept has been derived from the ideas advanced by Ken Booth in *Navies and Foreign Policy* and developed by Eric Grove in *The Future of Sea Power*.

in which it is desirable to contain the intensity or branching of a conflict. An adequate degree of cover in such circumstances can be an important *deterrent* of a would-be adversary and will ensure that the situation will not *escalate*. Cover is a concept which transcends environments and one of the most important services which different force elements can provide for others at their points of greatest vulnerability.

Surface combatants of the RAN and coalition navies provided cover for the land forces during the critical early stages of the insertion of the coalition force into East Timor in 1999. The presence of highly capable and well-armed warships gave a clear demonstration of the force's resolve and its capacity to defend itself.

'Another military blinding glimpse of the obvious is the utility of sea power in the East Timor operation. The persuasive, intimidatory or deterrent nature of major warships was not to me as the combined joint force commander an incidental, nice to have 'add on' but an important indicator of national and international resolve and most reassuring to all of us who relied on sea lifelines.'

Major General P.J. Cosgrove AC, MC
ANZAC Lecture 4 April 2000

Interdiction of Commercial Shipping and Sealift

Combat operations are conducted against adversary shipping for either strategic effect or to meet an operational or tactical aim. In the case of strategic effect, this will usually be a systematic campaign aimed at reducing the adversary's ability to sustain the conflict by preventing his use of the sea for economic activity. At the operational level, the intent will be to prevent an adversary's reinforcement or resupply of deployed units and any attempt to conduct manoeuvre operations by sea.

Maritime Strike and Interdiction

Interdiction of an adversary's maritime forces, to prevent their use for sea denial, sea control or power projection, can be conducted from the sea or from the land and can be directed against targets at sea or in harbour. *Strike* assets in the form of submarines or attack aircraft will be the most common platforms employed for interdiction, but surface combatants, helicopters and maritime patrol aircraft can also be utilised to fire land attack weapons, or anti-ship missiles and anti-submarine weapons for operations at sea. Aircraft and submarines can be employed to lay offensive mine fields.

Containment by Distraction

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

Combat Operations in Defence of Shipping

The basis by which shipping can be protected is either by defending an *area* or by defending the *ships themselves*. Both methods are valid in particular circumstances, but the complexity of the maritime environment means that area operations must be approached with particular caution because they carry the risk of placing too many demands on sensor systems and allowing the adversary to achieve *surprise* in its attacks.

Barrier Operations and Defended Areas

Barrier operations may be conducted in situations in which geography and/or oceanography combine to create a *focal area* that can be closed to the adversary. Similarly, the requirement to concentrate assets 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 sensors and weapons to contribute to the force. Defensive minefields can be a particularly effective mechanism for achieving the aim.

Layered Defence (Convoy, Close and Distant Screening)

The concept of layered defence is one of the oldest in maritime strategy, including as it does the method of *convoy*. Escorting units, generally surface or airborne, maintain



Much of the submarine's inherent flexibility results from its endurance. Here HMAS *Waller* arrives in Pearl Harbor after a transit from Australia

watch on their sensors and provide warning and weapon coverage against air, surface or underwater threats by acting as moving barriers around the ship or ships to be protected. Convoying ships, or grouping them together for their own protection, is based on the simple fact that the concentration of defensive assets in close proximity increases the overall defensive capability of the escort available. Properly carried out, convoy operations may also reduce the period of vulnerability.

Advance Force Operations

Advance force operations are conducted in advance of a main force, notably an amphibious force, in order to make acceptably safe the area in which the latter will operate. The maritime elements of such activities are primarily directed against submarines and mines or are concerned with developing improved knowledge of the operating environment. Advance force operations are asset intensive and time consuming and may themselves be vulnerable, especially in the case of mine countermeasures. They thus frequently require cover from other forces. The nature of these forms of maritime warfare means that advance force operations must be thought of in terms of threat *minimisation* rather than threat *elimination*.

Surveying and beach reconnaissance are two elements of advance force operations in which the RAN has a distinguished history. As part of Task Group 70.5, a mixed RAN/USN force under Australian command between 1942 and 1945, the RAN's surveyors conducted a series of surveys and lead through operations, often within range of enemy batteries and frequently under fire, which were vital to the success of the amphibious campaigns in New Guinea and the South West Pacific.



The corvette HMAS *Benalla (I)* as modified for surveying operations. She and her sister ship *Shepparton (I)* played a distinguished part in the South West Pacific campaign

Protection of Shipping

Naval Control of Shipping (NCS) is a term applied to a wide variety of procedures, the object of which is to ensure that maritime trade is affected as little as possible by threats or contingencies. NCS 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 of another nature. These measures can range from the provision of briefing, debriefing and routing information to the most sophisticated escort and screening operations. Much NCS effort, particularly in guiding and monitoring the progress of merchant ships, assists substantially in developing the surveillance picture. Only in the event of extreme threats would such active measures as escort be adopted, either to cover a specific campaign or area of conflict, or, in the final event, to ensure national economic survival.

COMBAT OPERATIONS FROM THE SEA

Maritime Mobility

The sea can be utilised for the projection of power against the shore in a number of ways. At its most basic, maritime means can be used to transport land forces into theatre and sustain their operations there by the provision of *sea lift*. The limitation of this approach is that it requires the utilisation of developed port facilities for embarkation and disembarkation and the forces so transported are likely to require significant time to prepare themselves for operations after landing.

Thus, although *maritime mobility* in the form of sea lift can be a very useful tool of manoeuvre warfare, achieving *maritime manoeuvre*, the reality of operational contingencies and local threats will often require the use of *amphibious forces* which are capable of transporting land forces and disembarking them in a high state of tactical readiness in the absence of developed facilities.

Land Strike

The ability of maritime forces to strike directly at the land has historically depended upon the possession of organic fixed wing aircraft or large calibre guns. Surface combatants with medium calibre guns possess a limited capability to conduct bombardment. The development of extended range guided munitions and ship and submarine borne land attack missiles is likely to increase the potential for these operations in the future.

Amphibious Operations

Amphibious operations seek to exploit the superior mobility of seaborne forces to those on land as well as their ability to transport mass. They may be used to contribute to the campaign by interdicting the adversary's vulnerabilities on land, by seizing an



HMAS Tobruk (II)



objective, conducting a turning movement to expose a vulnerable flank or, on a smaller scale, by infiltrating forces to interfere with the adversary's lines of communication. Not all amphibious operations are conducted by surface forces. Submarines can be particularly useful for covert insertions and extractions of special forces.

Amphibious forces can be particularly effective when conducting an *amphibious demonstration*. They may tie down much larger numbers of land based forces by threatening but not conducting a landing. This utilises the inherent capabilities of ships to *poise* and be *persistent* and thus achieves *distraction* of the adversary.

The principal stages of an amphibious operation normally begin with the *advance force* or *pre-assault* operations by maritime forces already discussed. They may also include the landing of small numbers of personnel by covert means to conduct scouting and reconnaissance. The *amphibious assault* will be 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* is employed to describe this part of the amphibious operation, but it must be emphasised that this will not be 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 will seek to land where the adversary is not and they will go ashore only when they are confident that local superiority exists on and under the sea and in the air.

The insertion of a smaller force for a particular and limited task and its withdrawal immediately on completion is known as an *amphibious raid*.

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 land, sea or air power, very close co-ordination is required between all elements of the force to ensure a safe departure.

Support to Operations on Land

Australia's naval forces do not possess the organic air capability to protect operations on land. They nevertheless have considerable potential to contribute to combat operations throughout the battlespace. Medium calibre guns in surface combatants can be used for naval surface fire support or shore bombardment operations, while air warfare weapons and sensors are used to contribute to anti-air operations over the coast. This will be particularly useful if it can be integrated with airborne early warning and control and fighter aircraft, or with land-based sensors and weapons. Army



Heavy landing craft were vital in ensuring mobility of land forces in East Timor

battlefield helicopters (organic to the amphibious task group) and naval utility helicopters can provide extensive support to operations on land. In littoral zones, maritime forces prevent the adversary moving forces by sea. This protects the seaward flank of friendly land forces and denies the adversary the ability to conduct *maritime manoeuvre*.

SHAPING OPERATIONS

Shaping operations can also be described as *naval diplomacy* or the use of maritime forces in support of foreign policy. Some of the activities that fall under this heading include *constabulary* or *benign* operations. There are, however, significant elements that rely directly upon the inherent combat capabilities of maritime forces and are *diplomatic* in their intent. That is, their activities are designed to influence the policies and actions of other nation states. One important aim is to develop the conditions which will allow the successful conduct of coalition operations in the future. Many of the inherent characteristics of maritime forces described in [Chapter Six](#) are attributes that make maritime forces the instruments of first resort for governments. In particular, they possess the versatility and the range of response which makes them very useful tools in times of uncertainty and crisis, allowing governments the maximum freedom of decision.

Presence

Presence is the term used to describe the operations of naval forces in areas of strategic significance that are intended to convey an interest. These may involve simple passage past another nation's coast, port visits or *exercises*. Warships represent perhaps the most sophisticated manifestations of particular societies and are thus unique symbols of a nation's identity. The influence of *presence* derives directly from such features as *access, flexibility, poise* and *persistence*. It depends, however, fundamentally upon credible combat power. *Presence* is not itself a threat of force, but a demonstration of capability that can be used to reassure, to impress and to warn. The means by which this can be achieved are legion and extend much further than the social activities of tradition, including many of the *benign* operations described below.

Coercion

If a situation requires more direct action, maritime forces can be used to *coerce* a would-be adversary by demonstrating the readiness to deploy a degree of combat power which would make its aim unachievable or the consequences of achieving it not worthwhile. They are thus effective at achieving *deterrence*. In many circumstances, particularly those in which the main events are on land rather than in the maritime environment, such coercive action requires a high degree of joint co-operation to demonstrate credible capability in all environments. Maritime forces, including amphibious forces have, however, particular value in terms of such action because they are able to achieve coercive effects without necessarily violating national sovereignty.

MILITARY SUPPORT OPERATIONS

CONSTABULARY OPERATIONS

Constabulary operations operate within the framework of domestic law and Australia's international law obligations. The amount and degree of force that can be applied must be strictly within the context of the mandate given.

Peace Operations

Peace operations encompass those operations that support the diplomatic peace process. The major categories in the maritime environment are explained below.

Peacekeeping

Peacekeeping formally refers to observer and interposition forces, although its popular usage extends much more widely to international intervention of any kind. Implicit in peacekeeping operations is that they operate under a mandate and according to

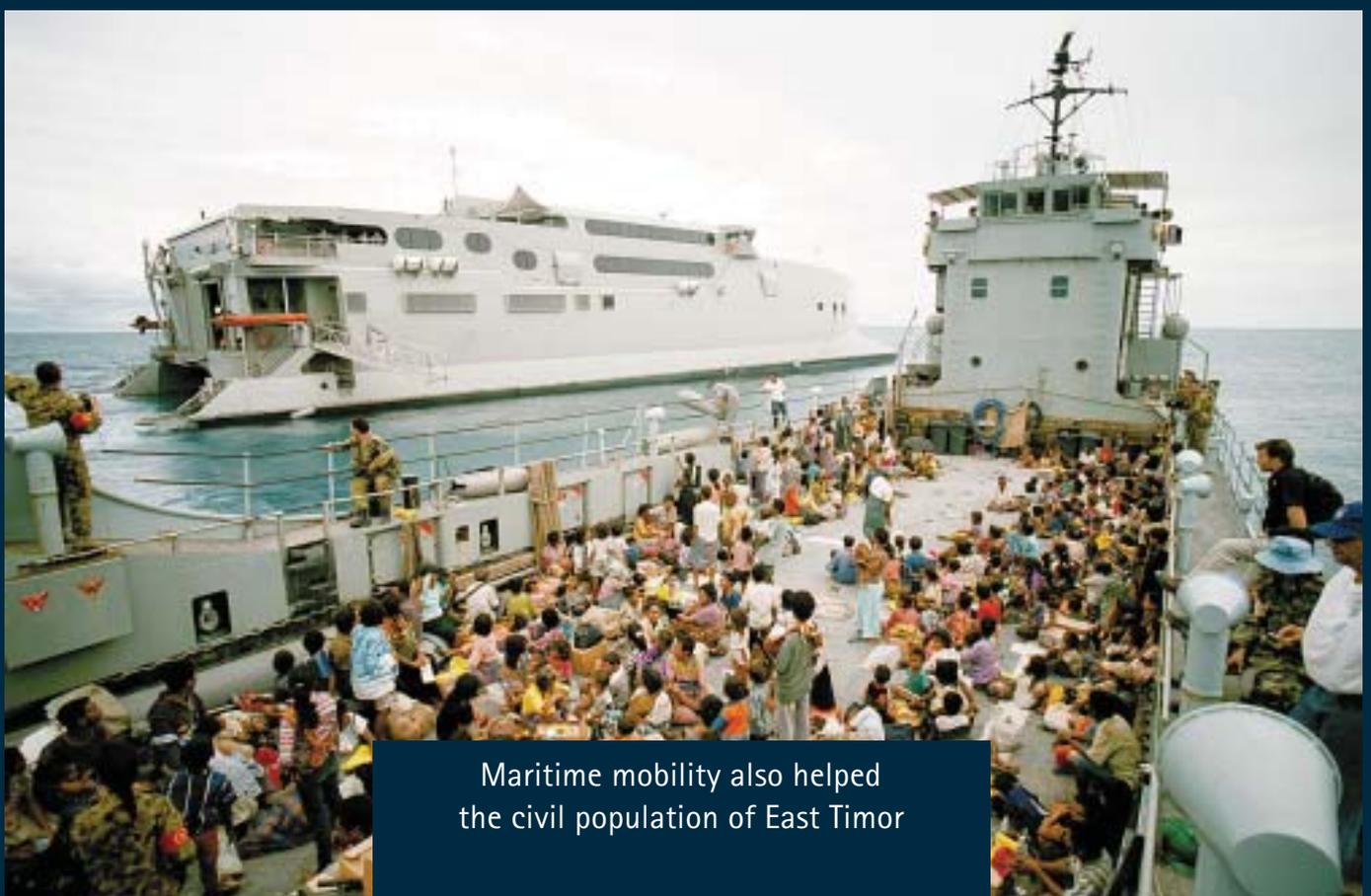
conditions which are agreed by all the belligerent parties. Open sea peacekeeping operations are rare; more commonly naval forces will be used to patrol coasts, estuaries and rivers to monitor ceasefires. Naval units may be used as neutral territory for talks, while naval personnel can be employed as military observers, liaison officers, HQ staff officers, disarmament inspectors or in medical or communications teams. Naval forces, particularly amphibious vessels and organic helicopters, can provide substantial logistic support.

Peace Enforcement

Peace enforcement moves a step further than peace keeping. It may occur in circumstances where one or more of the belligerents have not consented to intervention by international forces and coercive action may be required to restore peace. The Gulf War in 1991 was an important example of such action, authorised under Chapter VII of the United Nations charter. The roles played by maritime forces will depend upon the nature and scale of the conflict, but may extend to high level sea control and power projection operations, as well as the provision of logistic support.

Embargo, Sanctions and Quarantine Enforcement

Embargo, sanctions and quarantine enforcement are a major maritime component of peace enforcement. 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. Depending upon the nature of the threat, this may require sea control operations on an appropriate scale.



Maritime mobility also helped the civil population of East Timor

HMAS MELBOURNE in the Persian Gulf

In 1999, the guided missile frigate *Melbourne (III)* deployed for the second time to the Persian Gulf to support the United Nations mandated enforcement of sanctions against Iraq. This commitment was one to which Australia has contributed at intervals since the end of the 1991 Gulf War. *Melbourne* achieved a very high degree of integration with the United States and coalition forces, conducted many boarding and search operations and contributed significantly to the efforts to enforce the sanctions during her months in theatre. The *interoperability* achieved was the product of the RAN's close relations with the United States Navy and other Allied forces and acted as a considerable *force multiplier* in the overall capability of the forces in area.

Peace Building

Where reconstruction of a state or region is being attempted in the wake of conflict, naval forces 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. Australian units have worked since 1945 to clear enormous quantities of mines and other dangerous ordnance not only from national territory and waters, but from South East Asia, Papua New Guinea and the islands of the South West Pacific.

Defence Force Aid to the Civil Power

In constabulary terms, naval operations to provide military assistance to the civil power are usually aimed at supporting domestic law enforcement at sea within national jurisdictions. Defence Force Aid to the Civil Power involves the Governor General calling out permanent service personnel to prevent domestic violence where civil authorities are inadequate or unsuitable to do so. Maritime operations to provide military assistance to the civil power could include counter-terrorist operations such as the recovery of offshore gas or oil installations, or ships held by terrorists.

Environmental and Resource Management and Protection

Fisheries protection is one of the oldest constabulary roles of naval forces and remains an important activity in an era of extending jurisdiction and increasing exploitation of and stress on fish stocks in both coastal and oceanic waters. Australian naval units have been engaged in this task since before the Commonwealth Naval Forces became the RAN in 1911. The role has extended considerably in recent years to include the surveillance and protection of offshore resource industries and the surveillance and 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.

Fisheries Protection

While the majority of the RAN's fisheries work has been conducted in its northern waters by patrol boats, the demands of Australia's vast EEZ were graphically demonstrated in 1997 and 1998 during operations in the Southern Ocean during which the frigates *Anzac (III)* and *Newcastle*, supported by the tanker *Westralia (II)*, successfully apprehended vessels illegally fishing for Patagonian Toothfish. These demanding operations, which involved a high degree of *joint co-operation* with RAAF maritime patrol aircraft and other agencies, demonstrated the requirement for *reach* in the Australian environment.



HMAS *Anzac (III)* escorting an apprehended fishing vessel from the Southern Ocean in 1997

Anti-Piracy Operations

Naval forces have international obligations to suppress *piracy*, which by definition is an activity 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 will 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.

Quarantine Operations, Drug Interdiction and Prevention of Illegal Immigration

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 legislation such as the *Customs Act* and the *Migration Act*.

Illegal Immigration

In May 1999 the suspected illegal immigrant vessel *Kayuen* was detained and its crew arrested by Australian authorities off Port Kembla in Southern New South Wales. The arrest of the *Kayuen* by the RAN patrol boat HMAS *Fremantle (II)*, the Australian Federal Police (AFP) launch *Colin Woods* and the Australian Customs Service launch *Delphinus* was the culmination of an intensive three-week surveillance operation undertaken by units of the RAN, Customs, the Australian Federal Police and the RAAF. The *Kayuen*, registered in Panama, began its journey in China and was carrying 69 illegal immigrants.

THE BENIGN APPLICATION OF MARITIME POWER

Evacuation

Seaborne forces can be key elements in *Service Assisted (SAE)* and *Service Protected Evacuations (SPE)*. The increasing frequency of failed states and civil disorders in the last decade has seen the need for these operations increase. Evacuations will almost always be conducted on a joint basis and seek to utilise a seaport or airport, but an amphibious operation may well 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 of considerable scale and complexity and could extend to sea control measures. Apart from their ability to transport and support large numbers of people, maritime forces also provide significant assistance with shore to ship transport utilising boats and helicopters, as well as the command, control and communications facilities to coordinate operations.

One particular advantage which maritime forces have comes with their ability to *poise* and be *persistent*. Evacuations are not initiated lightly and the circumstances in which the requirement develops generally involve a high degree of uncertainty for governments. Seaborne units deployed to the locality assist in keeping options open while the alternatives are examined.

Operation PLUMBOB (Solomon Islands) 2000

The versatility of amphibious forces was demonstrated during every phase of Operation PLUMBOB. HMAS *Tobruk (II)* provided crucial support to the SAE of Australian and other approved nationals from the Solomon Islands during the initial stages of that country's political crisis and civil unrest. After the evacuation, *Tobruk* returned in a peace operations role. This included the provision of a neutral venue for cease-fire talks, logistic and administrative support to the talks and assistance to Australian diplomatic activities associated with the cease-fire process. The operation also provided the first test of HMAS *Manoora (II)*'s capabilities in support of a regional contingency.

Defence Assistance to the Civil Community

Defence assistance to the civil community differs from aid to the civil power in that it is related simply to the provision of help in civil matters and not the enforcement of law and order. It includes search and rescue and ordnance disposal in the domestic environment, but can extend to salvage, environmental management, pollution control and the provision of personnel and systems to help community development. One of the most important military assistance activities is *hydrographic surveying* but all maritime forces also make major contributions to the collection of *oceanographic* and *meteorological data*. Two important elements of DACC that deserve consideration in their own right are *search and rescue* and *disaster relief*.

Hydrographer's Passage

HMAS *Flinders* located and surveyed Hydrographer's Passage through the Great Barrier Reef between 1981 and 1983. The opening up in 1984 of this access to deep water for large merchant ships cut some 150 nautical miles off the passage between Asia and the major Queensland ports and has resulted in the saving of millions of dollars in fuel costs and other shipping charges every year.

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 Southern Ocean. 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.



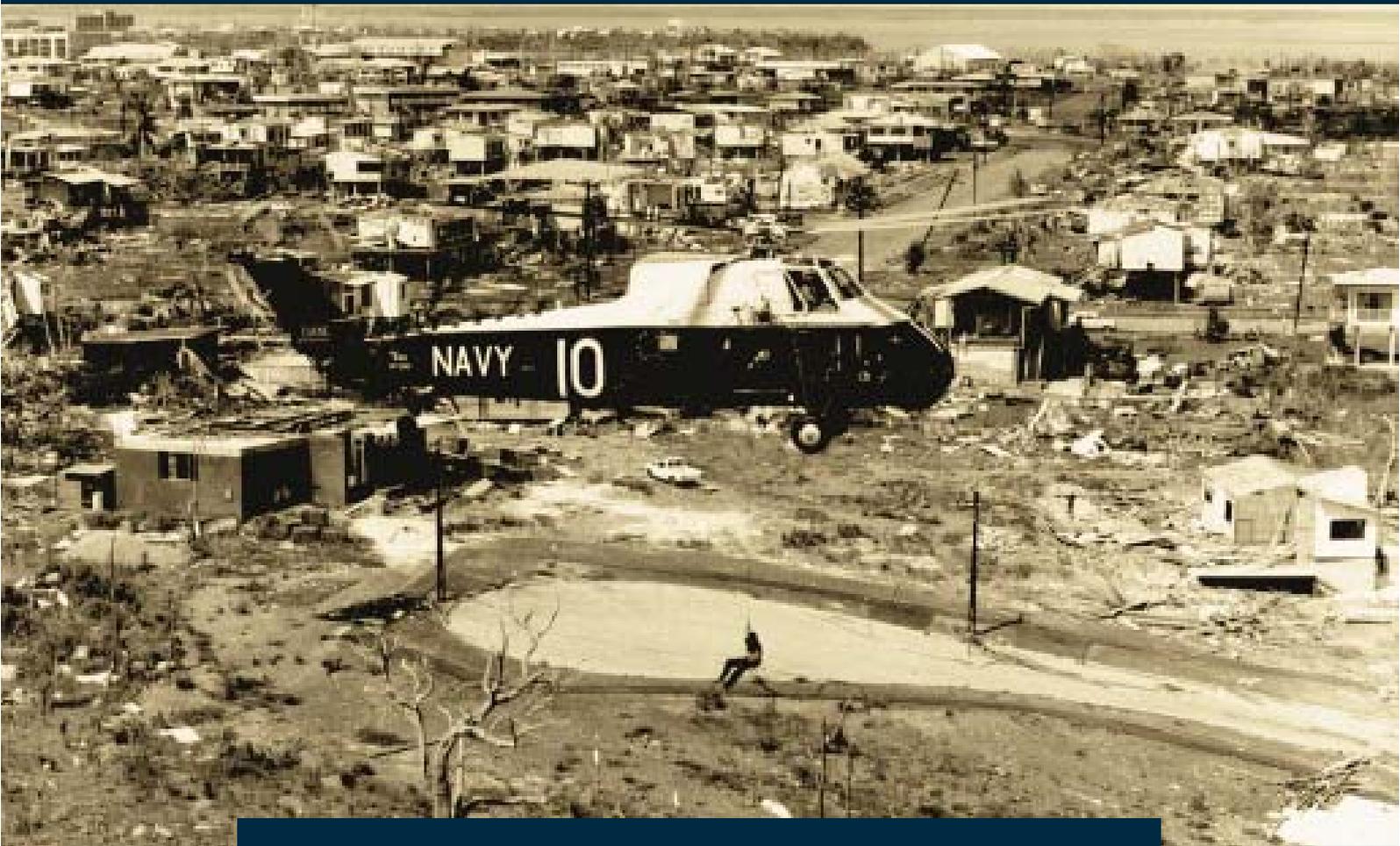
HMA Ships *Leeuwin* and *Melville*

Disaster Relief

No nation is immune to natural or man-made disasters. Naval forces 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 shipborne 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. Naval forces are self-supporting and do not create 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.

Cyclone TRACY - 1974

The cyclone which devastated the Northern Territory city of Darwin on Christmas Day in 1974 found the RAN at the lowest point in its annual operating cycle, with ships alongside and the main summer leave period underway. Nevertheless, the aircraft carrier *Melbourne (II)* and a substantial task group sailed from Sydney little more than twenty-four hours later. Personnel had returned to their ships, often without direction, from all over the country. From their arrival in Darwin, some 13 ships provided vital materials and logistic support, cleared and resurveyed the harbour and engaged in nearly 20,000 separate tasks of repair and reconstruction.



A *Wessex* helicopter from HMAS *Melbourne (II)* operating over Darwin during the clean-up after Cyclone Tracy

Defence Force Assistance to Allied and Friendly Nations

Defence Force assistance can be provided to other countries in a wide variety of ways. In addition to those benign activities already listed, maritime forces can exercise with and assist with the training of other national forces to increase their effectiveness. Examples include the provision of subsurface or air assets to practice the tactics of undersea and air warfare to a sophistication which is not possible in the absence of the relevant force elements, as well as the sharing of intelligence and surveillance data.

The Pacific Patrol Boat

The Pacific Patrol Boat project has resulted in the provision by Australia of no less than twenty two patrol boats to the nations of the South West Pacific. Together with maritime operational and technical advisers, training, logistic support and refit facilities, this has meant that many small nations have acquired a capacity which they could not otherwise afford to police their substantial resource zones against illicit activity.



Papua New Guinea's Pacific Patrol Boat HMPNGS *Seadler*



8

THE MOST IMPORTANT FACTOR

- People generate Navy capabilities and are THE MOST IMPORTANT FACTOR.
- Life at sea is unique and demanding—in both peace and conflict.
- Leadership at sea is as important as leadership on land.
- Maritime operations require the highest quality people and the highest quality of training

THE HUMAN FACTOR

It is not technology which gives the Navy capability but the way that technology is employed. The capabilities represented by systems that can be effectively employed and sustained take many years to develop in maritime forces and they are much easier to lose than they are to create. It is people who generate the real capabilities that the

RAN's surface ships, submarines, aircraft and support organisations represent. People are thus *the most important factor* for the Navy's operations. The RAN has a history of achievement and excellence which provides a firm foundation for its current activities and for the future, but this foundation is one that can rapidly be eroded if we do not give the Navy's people the priority they deserve.



Personnel do what they can to overcome the confined conditions of shipboard life



Maintaining battlespace awareness demands constant and unremitting effort

Life at Sea

Life at sea is unlike any other. The maritime environment is tiring, demanding and unforgiving. Maritime operations are about unremitting attention to the task in hand and maritime warfare is characterised by long periods of surveillance and patrol followed by short bursts of intense and destructive combat.

Peacetime operations require nearly the same degree of commitment and effort and they, too, can be arduous and unremitting. Officers and sailors in seagoing units—as well as the soldiers and airmen who go with them—must live and work for long periods in very close proximity to each other. Even the biggest ships are cramped and confined and all are subject to the effects of weather and seastate. All in their crews must be constantly alert to the possibility of emergencies and the unexpected. Even in harbour, ships require watchkeeping personnel to ensure their safe operation and physical integrity.

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 co-operation 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 conflict.

Morale

Morale is defined as the state of mind of a group of people as reflected by their behaviour under all conditions. In developing morale, although it is a collective quality, 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.

Leadership

Leadership in the maritime environment is as vital as that on land. Its nature and exercise are, however, different because the nature of what is done at sea and on land are themselves very different. 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 bullet is fired, 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 his men as individuals to make their singular contributions to the combat effort in accordance with his intent. It is a fair generalisation to say that the aim of leadership at sea is the ship's company and their ship as a fighting instrument and the aim on land is the individual as a fighting instrument.

This means that leadership at sea depends vitally upon professional competence, but in no way does it diminish the importance of the human element. 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 crowning example of naval leadership remains that of Lord Nelson, whose ability to generate enthusiasm and



There are many physically demanding activities in seagoing units

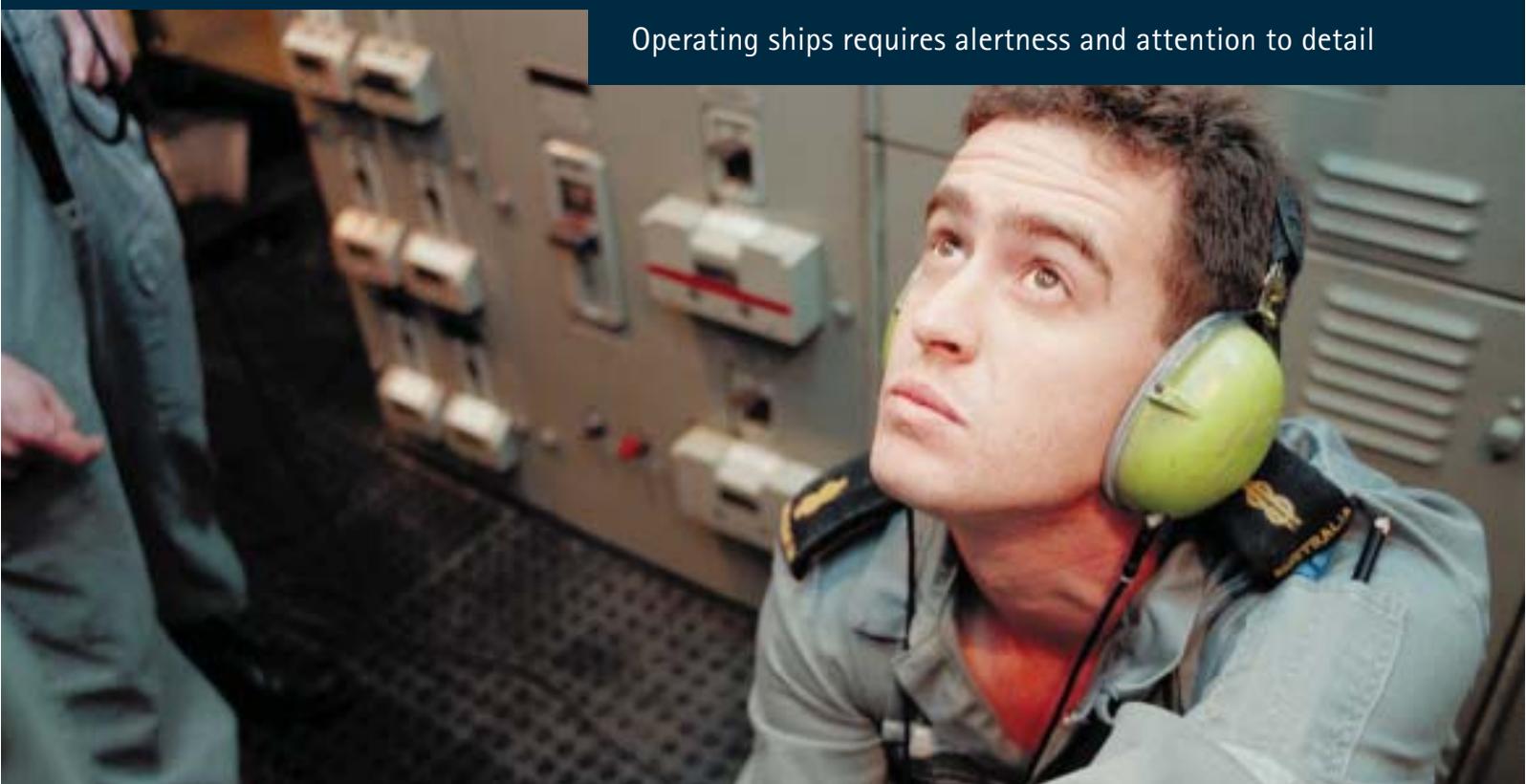
devotion amongst his subordinates at every level was a basic element of his success in battle. An outstanding Australian naval leader was Captain 'Hec' Waller whose command of HMAS *Stuart (I)* and the 'Scrap Iron Flotilla' in 1939–41 set a standard recognised by all who knew him.

Training

The processes by which men and women are trained for maritime combat involve both individual and collective efforts. The complexities of modern combatants and the systems that they carry mean that naval personnel of all ranks and specialisations require intelligence and a high level of education from the outset, while the provision of quality basic and specialist training on entry is essential, particularly in an era of minimum manning concepts. It is a reality, however, that the individual's training as a sailor will not be completed until after he or she has had the first hand experience of seagoing.

Units newly commissioned or operational after extended periods of leave and maintenance, both of which usually involve considerable changeover of personnel, cannot be expected to conduct operations with any degree of efficiency. Ships in these circumstances require to conduct 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 no unit will be deployed for peacetime service until it has reached the *Minimum Level of Operational Capability (MLOC)*. An assessment as to whether a ship has achieved this state will be made by the staff of the *Sea Training Group*. Certain threats or contingencies will require priority to be given to particular warfare areas or techniques, while others can be held at

Operating ships requires alertness and attention to detail





Divers underwater with mine

designated peacetime standards. This focusing allows the most efficient allocation of resources, as well as ensuring that forces are provided as quickly as possible.

Designating the standards required for peacetime operations is a particularly important process. It must draw a balance between achieving standards which will make the transition to battle readiness as rapid as possible, as well as improving professional performance generally, and not asking more of personnel than they are able to give, not just in a single work up or commission, but for an entire seagoing career.

Battle Readiness and Combat Stress

Units must be in a battle ready state before they enter the area of operations. This condition is not something that is wholly susceptible 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. It is almost certain that units will not achieve their highest degree of battle 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.

The maintenance of a battle ready state is one of the primary responsibilities of commanders. They must be able to demand the utmost from their people and systems without exhausting them beyond the point of no return. 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 battle readiness.



Garden Island Dockyard and Fleet Base East

9

THE ENABLERS OF MARITIME FORCES

- The Navy is organised and structured to deliver combat capability.
- An effective relationship with national industry is a key element in delivering capability.
- Maritime logistics ensure that combat forces meet their operational requirements.
- Logistic support is essential to achieving reach—a vital attribute of maritime forces.

THE ENABLERS OF MARITIME FORCES

The *enablers* of maritime forces are the structures, systems and elements which support the armed forces within the maritime environment.

ORGANISATION

The effective organisation of the Navy is fundamental to its efficiency and its capacity to accomplish its missions. The objective of the RAN's current structure is to align the entire Service and its supporting agencies into a system which is focused on the delivery of *combat capability*.

The Chief of Navy commands and is responsible for raising, training and sustaining the RAN. Under him are five major elements: Navy Headquarters (NHQ), the Force Element Groups (FEGs), Navy Systems Command (NAVSYS COM), Support Command (Navy) (SCA(N)) (until late 2000) and Maritime Command (MHQAUST). The Maritime Commander Australia has operational responsibilities to the Commander Australian Theatre and the Chief of Defence Force.

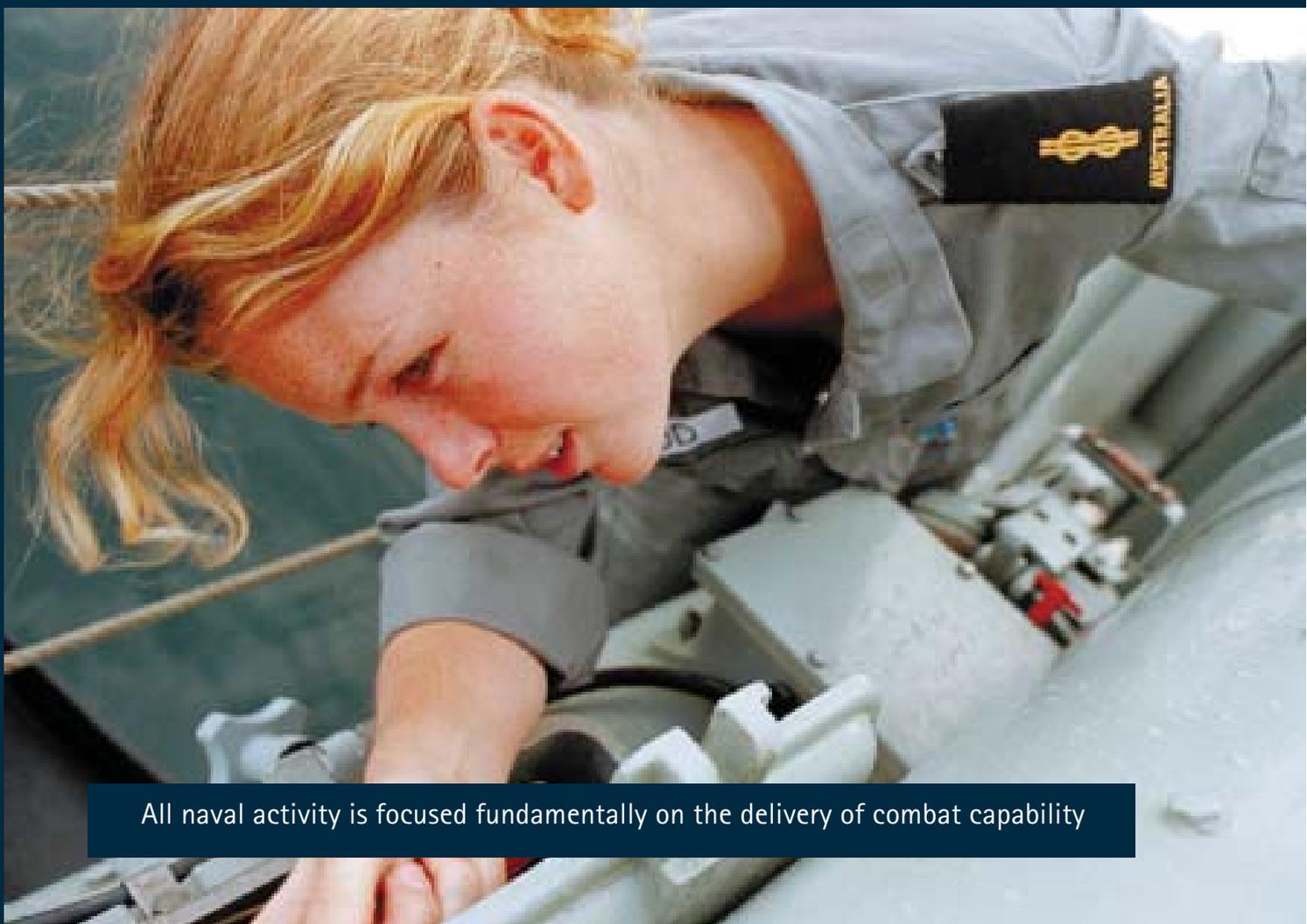
The core of this structure are the *Force Element Groups (FEGs)* as the centre of capability output and management with responsibilities direct to the Chief of Navy for capability management and direct to the Maritime Commander for operational output delivery. The FEGs are divided into Aviation, Submarines, Surface Combatants, Patrol Forces, Amphibious and Afloat Support, Hydrography, and Mine Warfare and Clearance Diving.

Navy Systems Command and Support Command (Navy) provide services commonly required to some extent by all seven FEGs. The FEGs are functionally located within Maritime Command. The FEGs draw together FEG 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 FEGs 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 the Maritime Commander.

Navy Headquarters supports the Chief of Navy in directing Navy capability management and the delivery of the Defence Output for which the Chief of Navy is responsible, together with Navy contributions to other Defence Outputs.

Navy Systems Command integrates centres of knowledge and expertise in key technology areas with logistics requirements, personnel (including training) and safety. It is the provider of Navy services required by other elements. It is responsible for command, control, communications, computers and intelligence (C4I); the delivery of personnel and training; systems support; safety, certification and audit; and command of fleet bases and establishments.



All naval activity is focused fundamentally on the delivery of combat capability



Replenishment at sea demands seamanship and ship handling skills of a high order

Support Command (Navy) is the Navy Component of Support Command Australia. The fundamental charter of the Support Command is to provide joint logistics and systems to take advantage of national economies of scale. Within its *Logistics Operations* branch and its *Commodore Logistics Navy* branch, Support Command (Navy) provides a wide range of logistics, materiel support and minor project management services for the Navy as a whole, as well as to other ADF agencies. Support Command will soon be folded into the new Defence Materiel Organisation which will take responsibility for provision of these services. Acquisition of major projects will also fall within these new arrangements.

Maritime Commander Australia has responsibility to the Chief of Navy for the full command of assigned assets and to Commander Australian Theatre for the planning and conduct of operations as directed. While the Chief of Navy sets strategic Navy requirements and priorities, the Maritime Commander is responsible for implementing these at the operational level. The Maritime Commander thus has dual responsibilities: to the Commander Australian Theatre as the Naval Component Commander (NCC) and to the Chief of Navy as the commander and operator of the Fleet. Sea training, assessment and cross-FEG operational integration are major activities for Maritime Headquarters.

NATIONAL INDUSTRY

An effective relationship with national industry is vital for the development and support of sophisticated combat forces. Navies are particularly demanding in terms of 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 for the national economy.

A careful balance needs to be maintained by countries such as Australia to ensure that capability requirements are properly met while such national benefits are gained over the long term. The fact that many elements of maritime capability seek to exploit the latest advantages in technology as they develop means that accepting technical risks is an inevitable accompaniment of this process. Success in meeting this challenge depends upon close co-operation between all levels of Government, Defence and industry.

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. Maritime logistic support exists to provide these services to maritime combat units.

In practice, logistic support will often be conducted on a joint basis and logistic related issues lend themselves readily to the economies of effort possible by integration of the needs of the various environments. There are, however, significant differences between the three Services' logistic systems. The strategic, operational and tactical levels of logistics consist of many support organisations manned by ADF, Defence civilian personnel and contractors. Continuity of logistic support is paramount to combat success.

The naval logistics system is structured very differently to those of the other Services because of the differences in the environment in which the Navy operates. Generally speaking, Navy's fundamental unit of combat is a warship. Its logistic capability is inherent in the design. Ships deploy from their home ports with spare parts typically of an endurance level of 90 days, rations typically of 30 days and with large quantities of fuel onboard.

Naval forces are therefore largely self-sustaining for long periods if supported by an underway replenishment group and the 'pull' forward of mission critical stores. This contrasts to the 'push' system used for land forces where the fundamental unit of combat is the soldier who has limited capacity for self-support.

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

The logistic capacity of maritime forces 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 in the interim while single services' support units are deploying. That maritime forces are largely self-reliant and are not adversely affected logistically by different operating areas to the same extent as land or air forces remains a strategic advantage. Furthermore, although the concepts of *lines of communications* can be applied to both land and maritime environments, they do not mean the same thing and pose very different problems of security and protection.

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 logistic chain that it operates, as well as the urgency of the need.

Australian ships in company with a USN fleet tanker



The operations of deployed maritime forces 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. However, it is also true that such host nation support is not an absolute necessity for maritime forces, provided that sufficient seaborne support exists to accomplish the mission.

Reach and Sustainment

However capable the maritime combat forces, their potential is enormously increased by the presence of support vessels. In fact, unless maritime units are acting purely in coastal defence roles at short distances from their shore bases, there are very 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 units, such support can make maritime combat forces indefinitely independent of the shore. This level of capability is currently possessed in full measure only by the United States and to a degree by the United Kingdom. Smaller forces, 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. Within the Australian context, a credible surface task group for extended maritime operations will always include a replenishment ship. The interoperability of most maritime forces for replenishment is itself a significant force multiplier that allows the rapid combination of coalition forces in an emergency.

Larger combinations 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 'screened', such that they can be transferred from one unit to another which has a defect. This procedure is regularly conducted during international exercises and operations and extends to the loan of expert maintainers to rectify difficult defects. The process is greatly assisted by commonality in equipment between navies.

Ships Taken Up From Trade

Support capabilities can be improved by taking merchant ships up from trade and converting them to the extent required by the operation. These vessels cannot replicate the capabilities of built for the purpose replenishment units, 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. If vessels are to be taken up from trade, then mechanisms need to exist for their identification within the national register and charter or

requisitioning. In these circumstances, the possession of a substantial national flag merchant fleet can be an important strategic advantage. Merchant vessels can also be employed to provide sea lift for the movement of land forces and their logistic support. Nations with smaller merchant fleets may be forced to purchase or charter ships for these purposes from overseas sources, an expedient which can be difficult to achieve in emergencies.



Merchant ships may be chartered to meet military logistic needs, as was the case for these vessels during the East Timor operation in 1999

ENVIRONMENTAL KNOWLEDGE

Understanding of the environment in which maritime forces operate is critical to the success of operations. Credible maritime combat capability therefore depends fundamentally upon the ability to access and 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. There are three main areas of effort in this regard, all of which are important for commanders and planners at all levels of warfare. They are *hydrography*, *oceanography* and *meteorology*.

Hydrography

Naval hydrographic forces work in peacetime to survey and chart littoral and ocean areas in accordance with strategic guidance. Much of this effort is focused towards the requirements of commercial shipping, generally aimed at shortening trade routes, reducing existing uncertainties or anomalies from older surveys and allowing deeper draught ships or fishing vessels to operate safely. There are obvious flow ons for combat forces from this activity, but surveying work in peacetime can also be used to improve the understanding of areas in which operations may take place. These can involve either the littoral, including *beach surveys* which extend to the hinterland of possible landing areas for amphibious forces, or deep water, particularly where submarine operations are involved. These activities give combat forces increased *freedom of manoeuvre*.

Hydrographic units also have important roles during conflict. They may be required to conduct precursor surveys for amphibious operations or to act in conjunction with mine countermeasure forces in assessing shipping routes which will be safe from mines.

Oceanography

Oceanography plays a vital role in undersea warfare, not only for submarines themselves, but also for anti-submarine and mine warfare forces. For efficient operations, these units require not only an extensive knowledge of the watermass in which they are operating, but the means to analyse prevailing conditions and predict sensor and weapon performance. In peacetime, much effort must go towards the development of sophisticated databases of watermass characteristics, such as temperature, current and turbidity, and the refinement of predictive models. In addition to training and exercises, these activities contribute much to weapon and sensor development for the long term. In time of conflict, such efforts may require to be both continued and concentrated within specific operation areas and the means provided to planners and operational units to exploit such knowledge in the most effective ways. This requires the maintenance of a core of personnel expert in the subject and skilled in providing the appropriate advice and guidance.

Meteorology

Similar requirements apply to the effects of weather on naval operations. Planners and commanders need to draw on comprehensive databases, well developed prediction systems and expert analysts. In time of peace, the gathering of data within expected areas of operation is a constant activity by all units, while the effects of weather need to be clearly understood by those developing operational concepts and new weapons and sensors. In the operational environment, meteorologists are vital contributors towards ensuring that units are deployed and operated to best effect within the prevailing conditions.

THE CONSTITUENTS OF MARITIME COMBAT FORCES

- Sea, land and air forces all have contributions to make in maritime operations.
- Success in the maritime environment depends upon creating and maintaining battlespace awareness.
- Battlespace awareness is created and maintained by units on, under and over the sea working together and in conjunction with non-organic systems. Land forces can also be important contributors to this process.
- The combat capabilities of individual units are maximised by integrating them with other elements.

COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS AND INTELLIGENCE (C4I)

The key to understanding what naval forces can create and sustain in combat power is the fact that they can perform multiple tasks at the same time for extended periods. These attributes are particularly valuable when there is a requirement to gather information to build and maintain up to date *battlespace awareness*. The operations rooms of major combatants down to the level of destroyers and frigates can acquire, process and display information on a 24 hour basis to a level approached only by airborne early warning and control aircraft in some dimensions of maritime operations, or the largest and most sophisticated headquarters in other environments.

Command, Control, Communications and Computers (C4)

Effective maritime operations are highly dependent on information management, a clear picture of what is occurring and a continual awareness of the commander's intent. C4 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 and shared is managed by a strong reliance on networked systems. These networks vary according to their purpose but are integrated ship and shore systems to provide a synthesised picture of events. Each individual unit can be thought of as a node in the network which is capable of continuously receiving more or less information, and which 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 area, their distribution and competing demands for bandwidth. In the event that forces are widely dispersed, multiple networks will be created, exchanging data internally on different radio frequencies. The more effective all these networks, the more scope given to commanders to operate some of their units or formations *covertly*. Maritime forces which do not transmit any signals on radio, radar or sonar and which deliberately reduce their acoustic, magnetic and infrared *signatures*, are extremely difficult for any adversary to locate and target. This means that they can be positioned or repositioned to achieve *surprise* at the tactical or even operational level and can rely upon the information that they receive from other elements to avoid being *surprised* in their turn.

To exploit their full potential, even submarines depend upon external sensors and information sources in developing comprehensive awareness of the battlespace



The common operating picture that maritime forces work from is known as the *wide area picture*. 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 Jindalee Over the Horizon Radar. The generated picture is up to date, but not real time. Seaborne forces can and do contribute to this wide area picture, as do airborne units. This picture is fundamental to effective operational level command, but its primary use in tactical terms is to focus local surveillance effort and manoeuvre with consideration to adversary positions.

To utilise the wide area picture to its best effect, it is not necessary that all combatant units have access to every aspect, but it is certainly essential for the local command platforms to possess the computer systems, communications bandwidth and personnel to make full use of the information for their own tactical purposes and to ensure that local forces are operated effectively according to the requirements of the higher command. The requirements for an operation that involves land forces as well as air and seaborne units will be even more demanding. The capabilities of the modernised amphibious transports *Manoora* and *Kanimbla* increase their utility for use by forward deployed elements of a Joint Task Force headquarters.

Information Security and Assurance

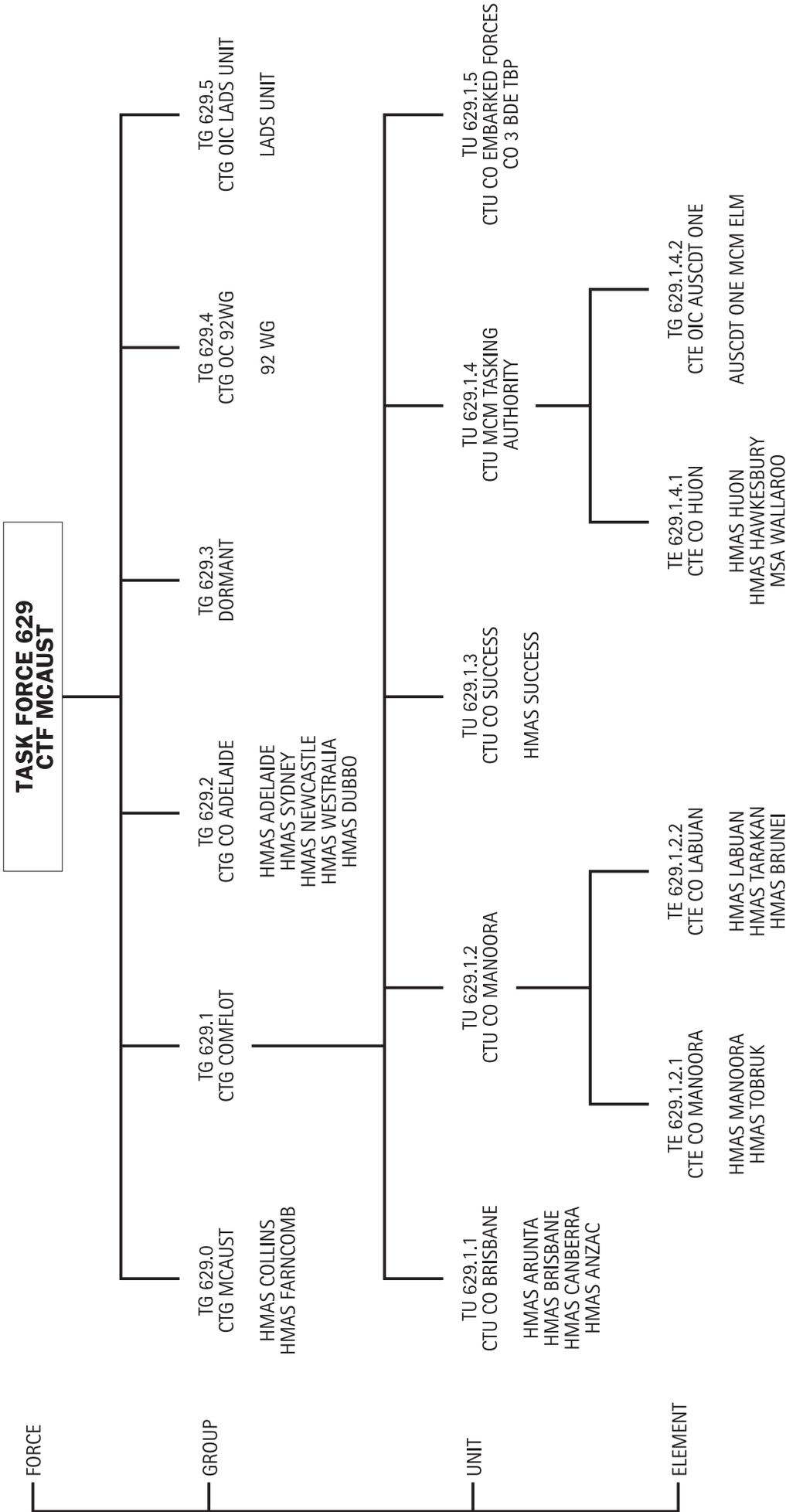
Information Security (INFOSEC) and assurance are vital elements of successful C4I. The growing dependence on information and information technology systems creates increased risks if they are not considered. The physical security of systems is only part of the awareness necessary for security, system integrity and survivability. Information operations are a burgeoning area of warfare. They seek to provide effective responses to threats ringing from hackers to sophisticated computer experts. Information operations also seek to exploit those areas which may be vulnerable in the adversary.

Spectrum Management

C4I also involves effective management of the components of the electromagnetic spectrum allocated for an operation. Possible sources of interference within the force, and those generated by the force that have the potential to impact on the 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 to give the 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



Typical Australian Task Organisation

advising commanders of the capability and intentions of adversary forces and other factors affecting the conduct of the operation. At sea, intelligence reporting from strategic and operational assessment agencies, together with combat information and intelligence from multiple sources, when processed by embarked organic staff contributes to overall force effectiveness and protection.

TASK ORGANISATIONS

The maritime forces available to the ADF represent, within certain limits, a highly effective balance of capabilities. The capabilities of individual platforms are not merely complementary to those of other units but become considerably more effective in combination than they are in isolation. Because of this, maritime forces are generally operated in *task organisations*. A task organisation is a hierarchy of units. It is based on the *Task Force*, which is divided and sub-divided 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. A simplified example of an Australian task organisation is shown on the previous page.

Seahawk operating with HMAS Darwin



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. Components can be detached or recalled when required. Dormant components can be set up and activated when required 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 maritime forces and it is used for practically every type of maritime operation in peace or conflict.

PLATFORMS, SYSTEMS AND CAPABILITIES

The following discussion gives a brief description of particular platforms and systems before analysing the primary warfare areas in which they operate. This includes the contributions which air and land forces can make to maritime operations. Effective maritime forces 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 is relatively easy to dispense with a capability, it is by no means easy to acquire or resuscitate one. Maritime forces cannot be created overnight and the process of acquiring a new capability extends not only to the acquisition of platforms 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 *people*. In recent years, for example, the RAN has devoted considerable effort to the revival of a credible mine warfare force, a process which has taken the better part of a decade and which is still in train.

Maritime Air Forces

The *organic* combat helicopters available to the RAN include the *Seahawk* and *Sea Sprite* helicopters described below, while the *Sea King* operates in the organic utility role. Smaller helicopters can also be utilised for shipborne utility operations, notably in support of the Hydrographic Force, but are not normally employed on combat operations. The Army's *Blackhawks* can operate as battlefield utility helicopters organic to the amphibious transports.

Integral to Australian concepts of maritime warfare are the P3C *Orion* maritime patrol aircraft, the F-111 strike reconnaissance aircraft and the F/A-18 *Hornet* fighter aircraft. In the future, airborne early warning and control aircraft will be similarly critical to the ADF being an effective operator in maritime warfare and both naval and air force personnel will be embarked. The ways in which these aircraft interact with naval forces

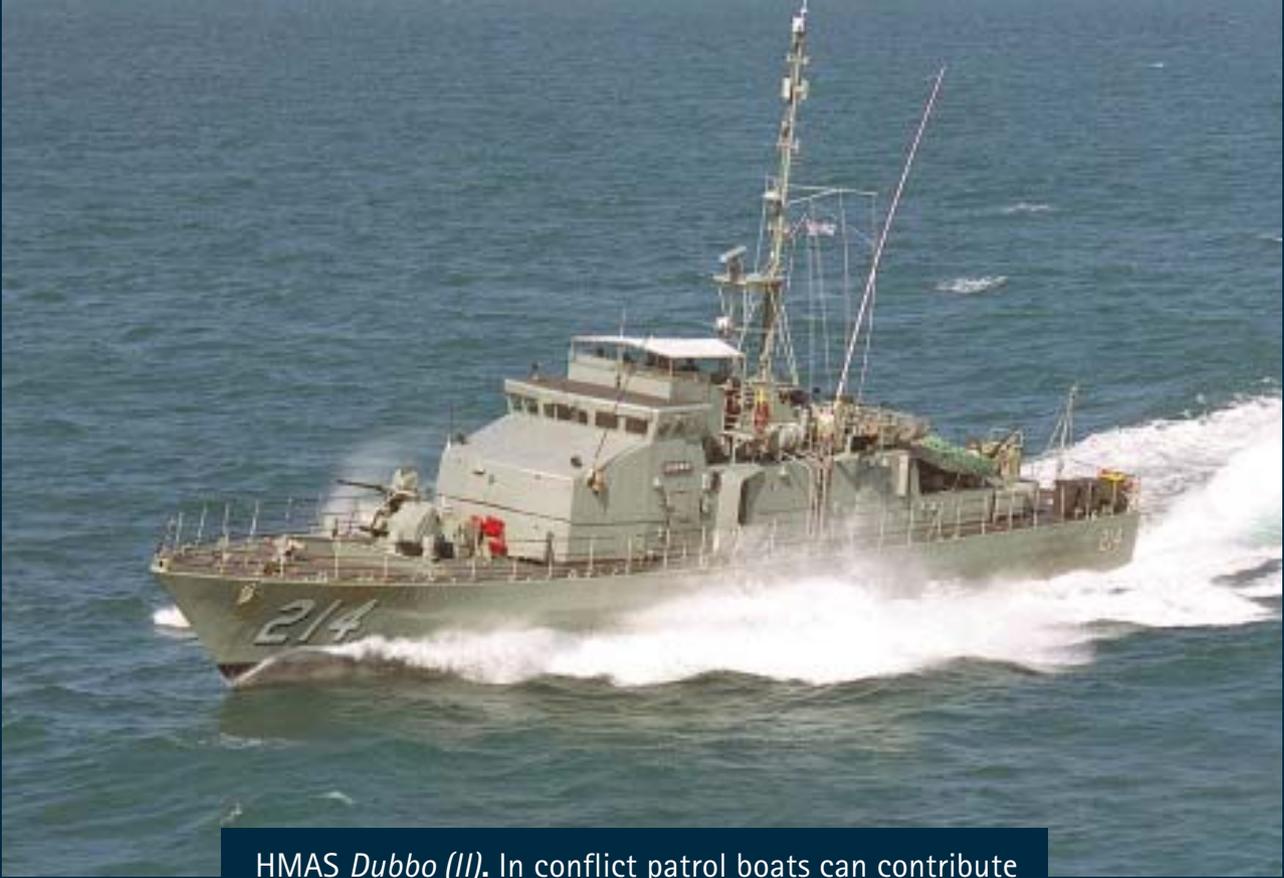
are described below but it is important to emphasise that very few maritime operations can be contemplated without consideration of the air and that control of the air is an integral component of sea control. Furthermore, the capabilities of air and naval forces tend to be complementary rather than supplementary because of the unique characteristics of platforms of each environment. The characteristics of seaborne units have been discussed in [Chapter Six](#) and those of air forces in AAP 1000—*The Air Power Manual*.



Army troops boarding a *Sea King* helicopter

Land Forces

Land forces can make significant contributions to the conduct of maritime operations. In addition to providing conventional and special forces to interdict enemy naval forces by strike, they can seize and protect naval operating bases and control areas of land adjacent to choke points and focal areas. Army units can provide forces for boarding parties and supplement naval air warfare systems with ground based air defence. This may be either in co-operation with naval forces from the shore or, in the case of shoulder fired missiles, in the form of detachments to particular ships in need of protection. In amphibious operations, Army units provide forces for ship-to-shore material and personnel transport in the form of both rotary wing aircraft and water transport.



HMAS *Dubbo (II)*. In conflict patrol boats can contribute significantly to patrol and surveillance efforts

Surface Combatants

Frigates and Destroyers

The RAN currently (mid-2000) possesses nine operational *destroyers* and *frigates*. This force is in transition to a mixed force of fourteen *Adelaide* and *Anzac* class, a process which should be complete by 2005. All of these ships will carry at least one helicopter. These helicopters, the *Seahawk* in the *Adelaide* class and the *Sea Sprite* in the *Anzac* class, are *organic* to the ships and are an extremely important multiplier of their capabilities, particularly for surface and undersea warfare. Destroyers and frigates 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 would be key elements in any *task group* that the ADF may deploy for maritime operations. Their flexibility and versatility make these ships platforms of first resort in contingencies throughout the spectrum of conflict.

Patrol Boats

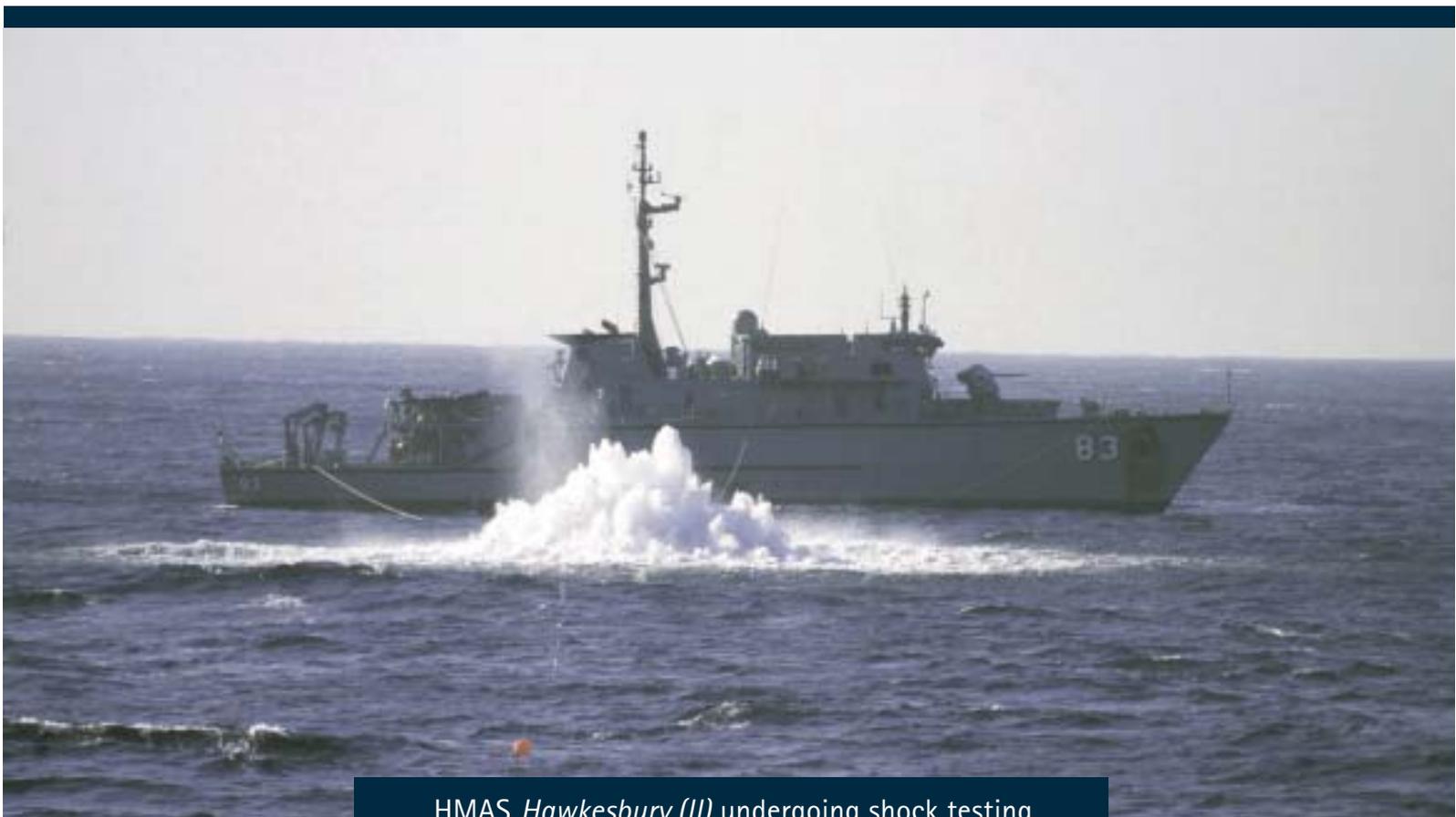
The RAN has 15 *Fremantle* class *patrol boats* in service. These 42 metre craft are relatively simple and do not carry sophisticated sensors or weapons for their surveillance and enforcement roles. While the question of their replacement is currently under consideration, they represent a vital and highly effective component of Australia's national surveillance effort. 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.

Submarines

The RAN's submarine arm consists of a force of six *Collins* class submarines. These are large, very long range diesel-electric boats equipped with both heavy weight torpedoes and anti-ship missiles. Their qualities of endurance and stealth make them not only extremely useful for intelligence gathering, surveillance and reconnaissance but also primary strike assets for the ADF, both in their own right and as delivery 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. Their potential for blockade and sea denial makes them a formidable asset. Their covert nature means that they can operate in a hostile air or surface environment. They will often operate in association with surface task groups, generally well separated in distance but positioned to provide the greatest levels of defensive or offensive support. These operations call for careful *waterspace management* by the controlling authority to ensure that no confusion arises as to the identity of friendly forces, as well as effective communications between ships, aircraft and submarines.

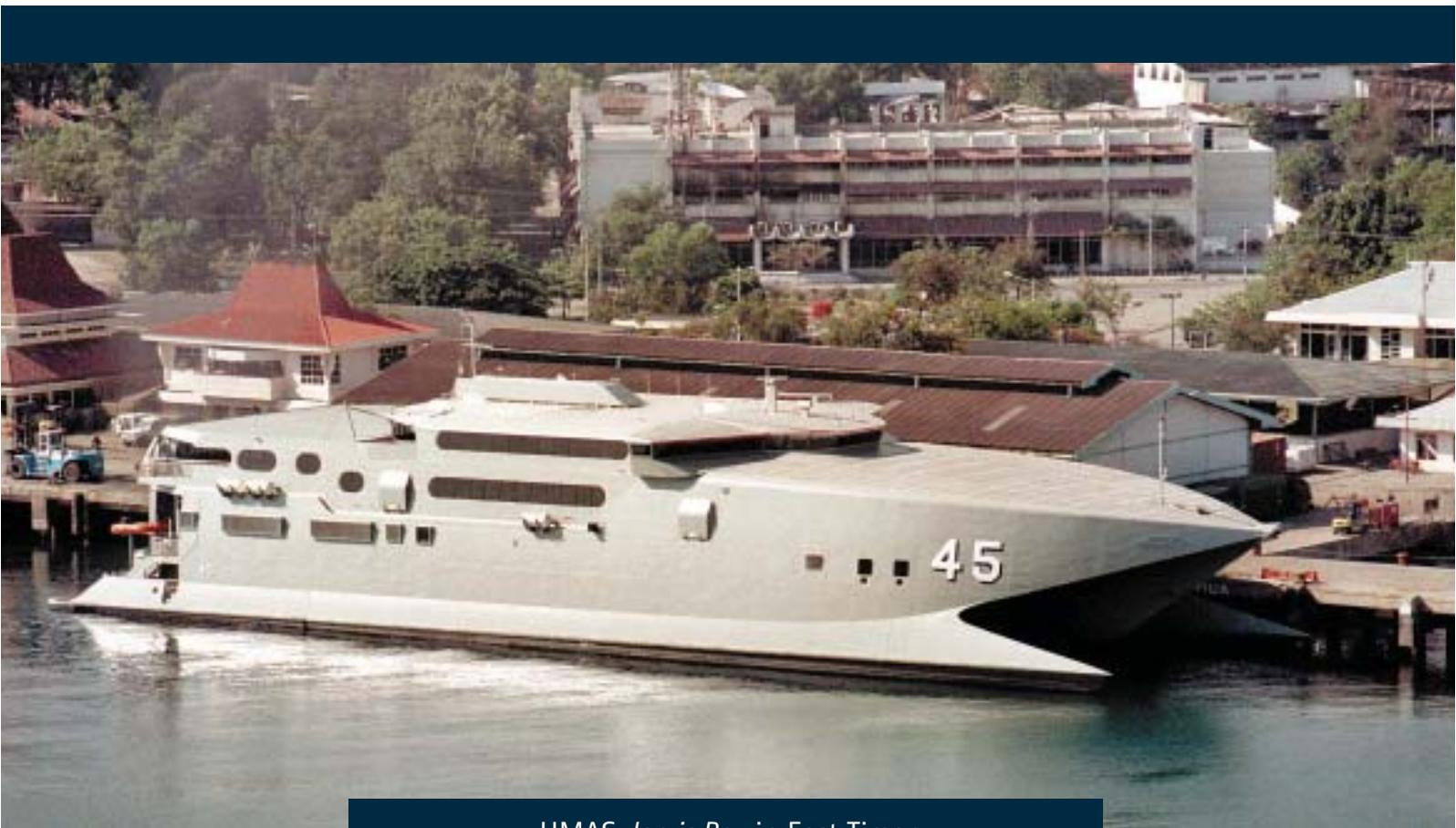
Mine Warfare and Clearance Diving Forces

The offensive mine warfare capabilities of the ADF are currently in the form of air dropped mines, while a submarine launched mining capability is under development. Six *Huon* class coastal minehunters are entering service. These units hunt for mines by means of a high definition sonar and remote controlled underwater vehicles. The *Huon* class also have a limited minesweeping capability. They are designed to possess the



HMAS *Hawkesbury (II)* undergoing shock testing

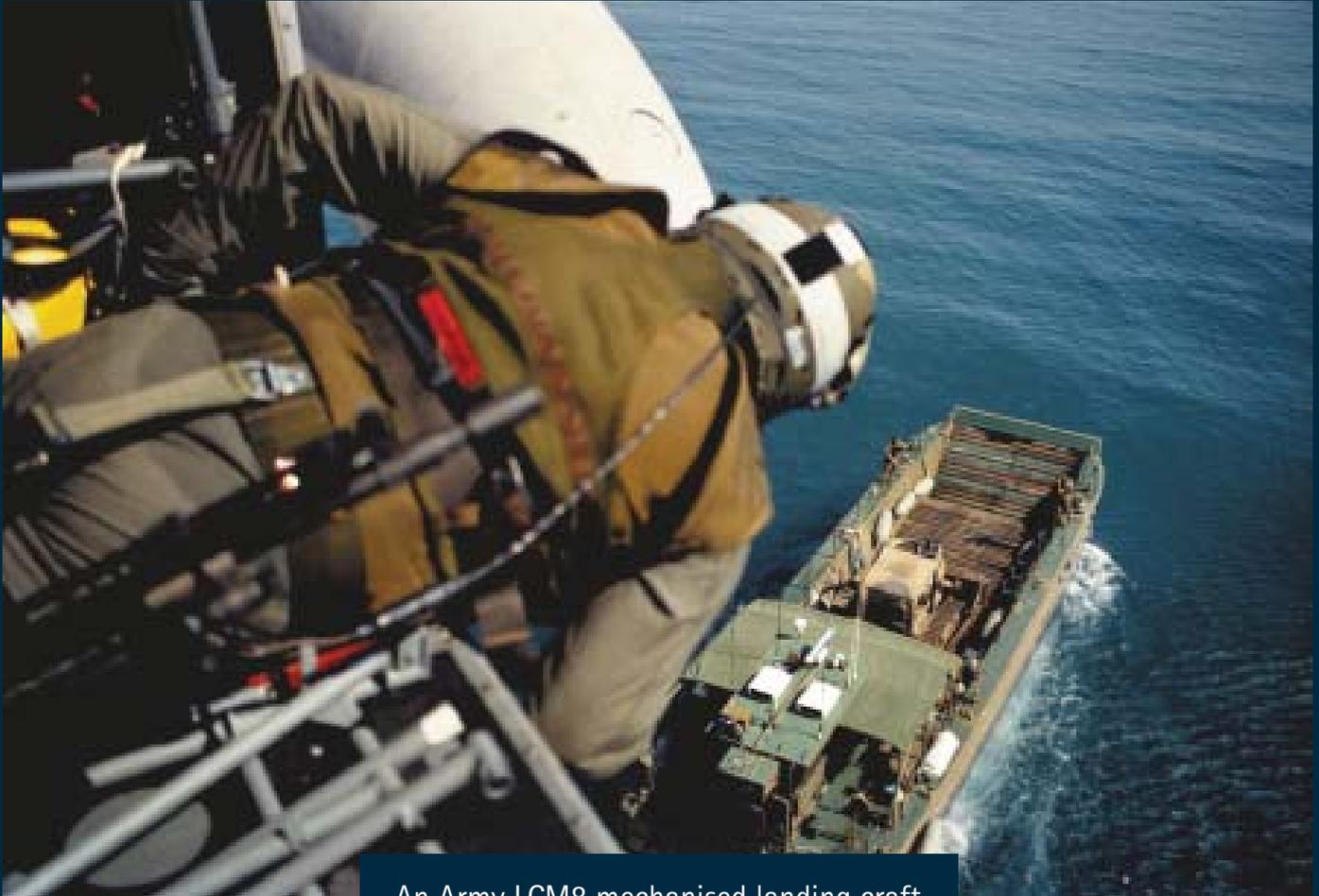
smallest possible *acoustic* and *magnetic* signature to reduce their vulnerability to mines actuated by these methods. Two smaller *Rushcutter* class inshore minehunters possess similar capabilities, although their smaller size and lower speed mean that they are more limited in their operational flexibility. *Craft of opportunity*, 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 activities of all these units 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 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 fitting and repair of underwater fittings. The rendering safe and disposal of all explosive ordnance including improvised explosive devices is a core skill of all Clearance Diving Team elements.



HMAS *Jervis Bay* in East Timor

Amphibious Forces

The full concept of *amphibious forces* encompasses not only the ships and helicopters which provide the *lift*, but land forces which have been trained and prepared for such operations. An effective amphibious capability is thus dependent upon a very high degree of sustained joint effort in the form of equipment, doctrine and training.



An Army LCM8 mechanised landing craft

The naval elements of Australia's amphibious forces include two amphibious transports (LPA), the *Manoora* and *Kanimbla*, a heavy landing ship (LSH), the *Tobruk*, and six heavy landing craft (LCH). In addition, the utility *Sea King* helicopters, although not ideal for battlefield operations, provide a very important vertical lift capability for troops and equipment. This force is capable of transporting the equivalent of an Army battalion group, together with its equipment and ready use stocks of fuel, stores and ammunition. Some smaller vessels, such as mechanised landing craft (LCM), are provided by the Army and are trained to operate effectively with the big ships, all of which can carry at least one LCM. *Tobruk* also carries two of the smaller naval manned landing craft vehicle and personnel (LCVP). Elements of Clearance Diving Teams would normally form part of an amphibious force. The RAN also operates the high speed catamaran

Jervis Bay as a fast transport. This vessel normally requires port facilities to load and unload vehicles and personnel and its role is thus for sea lift rather than amphibious operations.

The major Army formation which is equipped and trained for amphibious operations is 3 Brigade at Townsville. Together with a number of other elements, including aviation, medical and special forces, 3 Brigade maintains a high degree of readiness to respond to contingencies. In the event of a requirement for an amphibious operation, a Landing Force based on 3 Brigade elements would be task-organised to meet its specific needs. This could also, if the situation required, comprise elements of those forces designated 'secondary' to the ADF amphibious capability. These elements include 1 Brigade, based in Darwin, medium lift helicopters, ground based air defence assets and logistic support elements. These elements are all maintained at high readiness and trained and equipped for amphibious deployment.

RAAF fixed wing support would also be an essential requirement for most amphibious operations, whether conducted in conjunction with airborne insertions or not. Other forms of support could include reconnaissance, air superiority, surveillance, strike and ground attack.

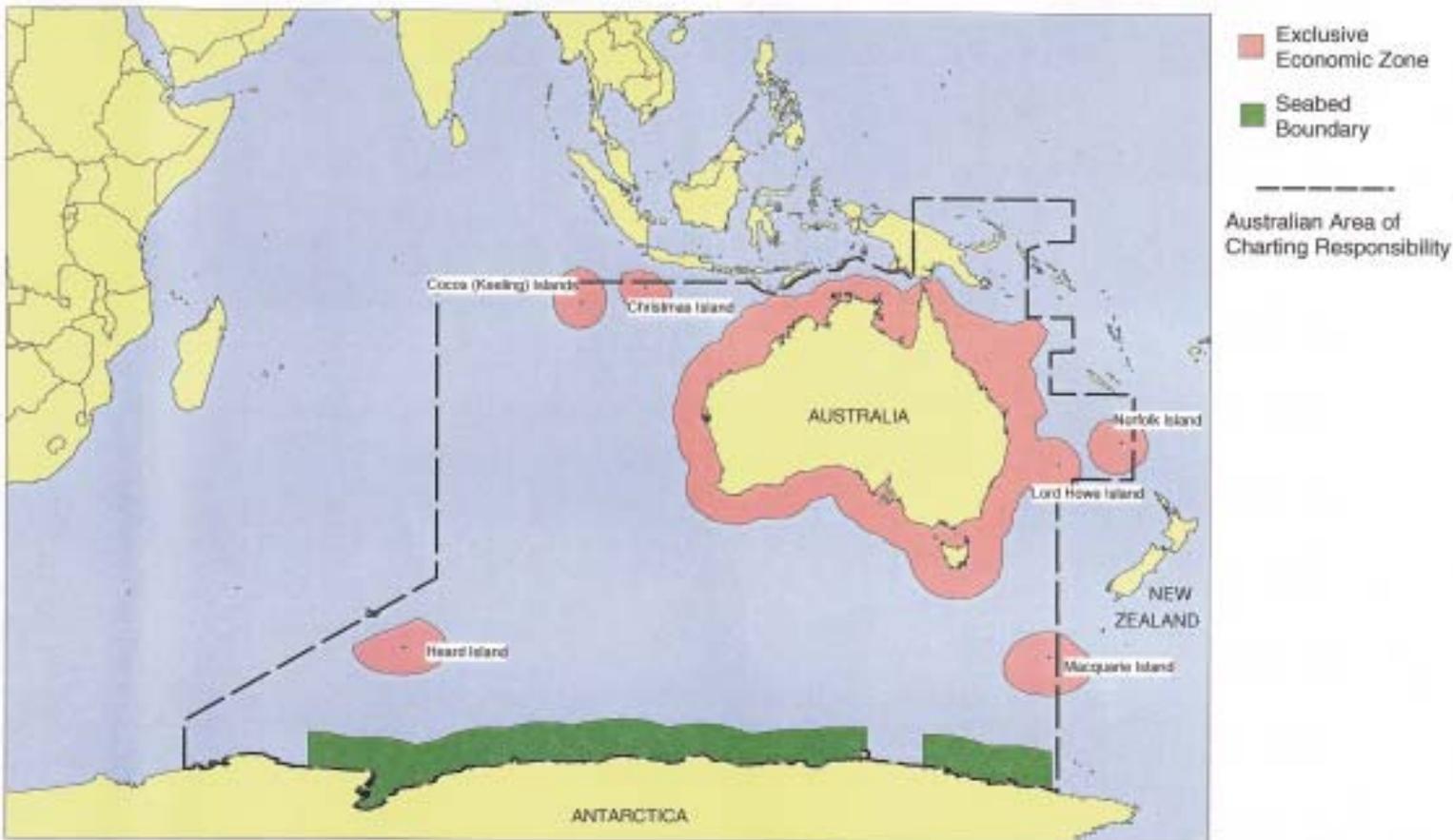
Afloat Support

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 possesses one multi-purpose replenishment ship, *Success*, which is capable of transferring fuel, water and limited amounts of food, ammunition and stores. There is also one fleet tanker, *Westralia*, which is designed primarily for the transfer of fuel and water only, although it can also provide small quantities of food and stores. Resupply of fuel is important not only for the endurance of the ships themselves, but for their organic helicopters. Afloat support ships therefore carry separate supplies of both marine and aviation fuel.

Marine Science

Because knowledge of the maritime environment is a vital element for success across the spectrum of maritime operations, the Navy possesses hydrographic units which also conduct data collection and research in other areas. The Navy is the national authority charged with carrying out the work required to meet Australia's international commitments within the *Australian Area of Charting Responsibility*. This is one of the largest in the world. Hydrographic vessels are required to conduct offshore, coastal and inshore work and the RAN's force has been developed to ensure that all these areas are covered. In addition to the larger hydrographic vessels *Melville* and *Leeuwin*, 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 areas such as the Antarctic to conduct surveys when required. Other units, including combatant forces, regularly collect oceanographic information, which is collated by the Australian Oceanographic Data Centre (AODC).



The Australian Area of Charting Responsibility is vast

PRIMARY MARITIME WARFARE AREAS

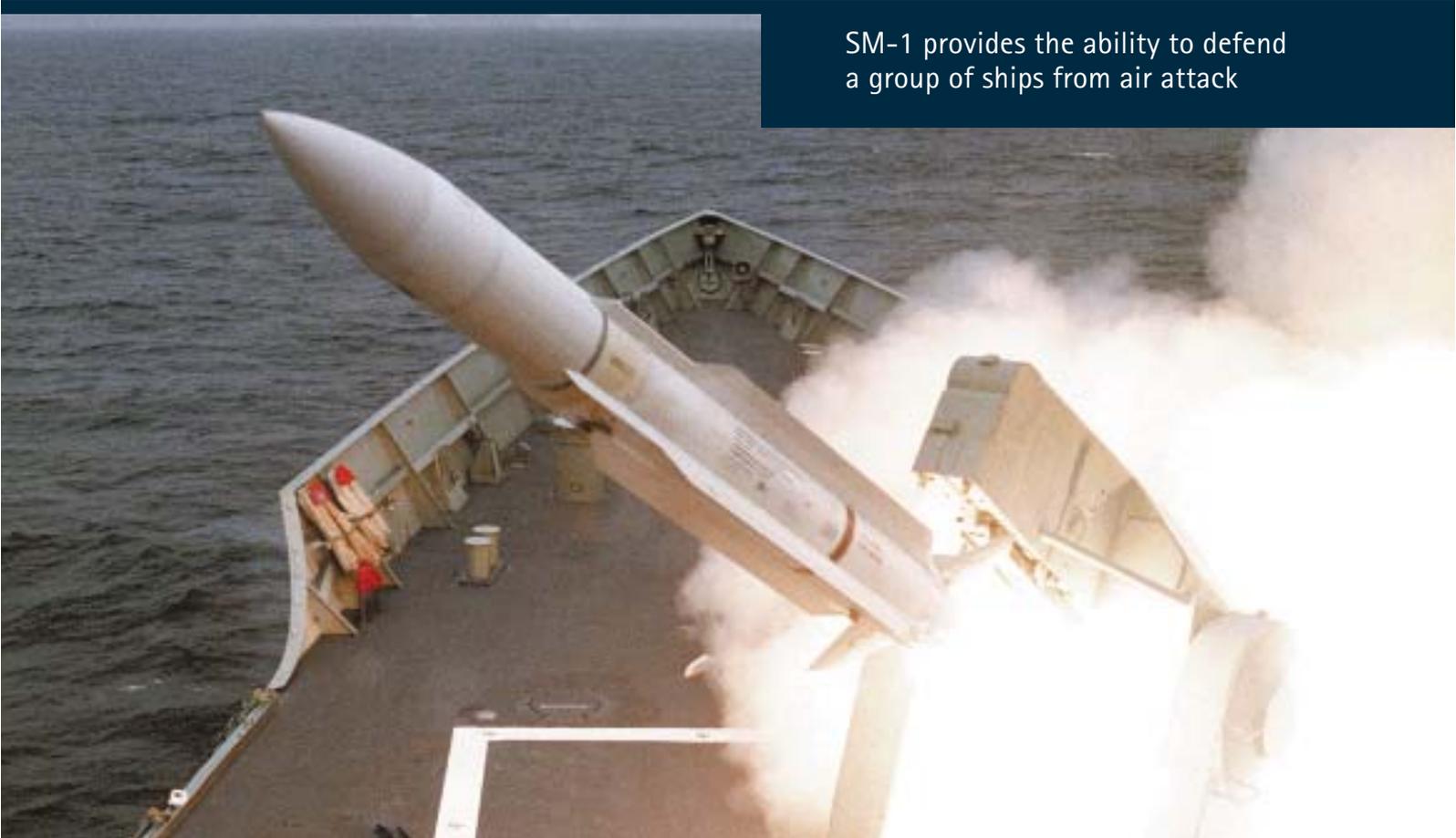
Air Warfare

The RAN does not possess aircraft carriers and thus has no capability to deploy organic fixed wing aircraft. This means that the ADF must not only always plan for maritime air warfare on a joint basis but its naval forces must also ensure that they possess the capacity to defend themselves in the absence of fixed wing air. The provision of *air cover* for seaborne forces by land based aircraft is a highly demanding task that becomes progressively more difficult as the range between the air base and the theatre of

operations increases and which has to be balanced against other tasking. *Combat Air Patrols (CAP)* will be provided by the RAAF's F/A-18 fighters or, under certain conditions, by the F-111 as *Active Air Defence*. This 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 endurance of F/A-18 CAP on task can be extended by the provision of air-to-air refuelling. Their operations will be controlled either by air intercept controllers (AICs) working in AEW & C aircraft, when these come into service, or in frigates or destroyers.

The sensors and combat data systems fitted within our frigates and destroyers mean that these ships are capable of developing and maintaining a local *recognised air picture*, vital for the coordination of the air battle. Many other units can contribute to this, including non-organic systems and sensors. The more units available, whether air- or seaborne, the more comprehensive will be the recognised air picture and the more capable the force of achieving *battlespace dominance* in the air battle. AEW & C aircraft and major surface combatants are especially effective when operating in combination. The aircraft will have a much wider radar horizon than that of the ships, while the latter can carry many more missiles than all but the largest formations of fighter aircraft. This synergy creates considerable offensive capability.

The CAP will generally function as an outer element of a *layered defence*. Closer in, the missile and gun systems of the frigates and destroyers will provide further layers of *hard kill* against an incoming raid of aircraft or missiles. An SM-1 missile equipped unit will usually have between 30 and 40 missiles onboard. Although the SM-1 system



SM-1 provides the ability to defend a group of ships from air attack



RAAF F/A-18 Hornets

is ageing, units so fitted possess a substantial local *area defence* capability by which their missiles can be used to protect more than one other ship in company. This is an important capability over the *point defence* systems such as the *Sea Sparrow* missile and the *Phalanx* Close In Weapon System, both of which are primarily intended to protect only the ship on which they are carried. Frigates and destroyers also possess *soft kill* capabilities in the form of electronic decoys, such as the Australian developed *Nulka* hovering rocket, and other systems that aim to divert missiles from their intended targets. Helicopters and other units can contribute to these soft kill defences in a number of ways. Electronic warfare, optronics, and other systems will have an increasingly important role in sifting the air picture from an increasingly cluttered and complex electromagnetic environment.

In high threat conditions, *amphibious units* and *support ships* will also be fitted with a range of defensive systems, both hard and soft kill. These may include the employment of detachments of land forces equipped with shoulder fired missiles. In a littoral situation, every effort will be made to co-ordinate air defence with the ground based air defence provided by land forces.



Surface combatants are important elements in creating a layered defence of mission essential units

Surface Warfare

The ADF possesses a wide range of assets to conduct operations against adversary surface forces. The heavyweight torpedoes of the *Collins* class represent a formidable threat to the largest surface vessels. In addition to the attacks which can be conducted by fixed wing aircraft, such as the F-111 and the P3C *Orion*, in the *Maritime Strike* role, with anti-ship missiles, or with laser guided weapons, submarines, surface combatants and helicopters are all capable of deploying anti-ship missiles. The difficulties of target identification and targeting, particularly in crowded or littoral environments mean that short notice engagements will often be inevitable. This increases the importance of organic capabilities. These include the Penguin missile which will be carried in the *Sea Sprite* helicopter and the Harpoon missiles which are already installed in the *Adelaide* class guided missile frigates and which are being fitted to the *Anzac* class frigates to supplement their 5-inch guns.

Undersea Warfare

Undersea warfare falls into two main categories, anti-submarine operations and mine warfare. Anti-submarine operations are complex, demanding and time consuming, requiring close coordination of many assets and a very high level of understanding of environmental conditions. The P3C *Orion* aircraft are amongst the most effective assets

in searching for adversary submarines, whether by means of their radar and infrared systems, or by monitoring the sonobuoys they drop into the sea to detect submarine generated noise. Some sonobuoys can also be used *actively*, generating a sound signal to echo range on an underwater target. The primary weapon of maritime patrol aircraft will be lightweight torpedoes specially designed for use against submarine targets. Carefully positioned submarines also have considerable ability to detect adversary submarines by listening for their noise on *towed sonar arrays*. Similar devices are being fitted to a number of the RAN's surface combatants, which also have active hull mounted sonar and carry light weight torpedoes. These systems are primarily intended for self-defence, but may be employed to cover and protect other units when the frigates or destroyers are escorting *high value* or *mission essential* units such as amphibious forces. In these circumstances, layered defence will probably be the most effective way to ensure that such units are successfully protected. *Seahawk* helicopters possess a variety of sensors and are also able to deploy sonobuoys and drop light weight torpedoes. They will generally be used by the frigates and destroyers to investigate and engage an underwater contact while the surface ships remain out of torpedo range. Both *Sea Sprite* and *Sea King* helicopters can be used as lightweight torpedo carriers. Defensive minefields are a very useful tool to complicate the task of adversary submarines because they can have a considerable deterrent effect, as well as reducing the areas that require to be searched.

RAAF P-3C *Orion* maritime patrol aircraft

Mines can be cheap and simple enough to be employed by the smallest powers or terrorist groups and represent a formidable challenge for maritime powers. Mine warfare has considerable potential for gaining and maintaining the initiative against an adversary. Pre-emptive sowing of even a limited number of mines outside its bases or in choke points can prevent its ships from deploying or returning to port and will force it to conduct time consuming and painstaking *mine countermeasures* (MCM). Mine warfare is subject to some restrictions under international law, nevertheless, it has been employed covertly on at least one occasion as a form of *maritime terrorism* by a nation-state.

Mine countermeasures are most effective when forces possess a high degree of understanding of the environment, preferably in the form of *route* and *local 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.

INTEROPERABILITY

As discussed in [Chapter One](#), sharing the same seas, navies frequently interact with one another and are at ease with the issues involved in international operations. Nevertheless, *interoperability* cannot be assumed and requires substantial and sustained effort to achieve *common doctrine*, *common procedures* and *common 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 mechanism 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. One multilateral example of co-operation is the Western Pacific Naval Symposium (WPNS), which brings together regional navies to discuss matters of mutual interest. Amongst the products of the WPNS is the Code for Unalerted Encounters at Sea (CUES), a code of practice for naval units encountering each other unexpectedly, which provides guidance on manoeuvring and communications.

The 1991 Gulf War remains the outstanding example of successful interoperability in maritime and air operations. There were over 100 warships and auxiliaries of 15 nations inside the Arabian Gulf, with 200 fixed wing and 300 rotary wing aircraft. Despite the intensity of the campaign there were no fatal friendly fire engagements in the maritime environment.



For many years, RAN units have been in the forefront of regional engagement by means including the Australian sponsored '*Kakadu*' exercise series



MARITIME CAMPAIGNING

- 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 maritime forces can contribute to land and air campaigns.

CAMPAIGN PLANNING

The ADF's definition of a campaign is:

‘A controlled series of simultaneous or sequential operations designed to achieve an operational commander’s objective, normally within a given time and space’.¹

Campaign planning will co-ordinate the actions of air, land, maritime and special forces as well as orchestrating the military effort with the other instruments of national power within the theatre. Campaign planners must consider the national strategic end-state and ensure that the method chosen to achieve the military strategic end-state does not negate the over arching national post-conflict objectives. This relation of military actions to political ends is fundamental.

It follows from this 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?

¹ ADFP 6—*Operations* Glossary.

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 a plan never survives contact with the adversary, planning branches and sequels.

All these things must be taken into account when planning a campaign, no matter whether the focus of that campaign is primarily or even wholly maritime in nature or whether it involves land or air operations as well. Environments cannot be isolated from each other nor become wholly bound up in their unique conditions and circumstances. That said, skilful use of the maritime environment and maritime forces affords the campaign commander the opportunity for great flexibility across the whole *spectrum of conflict*.

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. The commander is afforded the opportunity to control the tempo of operations, under certain circumstances, joining or breaking contact with an adversary when and where required, and focussing combat power against the adversary's critical vulnerabilities. Effective intelligence, command, control and communications are essential elements for the optimum employment of maritime forces. The commander can exploit the nature of maritime power in the campaign to get inside an adversary's decision cycle, keeping the adversary off balance and pressing forward to achieve the strategic end state.

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 trade-offs which will be needed in capability. To achieve this focus, clear statements of the mission and the commander's intent are required. Ideally, there should be unity of command over all resources, including logistics, although it is unlikely that the latter will be achieved at the operational level.

Where command and control arrangements are complex—and the reality is that they will be in both joint and combined operations of any scale—there must be close co-operation and co-ordination of activities to achieve the most efficient use of available assets and accomplish the commander's aim. It is the principle of *co-operation* which is the key essential element. Good will and working together can overcome many difficulties in operations.



HMAS *Collins*

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 the weaknesses of the enemy. Maritime forces are ideally suited to support high tempo operations because of their mobility and flexibility.

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 limited, not by the endurance, sustainability and survivability of the unit, but by the physical endurance of the crew to maintain it.

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. In the maritime environment, although the loss of a *mission essential unit* such as a transport ship in an amphibious task group may bring with it outright failure to accomplish the mission, the loss of other specific capabilities within the force may create a critical vulnerability and expose its component units to unreasonable risk and warrant aborting the mission. Indeed the loss of any major combatant may prove to be a decisive point and may affect future missions as that ship could represent a significant portion of the overall capability of the force. Awareness of such critical vulnerabilities is crucial to effective offensive and defensive operational planning. Vulnerabilities may include:

- units capable of delivering combat power;
- the willpower and cohesion of the forces and their commanders;
- command, control and communications capability;
- intelligence, surveillance and reconnaissance assets;
- access to ashore support for minor war vessels;
- replenishment ships in a deployed force;
- air warfare assets, including land based air;
- physical endurance of human resources;
- availability of weapon reloads;
- availability of other vital, consumable stores; and
- 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 phases. Part of the planning process must be the consideration of contingencies. Once the plan has been set in motion, the operational level commander must constantly study the unfolding situation, revise and reorder the plan as necessary. Maintaining flexibility is the key to success. It is essential that concurrent and contingency planning be initiated early in the planning cycle.

OPERATIONAL CONSIDERATIONS

Information

The single most important factor in a maritime operation, especially one involving diverse joint or combined assets, is information flow, which requires suitable communications. Communication is not only having radios on correct and agreed frequencies. It involves procedures that all players can use, allowing compatible message and information exchange. Developments in data links and the use of commercially available systems are rapidly reducing the tyranny of distance and increasing the speed with which data can be transferred. This has shifted the emphasis from providing the information, which is in most instances achievable, to managing the information efficiently. This is increasing significantly the information available to the commander and to individual units, thus improving their awareness of the battlespace and their ability to operate within it. Furthermore, the same developments are increasing the ability of all units to contribute to the achievement of *battlespace awareness*. Maritime 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 miles. The area of interest to a task group commander could and does easily extend 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 engagement ranges of own and enemy forces.

In the event of combined and coalition 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. 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.



HMA Ships *Adelaide (II)* and *Canberra (II)*

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 may 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 (JFAO), 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, including: suitability of hydrographic data, shallow and confined water operations and 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, fatigue and weapon and hull endurance.
- 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 ships and embarked helicopters, supported by maritime patrol aircraft.

Air Forces

It is important to consider issues relating to air forces alongside the seaborne factors when considering force requirements for campaign planning. They may include:

- Range limitations, the availability of air assets, the endurance of aircrew and the effect of weather—both 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 may well 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 seaborne force's interest in organic air capabilities or, failing that, well located forward operating bases for support aircraft.
- Control of the air is an important prerequisite in any maritime operation.
- Modern aircraft are increasingly multi-role and therefore may be multi-tasked, which may result in the campaign commander allocating such scarce resources to higher priority tasking.

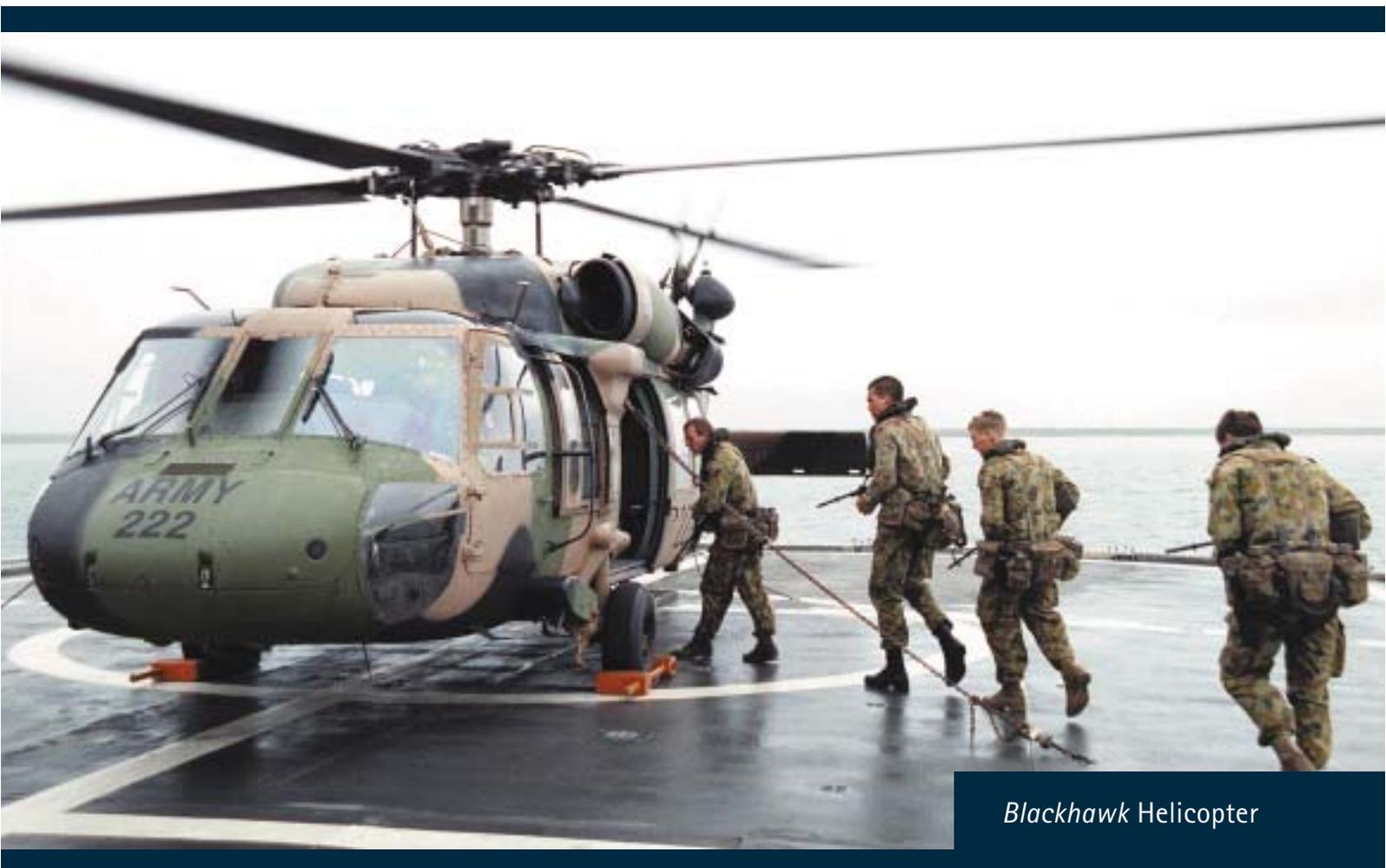
Land Forces

There are also considerations for land forces in relation to maritime campaign planning. The support of Army operations from the sea is affected by the following factors:

- Availability of ships, including naval and commercial vessels, capable of transporting 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 tonnage.
- Availability of resources such as cranes, 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 Army operations can also include support to special forces and naval gunfire support as well as land attack in the future. Additionally, in a maritime campaign, the Army may be involved in aspects such as logistics-over-the-shore support and the securing of forward bases, for air or naval forces, or to deny such bases to an adversary.



Blackhawk Helicopter

Areas of Operations

One planning tool that can cause considerable difficulties is that of the *Joint Force Area of Operations (JFAO)*. This is fundamentally a Land concept that has moved for many good reasons into the joint and combined environment. If such an area, 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 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 therefore necessarily be large and they must—for both sea and air units—be constructed not to inhibit operations not only in area but also in transit. Maritime operations can be seriously inhibited by constraining sea room.

Rules of Engagement

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 commence at the start of the campaign planning process. They must be established only after a thorough appreciation of the situation has been conducted. The Law of Armed Conflict codifies important principles of international law and national control of military action is a fundamental requirement. At the operational level, that control is exercised through the military chain of command with the promulgation of ROE.

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

Logistics and Maintenance

Maritime logistics are a fundamental and critical part of the conduct of operations and must be planned accordingly. Although maritime units deploy as self-contained units, they do require regular resupply (every few days) of fuel and, every few weeks, of provisions and consumable stores. Ammunition requirements will vary according to consumption rates, but, as an indication, guided missile destroyers on the gunline off Vietnam engaged in near-continuous fire support operations required to rearmmunition after about three days. Ships endeavour to remain fuelled and stored to the maximum practicable levels to maintain the maximum flexibility for tasking.

Deployed units may be resupplied from an afloat support force, or from a Logistic Support Element (LSE) ashore. Generally, the smaller and less sophisticated the ship, the greater its reliance on external support. Some small vessels, such as landing craft or mine warfare units, may require their own dedicated support ships. In any sustained campaign, the LSE will become vital, particularly as it will include a maintenance unit which can assist with maintaining or repairing the equipment which will inevitably become defective with continuous use over time. If the deployment is distant from maritime forces' normal operating bases, then the LSE will require to be forward deployed.

Although built for the purpose ships normally form the core of an afloat support force, merchant ships can be taken up from trade and adapted very quickly to meet specific naval requirements. The most simple example of this may be the conversion of a freighting oil tanker to include an underway replenishment capability.

Preparations for a Campaign

When mounting the maritime aspects of a campaign, the commander will co-ordinate 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 ITSELF

There are typically eight stages of a maritime campaign:

- identification of a crisis,
- force generation,
- deployment,
- sea control operations,
- power projection,
- support to operations ashore,
- rotation, and
- withdrawal.

Identification of a Crisis

Initial indications that a crisis is developing will probably come from a variety of sources. Intelligence gathering and analysis can provide warning of changes in operating patterns and exercise programmes and allows for strategic level identification and evaluation of potential crises. Maritime forces operating in international waters can



HMAS *Hawkesbury (II)*. Mine countermeasure operations are a key element in achieving sea control

gather a wide variety of useful intelligence and provide a significant surveillance capability—sometimes the only reliable source of evidence and thus a critical element in identification and assessment.

Force Generation

The size and composition of the forces required to respond to a crisis will be shaped by:

- government policy objectives and strategic concept,
- 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, and
- the likely duration of a campaign and the rotation of forces to maintain capability.

A robust command and control 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 can often be diverted directly from their current locations);
- passage to the area of operations; and
- 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 the maritime 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 adversely constrained and *battlespace dominance* will not have been achieved.

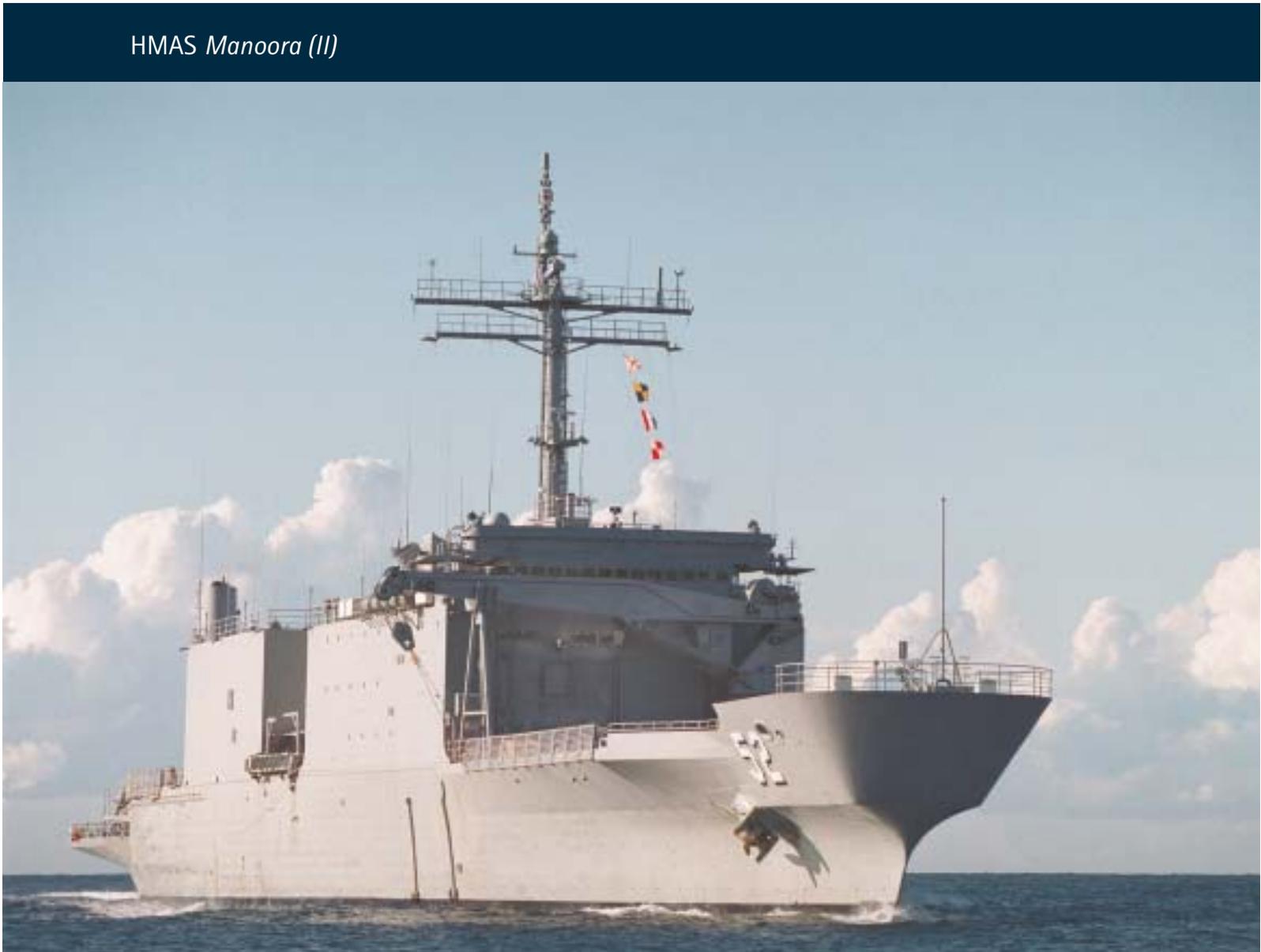
Power Projection Operations

With the establishment of appropriate levels of sea control, maritime 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 command and control system that, in the case of amphibious operations, must be capable of deploying ashore, gathering intelligence, concentrating combat power and generating influence over the battlespace, is critical for power projection operations. Co-ordination and synchronisation with land and air operations will be required.

Support of Operations Ashore

Once the focus of an intervention campaign moves ashore, the emphasis of maritime forces will shift from being enabling to being supportive. This is not to say that the tasks assigned to maritime forces will necessarily alter significantly, but the wider purpose to which these tasks contribute 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.

HMAS Manoora (II)



Rotation

Forward-deployed maritime forces can mark their effective capability in terms of weeks or months. Nevertheless, despite the considerable inherent powers of endurance of both personnel and systems, 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 programme of rotation to allow rest, maintenance and refresher training. In considering the commitment to operations, such considerations will be key to the determination of force levels if a sustained and consistent presence is required.

Withdrawal

The withdrawal of forces at the end of a successful campaign will need to be planned as carefully as the deployment to the area of operations. Moreover, if conditions for success have not been achieved, and withdrawal is to be made in the face of continuing or escalating conflict, it will be even more problematical. There may be a need to increase combat power ashore to stabilise the situation before withdrawal can take place. Command and control will be difficult and fragmented and a headquarters afloat may provide the most secure and capable communications to assist. There will also be a requirement to provide protection, both for the maritime forces supporting the withdrawal and for the forces being withdrawn. Protection of a withdrawal, like a landing but in reverse, requires the establishment of the necessary levels of sea control.

CONCLUSION

Maritime, air and land campaigns do not and cannot function wholly in isolation, but must be considered according to the contribution which they can make to the required end state. Furthermore, whether a campaign can be considered to be primarily of one environment rather than another, it does not follow—nor will it ever follow in the realities of future warfare—that it will not involve other elements. It is therefore vital for planners to seek to understand all the elements of military force—land, sea, air and others—if they are to become truly expert in their efficient employment.

FUTURE AUSTRALIAN MARITIME FORCES

- Maritime force development is a continuum.
- Technological and social change present both challenges and opportunities for maritime forces.
- The linkages between platforms and capabilities are weakening.
- Warfighting capabilities must be integrated across all dimensions.
- People will remain the Most Important Factor.

THE FUTURE OF NAVIES

Maritime forces are sensitive to technological change and quick to exploit the opportunities it offers. Maritime warfare has long been a continual seesaw between offence and defence, particularly since the advent at sea of *asymmetrical threats* just over a century ago in the form of the self-propelled torpedo and then the submarine. Nevertheless, the thrust of technological development, particularly that related to *network* concepts, appears to be creating just as many opportunities as obstacles for the future employment of maritime forces and the utility of navies. Some aspects have special significance for Australia as a medium power.

BALANCING PRESENT AND FUTURE

One conundrum is the requirement to balance the allocation of resources between present capability and development for the future. Despite the pace of information system advances and the influence of *Moore's Law*¹, the development and acquisition of new technology for maritime combat is a relatively protracted process, particularly when compared with the speed at which the strategic environment can change. Furthermore, although platforms (ships) represent a progressively smaller part of the costs of acquisition, their useful lives have been increasing progressively over the past fifty years. This has meant that ships acquired within one strategic context have been

¹ Computer processor capability will double every eighteen months. This means a more than thousand-fold increase in capacity over fifteen years. There is now evidence that development is approaching the limits of Moore's Law.

utilised under completely different circumstances, often carrying very different weapon and sensor packages than those with which they were first commissioned.

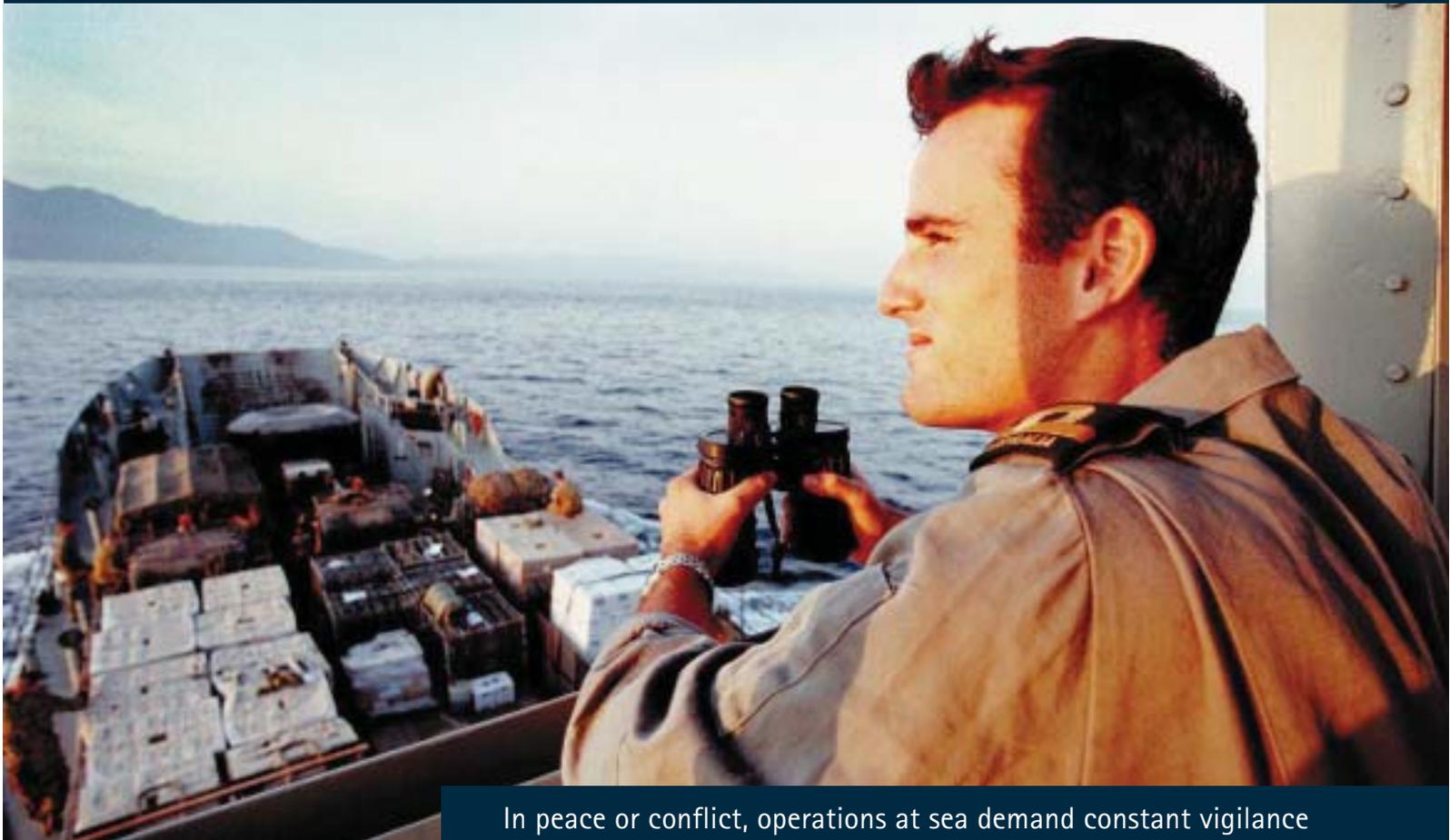
There is no simple division between the force in being, the enhanced force and the 'navy after next' because at any point, the requirement for the employment of maritime combat power may emerge at short notice, and almost certainly at less notice than is required for the acquisition of maritime combat capabilities from scratch, or from a low readiness base. The amount of time required to achieve real capability in maritime warfare has already been noted in [Chapter Ten](#). Medium power navies in particular must therefore ensure that they maintain appropriate levels of *contemporary capability* for *preparedness* while ensuring that they acquire sufficient *future capability*. This effectively means that naval force development must be regarded as a *continuum*, rather than a series of distinct steps.

FUTURE TRENDS

The increased effectiveness of communications networks and of long range surveillance systems presents both opportunities and challenges for maritime forces. At the same time as units in all environments are finding it more difficult to remain *undetected*, they are also more readily able to operate *covertly*. The same types of technology which allow the early detection and tracking of surface, air and subsurface units also mean that the same units can 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 now not so much one of weapons as of *knowledge*.

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

The knowledge edge 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 greater emphasis on the non-technological aspects of the knowledge edge.



In peace or conflict, operations at sea demand constant vigilance

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 Navy in particular face great challenges in recruiting and retaining the quality of men and women that will be needed. Meeting those challenges 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 SEA, THE LAND AND THE AIR

Technology is rapidly increasing the potential of warships to provide support to operations ashore as well as to project power against the land in their own right. Networking of sensor systems, particularly in conjunction with airborne assets, means that warships are improving their capacity to look over the horizon and around terrain and to cover inland areas with their air warfare weapons. *Co-operative Engagement Capability (CEC)* is one approach which, by directly linking and fusing sensor data, promises significant improvements in detection and engagement, particularly when

the target is out of sight of the firing platform. *Precision guided munitions* can be provided on demand and with extreme accuracy many kilometres inland. *Unmanned aerial vehicles*, 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 manoeuvre warfare at sea by conducting amphibious operations from over the horizon, employing organic helicopters and next-generation, high-speed organic and independent landing craft.

All these developments will have effects that will be particularly important for Australia. In terms of maritime conflict, although the tactics may change, the requirement to achieve *sea control* will remain because there will still be the capacity on the part of adversaries to utilise the new technology to interfere with seaborne communications. And, while the indications are that seaborne transport will become, at least in some areas, much *faster*, the physics and economics of transportation will still require an overwhelming proportion of such activity to go *by sea* rather than *by air*.

Another effect is that these developments will maximise the potential of seaborne task groups, working in conjunction with air and land forces, to achieve strategic effects. This will make joint operations even more important for the ADF. Air and land power in our maritime environment will benefit even more from what sea borne power can offer. The ADF will accomplish most when all its components work together.

Conversely, developments in networking and in long range precision delivery of munitions mean that traditional linkages between particular platforms and their combat capabilities will become much weaker. A precision weapon can be fired from a surface ship or a submarine, from a manned or an unmanned aircraft, or from fixed or mobile platforms on land. In these circumstances, the inherent capabilities of platforms will be critical in determining which are most suitable in the future.

All this means that the ADF must work towards the integration of warfighting capabilities in all dimensions. The platforms operated by the individual services will contain or be components of joint systems working to achieve integrated effects. At the same time, the enablers for operations, such as C4I, will need to be considered as capabilities which are ubiquitous to all environments and which support the activities of all elements.

THE IMPLICATIONS FOR A MEDIUM POWER

Maintaining and operating an effective navy is highly demanding of national industrial and technological capabilities. Keeping up with the application of 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 smaller nation 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. This means that choices will need to be made between attempting innovation solely on a national basis, engaging in co-operative development with friendly and allied nations and accepting without substantial modification the systems developed by others. For Australia, this will mean the development of a much more sophisticated approach to the problem of maintaining defence capability than has been required for much of our history, when we were able to rely upon our alliances with the great powers not only at the strategic level, but for much of the infrastructure and innovational effort that modern navies—and sophisticated combat forces in general—require. This challenge, it should be emphasised, is not only one for the RAN.



No matter how sophisticated the technology,
capability will depend on people

NAVY PLANS

The RAN has two plans which together provide the blueprint for the development of the Navy. Both are aligned with higher level Defence Plans and Strategic Guidance.

Plan GREEN provides executive authority for management decision making throughout Navy across the five year financial planning and business cycle. It identifies the issues which must be confronted during this period and their implications for Navy's combat capability and strategic development.

Plan BLUE provides guidance for the directions of naval development over the next thirty years. It examines a range of issues which will affect the future force. This includes but is not limited to emergent warfighting concepts, new technology and personnel issues. It considers major resource issues, including the ways in which national industry can support the transformation of the Navy. It will be the principal mechanism by which the Navy will manage its own development and contribute to the evolution of the future ADF.



The sail training ship *Young Endeavour* provides an important link between the Navy and the youth of Australia

A NOTE ON SOURCES

This book has been written with the unique circumstances of Australia and its maritime security firmly in mind at all times. Nevertheless, it has been informed by and owes much to many other works on maritime and military issues and doctrine, both from Australia and overseas.

In addition to higher government policy documents, such as *In the National Interest*, issued by the Department of Foreign Affairs and Trade, as well as Defence strategic guidance, the body of Australian Defence Force doctrinal writing has been of fundamental importance. Both the Royal Australian Air Force's *Air Power Manual* and the Australian Army's *The Fundamentals of Land Warfare* have provided many insights and this book has been deliberately constructed to complement these works and fill the gap which has long existed for the maritime environment. The volumes of the Australian Defence Force Publication series have also been vital in the writing of the text.

As noted in the introduction, the RAN owes much to its roots in the Royal Navy and the old BR 1806 under the title of *The Naval War Manual* was a fundamental source. The three editions of this impressive book from 1948, 1958 and 1969 contain much that is still relevant to maritime operations, particularly at the higher levels of conflict, expressed with a clarity and logic that are difficult to better. The debt which this book owes to *The Naval War Manual* is as great as that owed and acknowledged by the 1995 and 1999 editions of the Royal Navy's new BR 1806 *British Maritime Doctrine*. These works have continued in the tradition of *The Naval War Manual* in their encapsulation and expression of principles which are relevant to maritime forces all over the world, although the 1999 edition is much more tightly focused on the British situation than its predecessor. They too have been extremely valuable in the drafting of this work. The Royal New Zealand Navy's 1997 volume *New Zealand Maritime Doctrine* has also provided many insights. This is an excellent book, more apt for New Zealand's situation and less derivative than it may have appeared to many. An unofficial but authoritative Canadian work *Why Canada Needs Maritime Forces* gave much insight into the issues faced by a medium power of equivalent size and responsibilities.

In addition to the 'classical' works of naval strategy by Mahan, Corbett, Richmond and Castex, this book owes much to the body of maritime strategic thought which has built up over the last thirty years. This has been particularly valuable in extending systematic analysis to the utility and operations of maritime forces throughout the entire spectrum of conflict. Works such as that by Ken Booth (*Navies and Foreign Policy*), James Cable (*Gunboat Diplomacy* and *The Political Influence of Naval Force in History*), Geoffrey Till (*Maritime Strategy and the Nuclear Age* and *Sea Power Theory and Practice*), Richard Hill (*Maritime Strategy for Medium Powers* and *Medium Power*

Strategy Revisited), Eric Grove (*The Future of Sea Power*), John Hattendorf (*Naval History and Maritime Strategy*) and Colin Gray (*The Leverage of Sea Power: The Strategic Advantage of Navies in War*) have done much to explain the continuing utility of maritime power and the ways it can be exercised in an era of enormous technological change and strategic uncertainty. In Australia, Commodore Sam Bateman, Commodore Jack McCaffrie and Commander Dick Sherwood have led the development and enunciation of concepts of maritime strategy and operations oriented to our national circumstances. Their publications have included many monographs and collections of papers, issued under the auspices of the Maritime Studies Program, the Centre for Maritime Policy and the Australian Centre for Maritime Studies, as well as other organisations such as the Australian Defence Studies Centre (ADSC) at the Australian Defence Force Academy and the Strategic and Defence Studies Centre (SDSC) at The Australian National University. Perhaps the most valuable aspect of their work for a country like Australia is the extent to which they have attempted to understand the issue of limits and the restraints on capacity and thus action which have to be faced by smaller powers. They have also drawn in many insights and perspectives from South East and South Asia to redress the Anglo-American emphasis of so much maritime thinking. As a direct ancestor of this book, Bateman and Sherwood's *Principles of Australian Maritime Operations* was especially useful. Other Australian experts have not been idle and the many works of ADSC and SDSC have included analysis of Australian defence issues with much relevance to maritime operations.

The influence of the great body of American maritime strategic thought is less direct, although this book has been informed by the United States Navy's *Naval Doctrine Publications* series and by the succession of strategic documents that began with *From the Sea* and continue to evolve. Of more immediate utility has been the work of Wayne Hughes, notably in his book *Fleet Tactics and Coastal Combat* (original edition 1986, revised edition 2000), which expresses many naval operational and tactical concepts not fully explained by many other authorities.

Technological issues have been informed by the range of futures work within Navy and Defence as a whole, and by the current debate over the 'Revolution in Military Affairs' going on in Australia and many other countries. While much of this debate is through the mechanism of conferences and contemporary journals, of which the United States Naval Institute *Proceedings* is the most worthwhile for naval affairs, *Network Centric Warfare: Developing and Leveraging Information Superiority* by Alberts, Garstka and Stein is a very useful primer.

This list is not an exhaustive summary of sources. Those wishing to extend their knowledge of maritime and naval affairs should consult the Royal Australian Navy *General Reading List*, available from the Sea Power Centre. The Sea Power Centre's website contains this and many other of its recent publications, which can be accessed via: www.navy.gov.au/9_sites/spc/default.htm

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Coastwatch aircraft courtesy of the Australian Customs Service

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SMS *Emden* courtesy of the Australian War Memorial

ACRONYMS AND ABBREVIATIONS

| | |
|---------|--|
| ABR | Australian Book of Reference |
| ADF | Australian Defence Force |
| ADFP | Australian Defence Force Publication |
| ADSC | Australian Defence Studies Centre |
| AEW&C | Airborne Early Warning and Control |
| AFP | Australian Federal Police |
| AIC | Air Intercept Controller |
| AIF | Australian Imperial Force |
| AMS | Australia's Military Strategy |
| ANMEF | Australian Naval and Military Expedition Force |
| ANZUS | Australia, New Zealand and the United States Treaty |
| AO | Replenishment Tanker |
| AOR | Replenishment Ship |
| AODC | Australian Oceanographic Data Centre |
| AUD | Australian Dollar |
| AUSCDT | Australian Clearance Diving Team |
| BDE | Brigade |
| BR | Book of Reference |
| C4 | Command, Control, Communications and Computers |
| C4I | Command, Control, Communications, Computers and Intelligence |
| C-in-C | Commander-in-Chief |
| CAP | Combat Air Patrol |
| CEC | Cooperative Engagement Capability |
| CO | Commanding Officer |
| COMFLOT | Commodore Flotillas |
| CTE | Commander Task Element |
| CTF | Commander Task Force |
| CTG | Commander Task Group |
| CTU | Commander Task Unit |
| CUES | Code for Unalerted Encounters at Sea |
| DAA | Defeat of Attacks on Australia |
| DDG | Guided Missile Destroyer |
| DGI | Defence of Global Interests |

| | |
|-----------|--|
| DRI | Defend Regional Interests |
| EEZ | Exclusive Economic Zone |
| ELM | Element |
| FCPB | Fremantle Class Patrol Boat |
| FEG | Force Element Group |
| FFG | Guided Missile Frigate |
| FFH | Frigate |
| HMAS | Her Majesty's Australian Ship |
| HMS | Her Majesty's Ship |
| HMPNGS | Her Majesty's Papua New Guinea Ship |
| INFOSEC | Information Security |
| INTERFET | International Force East Timor |
| JFAO | Joint Force Area of Operations |
| JFHQ | Joint Force Headquarters |
| LADS | Laser Airborne Depth Sounder |
| LCH | Heavy Landing Craft |
| LCM | Mechanised Landing Craft |
| LCVP | Landing Craft Vehicle and Personnel |
| LOSC | Law of the Sea Convention |
| LPA | Amphibious Transport - Personnel |
| LSE | Logistic Support Element |
| LSH | Heavy Landing Ship |
| MCM | Mine Countermeasures |
| MCAUST | Maritime Commander Australia |
| MHQAUST | Maritime Headquarters Australia |
| MLOC | Minimum Level of Operational Capability |
| MHC | Coastal Minehunter |
| MHI | Inshore Minehunter |
| MSA | Mine Sweeping Auxiliary |
| NATO | North Atlantic Treaty Organisation |
| NAVSYSCOM | Navy Systems Command |
| NCAPS | Naval Control and Protection of Shipping |
| NCC | Naval Component Commander |
| NCS | Naval Control of Shipping |
| NHQ | Navy Headquarters |
| OC | Officer Commanding |
| OIC | Officer-in-Command |

| | |
|--------|---|
| PB | Patrol Boat |
| PNI | Protect the National Interests |
| RAAF | Royal Australian Air Force |
| RAN | Royal Australian Navy |
| RN | Royal Navy |
| RNZN | Royal New Zealand Navy |
| ROE | Rules of Engagement |
| SAE | Service Assisted Evacuation |
| SCA(N) | Support Command Australia (Navy) |
| SDSC | Strategic and Defence Studies Centre |
| SLOC | Sea Lines of Communication |
| SPE | Service Protected Evacuation |
| SSE | Shape the Strategic Environment |
| SSG | Guided Missile Submarine |
| STUFT | Ships Taken Up From Trade |
| TE | Task Element |
| TF | Task Force |
| TG | Task Group |
| TU | Task Unit |
| UNCLOS | United Nations Convention on the Law of the Sea |
| UN | United Nations |
| USN | United States Navy |
| WG | Wing |
| WMD | Weapons of Mass Destruction |
| WPNS | Western Pacific Naval Symposium |

GLOSSARY

SOURCES

| | |
|-----------|---|
| ADFP 101 | Australian Defence Force Publication 101 - Glossary |
| ADFP-D | Foundations of Australian Military Doctrine |
| ADFP 9 | Joint Planning |
| ADFP 12 | Amphibious Operations |
| ASCC | Air Standardisation Coordinating Committee |
| BR 1806 | British Maritime Doctrine (Second Edition-1999) |
| FM 100-5 | United States Army Field Manual 100-5: Operations |
| JWP 0-1.1 | United Kingdom Glossary for Joint and Multinational Operations |
| NDP 1 | United States Navy: Naval Doctrine Publication 1: Naval Warfare |
| NATO: | North Atlantic Treaty Organisation |

Note: Where no source is shown in brackets after the title, the origin of the definition is RAN Doctrine 1.

Access

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

Action Stations (ADFP 101)

The stationing of a ship's personnel to fight the ship to its maximum capability.

Administration (NATO)

The management and execution of all military matters not included in tactics [operations] and strategy; primarily in the fields of logistics and personnel management.

Advance Force Operations (see Advance Operations and Precursor Operations) (NATO)

Advance operations to prepare an amphibious objective area for the main assault by conducting such operations as reconnaissance, seizure of supporting positions, precursor mine countermeasures operations, preliminary bombardment, underwater demolitions and air support.

Advance Force (BR 1806)

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, mine countermeasures operations, preliminary bombardment, underwater demolitions and air support.

Advance Operation (UK JWP 0-1.1)

Operation in advance of a main force. Advance operations include precursor operations and advance force operations.

Aim (Military) (UK JWP 0-1.1)

A single unambiguous military purpose that must be established before a plan can be developed at any level of command for a military operation.

Air Interdiction (NATO)

Air operations conducted to destroy, neutralise or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required.

Air Superiority (NATO)

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 without prohibitive interference by the opposing force.

Air Support (NATO)

All forms of support given by air forces on land or sea.

Air Supremacy (NATO)

That degree of air superiority wherein the opposing air force is incapable of effective interference.

Airborne Early Warning and Control (AEW & C)

Air surveillance and control of the air battle provided by airborne early warning aircraft equipped with sensors and combat data systems and communications equipment for controlling and coordinating the efforts of airborne, seaborne and land based air combat forces.

Amphibious Assault (ADFP 12)

The principal type of amphibious operation which involves establishing a force on a hostile or potentially hostile shore.

Amphibious Demonstration (ADFP 12)

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 him.

Amphibious Feint (NATO)

A ruse with the purpose of distracting the action of an enemy force by posing an amphibious threat to be countered.

Amphibious Force (NATO)

A naval force and landing force, together with supporting forces that are trained, organised and equipped for amphibious operations.

Amphibious Group (ADFP 101)

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

Amphibious Landing (ADFP 101)

The phase of an amphibious operation in which a military force is landed and built up in a tactical order of battle.

Amphibious Operation (ADFP 12)

An operation launched from the sea by naval and landing forces, against a hostile or potentially hostile shore, in which land forces are landed and supported from the sea as a combat operation prepared to meet armed opposition.

Amphibious Operations Area (AOA) (ADFP 12)

A geographical area delineated in the planning directive, for the purposes of command and control, in which is located the objective to be secured by the amphibious task force. This area must be of sufficient size to ensure the accomplishment of the amphibious task force mission, and must provide sufficient area for the conduct of the necessary air, land and sea operations.

Amphibious Raid (ADFP 12)

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

Amphibious Reconnaissance (NATO)

An amphibious landing conducted by minor elements, normally involving stealth rather than force of arms, for the purpose of securing information, and usually followed by a planned withdrawal.

Amphibious Task Force (ADFP 12)

A joint force formed for the purpose of conducting an amphibious operation. The Amphibious Task Force always includes Navy forces and a landing force, with their organic aviation, and may include chartered shipping.

Amphibious Withdrawal (ADFP 12)

A type of amphibious operation involving the extraction of forces by sea in naval ships, or craft from a hostile or potentially hostile shore.

Antisubmarine Warfare (NATO)

Operations conducted with the intention of denying the enemy the effective use of his submarines.

Area Defence (ADFP 101)

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 (NATO)

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

Area of Interest (NATO)

That area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces who could jeopardise the accomplishment of the mission. In maritime operations, all of these component areas and the total area of interest may be fixed or moving.

Area Operations (NATO)

In maritime usage, operations conducted in a geographical area and not related to the protection of a specific force.

Armed Conflict (ADFP 101)

Conflict between States in which at least one party has resorted to the use of armed force to achieve its aims. It may also embrace conflict between a State and organised, disciplined and uniformed groups within the State such as organised resistance movements.

Attrition (NATO)

The reduction of the effectiveness of a force caused by loss of personnel and materiel.

Attrition Warfare

A style of warfare characterised by the application of substantial combat power that reduces an enemy's ability to fight through the loss of personnel and equipment. It is a concept which relates to maritime warfare at the operational and strategic levels, since by their nature successful tactical actions in the maritime environment generally achieve destructive effect.

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 (UK JWP 0-1.1)

A military force that has all the necessary capabilities to carry out a particular mission without unnecessary redundancy.

Battlespace (UK JWP 0-1.1)

All aspects of air, surface, subsurface, land, space and the electromagnetic spectrum that encompass the area of operations.

Battlespace Dominance (US NDP 1)

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.

Beachhead (NATO)

A designated area on a hostile shore which, when seized and held, ensures the continuous landing of troops and material, and provides manoeuvre space requisite for subsequent projected operations ashore. It is the physical objective of an amphibious operation.

Benign Operations

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

Blockade (BR 1806)

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 belligerents 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.

Campaign (ADFP 101)

A controlled series of simultaneous or sequential operations designed to achieve an operational commander's objective, normally within a given time or space (BR 1806: A campaign usually involves the synchronisation of maritime, air and land forces.)

Centre of Gravity (ADFP 101)

That characteristic, capability or locality from which a military force, nation or alliance derives its freedom of action, strength or will to fight at that level of conflict. The centre of gravity at each level of conflict may be diffused or surrounded by competing decisive points.

Clearance Diving (NATO)

An operation designed to clear all mines from a route or area.

Close Blockade (BR 1806)

A blockade that denies an enemy access to or from his ports. See distant blockade.

Close Escort (BR 1806)

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

Coalition Operation (ADFP 101)

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.

Coercion (UK JWP 0-1.1)

The use of force, or the threat of force to persuade an opponent to adopt a certain pattern of behaviour, against his wishes.

Combat (BR 1806)

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

Combat Air Patrol (CAP) (NATO)

An aircraft patrol provided over an objective area, over the force protected, over the critical area of a combat zone or over the air defence area, for the purpose of intercepting and destroying hostile aircraft before they reach their target.

Combat Fatigue (ADFP 101)

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

Combat Information (NATO)

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 channels.

Combat Information Centre (CIC) (NATO)

The agency in a ship or aircraft manned and equipped to collect, display, evaluate and disseminate information for the use of the embarked flag or air officer, commanding officer and certain control agencies. Certain control, assistance and coordination functions may be delegated by command to the combat information centre. (RAN Doctrine 1: In the RAN the CIC is known as the 'Operations Room'. All RAN combatant operations rooms operate with combat data systems and data links.)

Combat Support Elements (ADFP 101)

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.

Combined Operations (ADFP 9)

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

Command (ADFP 101)

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.

Command and Control (NATO)

The processes through which a commander exercises command (whether full or operational or tactical command) or operational or tactical control to organise, direct and co-ordinate the activities of the forces allocated to him or her.

Command and Control Warfare (ADFP 101)

An approach to military operations which employs all measures (including but not limited to operations security, military deception, psychological operations, electronic warfare and targeting) in a deliberate and integrated manner, mutually supported by intelligence and information systems, to disrupt or inhibit an adversary's ability to command and control the forces while protecting and enhancing our own.

Command of the Sea (UK JWP 0-1.1)

The ability to use the sea in its entirety for one's own purposes as any time and to deny its use to an adversary. (RAN Doctrine 1: 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)

Component Force (ADFP 101)

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 Operations (BR 1806)

Operations in which the forces of more than one friendly or allied nation are operating in the same theatre but without formal arrangements to co-ordinate operations or an integrated command structure. They co-operate to the extent that mutual interference may be minimised, information may be exchanged and some logistic support and mutual training offered.

Conflict

A situation where violence currently exists or becomes a possibility in the external relations between States, or internally within a sovereign state between rival groups.

Consolidation (BR 1806)

The replenishment of organic logistic shipping by freighting vessels.

Constabulary Operations

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 there is some evidence of a breach or intent to defy. 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 operations.

Containment (BR 1806)

Military Containment: The geographical restriction of the freedom of action of enemy forces.

Containment by Distraction (BR 1806)

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.

Contiguous Zone (ADFP 101)

In a zone contiguous to its 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 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 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.

Continental Shelf

An area of the sea bed 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 UNCLOS 82.

Control (NATO)

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

Military Control (of the environment) is the condition in which one protagonist has freedom of action to use one or more warfare environments (land, sea, air, space or electro-magnetic spectrum) for his purposes and to deny its use to an opponent. See Sea Control; Control of the Air.

Control of the Air (BR 1806)

The three degrees of control of the air are: favourable air situation, air superiority and air supremacy.

Convoy (NATO)

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.

BR 1806: 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.

Co-ordinated Multinational Operations (BR 1806)

Operations 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.

Counter Air Operation (NATO)

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.

Counterinsurgency (NATO)

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

Counterterrorism (US FM 100-5)

Measures taken to prevent, deter and respond to terrorism.

Cover (NATO)

The action by land, air or sea forces to protect by offence, defence or threat of either or both.

RAN Doctrine 1: Cover may extend to actions in the electro-magnetic spectrum.

Covering Force (NATO)

A force operating apart from the main force for the purpose of intercepting, engaging, delaying, disorganising and deceiving the enemy before he can attack the force covered.

Crisis (UK JWP 0-1.1)

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.

Crisis Management (NATO)

The co-ordinated actions taken to defuse crises, prevent their escalation into an armed conflict and contain hostilities if they should result.

Crisis Prevention (UK JWP 0-1.1)

Diplomatic, economic and, on occasion, military measures to modify the causes of a potential crisis and prevent its onset.

Damage Control (NATO)

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.

Data Link (NATO)

The means of connecting one location to another for the purpose of transmitting and receiving data.

RAN Doctrine 1: The primary maritime data link for combat data systems amongst ships and between ships and aircraft is Link 11. It is being supplemented and will eventually be replaced by Link 16.

Deception (NATO)

Those measures designed to mislead the enemy by manipulation, distortion, or falsification of evidence to induce him to react in a manner prejudicial to his interests.

Decisive Points (ADFP 9)

A major event that is a precondition to the successful disruption or negation of a centre of gravity of either combatant. A decisive point is created normally by successfully attacking or neutralising a critical vulnerability. Operational level planning aims to exploit an enemy's critical vulnerabilities in a sequence or matrix of decisive points known as lines of operation.

De-escalation (BR 1806)

A decrease in the level of extent of violence during hostilities. See escalation.

Defence in Depth (NATO)

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 his reserve.

RAN Doctrine 1: 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.

Demonstration (NATO)

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

Deny (ADFP 101)

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 (NATO)

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 (ADFP 101)

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.

Distant Blockade (BR 1806)

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.

Distant Escort (BR 1806)

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.

Distraction (UK JWP 0-1.1)

Situation in which an enemy is unable to concentrate forces in a time and place of his choosing because of the threat of attack elsewhere.

Doctrine (ADFP-D)

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.

Electronic Attack (ADP 101)

Use of electromagnetic or directed energy to attack personnel, facilities or equipment with intent of degrading, neutralising or destroying enemy combat capability.

Electronic Warfare (ADFP 101)

The military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy.

Elements of National Power (ADFP 101)

All the means which are available for employment in the pursuit of national objectives.

Embargo (UK JWP 0-1.1)

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.

Embroidment (BR 1806)

Military embroilment is the involvement of forces in conflict at a level of violence that is greater than that for which they are equipped or prepared or that is envisaged in their strategic directive.

End-State (ADFP 101)

The set of desired conditions which will achieve the strategic objectives.

Endurance (NATO)

The time an aircraft can continue flying or a ground vessel or ship can continue operating under specified conditions, eg without refueling.

Envelopment (NATO)

An offensive manoeuvre in which the main attacking force passes around or over the enemy's principal defensive positions to secure objectives to the enemy's rear.

Escort (NATO)

A combatant unit or units assigned to accompany and protect another force.

BR 1806: Colloquial generic expression for a destroyer or frigate.

Exclusion Zone (ADFP 101)

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) (ADFP 101)

An area beyond and adjacent to the territorial sea, subject to the specific legal regime established in Part V of UNCLOS 82, under which the rights and freedoms of other states are governed by the relevant provisions. The EEZ shall not extend beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.

Expeditionary Forces (UK JWP 0-1.1)

Forces projected from the home base capable of sustained operations at distance from that home base.

Expeditionary Operations (BR 1806)

Military operations which can be initiated at short notice, consisting of forward deployed, or rapidly deployable, self-sustaining forces tailored to achieve a clearly stated objective in a foreign country.

Fire Support (NATO)

The application of fire, co-ordinated with the manoeuvre of forces, to destroy, neutralise or suppress the enemy.

Fleet in Being (BR 1806)

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

Fog of War (BR 1806)

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

Force Generation (UK JWP 0–1.1)

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.

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 Packaging (BR 1806)

The process by which elements of those forces delivered by Force Generation are combined into a coherent, mission orientated, joint force in order to conduct a specific operation or campaign.

Force Projection

See Power Projection and Maritime Force Projection

Force Protection (UK JWP 0–1.1)

Process which aims to conserve the fighting potential of the deployed force by countering the wider threat to all its elements from adversary, natural and human hazards, and fratricide.

Forward Presence (UK JWP 0–1.1)

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.

Freedom of Navigation (FON) Operations (UK JWP 0–1.1)

Operations of naval diplomacy designed to challenge an attempt to restrict free use of the seas by the passage of combat forces. FON operations may be symbolic or coercive.

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 (ADP 101)

The military authority and responsibility of a superior officer to issue orders to subordinates. It covers every aspect of military operations and administration and exists only within national Services.

Geographic Surveillance (ADFP 101)

The systematic observation of the earth's environment to determine physical, biological and climatic data necessary for military operations.

Group (ADFP 101)

A number of ships and/or aircraft, normally a subdivision of a force, assigned for a specific purpose.

Guerre de Course

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

Gunboat Diplomacy (BR 1806)

A colloquial expression for the coercive use of naval diplomacy.

Hard Kill

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

Harmonisation (of ROE) (BR 1806)

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

High Seas (BR 1806)

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.

Host Country (ADFP 101)

A country in which representatives or organisations of another country are present because of Government invitation or international agreement; particularly refers to a country receiving assistance relevant to its national security.

Hydrography (NATO)

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.

Innocent Passage (BR 1806)

Defined as navigation through the territorial sea of a State for the purpose of either traversing that sea without entering internal waters, or of proceeding in either direction between the high seas and internal waters. Vessels have the right to take innocent passage through territorial seas without interference by the coastal States concerned.

Independent (ADFP 101)

A merchant ship or naval auxiliary making passage singly and unescorted by warships.

Infrastructure (NATO)

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

Insurgency (NATO)

An organised movement aimed at the overthrow of a constituted government through one of subversion and armed conflict.

Interdiction (UK JWP 0-1.1)

Actions to divert, disrupt or destroy the enemy before he can affect friendly forces.

Internal Conflict (UK JWP 0-1.1)

Situation in which violence is threatened or used within a state's borders between competing groups for political reasons beyond levels that might be controlled by levels of civilian policing that are normal for that state.

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

Considered to be a route which is used for international navigation which either connects one part of the high seas or an exclusive economic zone with another, or passes between one part of the high seas or an exclusive economic zone and the territorial sea of a State.

Interoperability (NATO)

The ability of systems, units or forces to provide the services to and accept services from other systems, units or forces and to use the services so exchanged to enable them to operate effectively together.

Intervention (UK JWP 0-1.1)

A campaign or operation with limited objectives, involving the entry of another state where opposition is expected.

Joint (NATO)

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, e.g. Joint Army-Navy.)

Joint Amphibious Task Force (NATO)

A temporary grouping of units of two or more Services under a single commander, organised for the purposes of engaging in an amphibious operation.

Joint Force (ADFP 101)

A general term applied to a force which is composed of significant elements of the Navy, Army and Air Force, or two or more of these Services, operating under a single commander who is in turn directly responsible to the Chief of Defence Force.

Joint Force Area of Operations (JFAO) (ADFP 101)

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

Joint Task Force (ASCC)

A force composed of assigned or attached elements of the Navy, Army and Air Force, or two or more of these Services, which is constituted and so designated by a designated higher authority, including the commander of a unified command, a specified command or an existing joint task force.

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 (LOAC) (ADFP 101)

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

Layered Defence (BR 1806)

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.

Levels of Conflict (ADFP-D)

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 (BR 1806)

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

Lift (UK JWP 0-1.1)

The capability to move resources between two points.

Limited War (ADFP 101)

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.

Lines of Communication (LOC) (NATO)

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.

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.

Logistics (NATO)

The science of planning and carrying out the movement and maintenance of forces.

Logistics Over the Shore (LOTS) Operations (ADFP 101)

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.

Long Range Maritime Patrol Aircraft (LRMPA)

Surveillance, Undersea and Surface Warfare aircraft capable of operating in areas at extended distances from their base.

Major Fleet Units

Vessels in the RAN defined as major fleet units are:

guided missile destroyers

guided missile frigates

frigates

landing ships

fleet replenishment vessels, and

major hydrographic research vessels.

Mandate

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

Manoeuvre (NATO)

A movement to place ships or aircraft in a position of advantage over the enemy.

A tactical exercise carried out at sea, in the air, on the ground or on a map in imitation of war.

The operation of a ship, aircraft or a vehicle to cause it to perform desired movements. Employment of forces on the battlefield through movement in combination with fire or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission.

Manoeuvre Warfare (UK JWP 01-1.1)

Manoeuvre Warfare is a war-fighting philosophy that seeks to defeat the enemy by shattering his moral and physical cohesion - his ability to fight as an effective, co-ordinated whole - rather than by destroying him physically through incremental attrition.

Manoeuvrist (BR 1806)

A term describing an approach that employs the principles of Manoeuvre Warfare.

Maritime Component Commander (BR 1806)

The Maritime Component Commander is an officer subordinate to the Joint Force Commander responsible for maritime operational advice to him and the tactical employment of assigned maritime forces.

Maritime Domain (BR 1806)

The series of jurisdictional zones that surrounds the coast of a State. It includes territorial seas and the Exclusive Economic Zone.

Maritime Exclusion Zone (BR 1806)

Declaration by a State of sea areas, including parts of the high seas, in which conditions are imposed on the passage of ships and aircraft.

Maritime Forces

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

Maritime Power Projection

The ability to project, sustain and apply effective military force from the sea in order to influence events on land.

Maritime Operation (NATO)

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.

Maritime Reconnaissance (ADFP 101)

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

Maritime Superiority (BR 1806)

The capability of a state to establish sea control at will in any area of importance to that state.

Maritime Strategy

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

Military Geographic Information (NATO)

Geographic information which is necessary for planning and operations.

Military Support Operations (ADFP 9)

The use of military forces for purposes other than combat operations usually associated with war.

Military Strategy (NATO)

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.

Mine Countermeasures (NATO)

All methods for preventing or reducing damage or danger from mines.

Mine Countermeasures Vessel (ADFP 101)

A general term used to encompass all vessels, large and small, involved in countering mines.

Minor War Vessels

Vessels defined as minor war vessels in the RAN are:
mine countermeasures vessels,

patrol boats,
landing craft heavy,
sail training ships, and
survey motor launches.

Mission (NATO)

A clear, concise statement of the task of the command and its purpose.

One or more aircraft ordered to accomplish one particular task.

Mission Essential Unit

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

Mobility (NATO)

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.

National Airspace and Waters (ADFP 101)

These are those areas subject to the territorial sovereignty of individual nations. National waters comprise all those waters landwards of the outer limit of a nation's territorial sea. All airspace above national waters, including internal waters, territorial sea and archipelagic waters and territory is national airspace.

National Interests (ADFP 101)

The general and continuing ends for which a State acts.

National Security (ADFP 101)

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.

National Strategy (ADFP 101)

The art and science of developing and using the political, economic and psychological powers of a nation, together with its armed forces, during peace and war, to secure national objectives.

Naval Control and Protection of Shipping (NCAPS) Organisation (ADFP 101)

The organisation within the Navy which carries out the specific responsibilities of the Chief of Navy to provide for the control and protection of movements of merchant ships in time of war.

Naval Control of Shipping (NCS) (NATO)

Control exercised by naval authorities of movement, reporting, convoy organisation and tactical diversion of allied merchant shipping. It does not include the employment or active protection of such shipping.

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

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

Naval Protection of Shipping (ADFP 101)

Those measures and operations conducted for the protection of merchant shipping against enemy air, surface, submarine and mining threats.

Naval Surface Fire Support (ADFP 12)

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

No-Fly Zone (UK JWP 01-1)

Zone of airspace established by international mandate (or conceivably unilaterally as a form of exclusion zone) in which the flying of specific types of aircraft is prohibited.

Non-Combatant Evacuation Operations (NEO) (BR 1806)

Operations conducted to relocate to a place of safety non-combatants threatened in a foreign country.

Objective (NATO)

The physical object of the action taken, eg a definite tactical feature, the seizure and/or holding of which is essential to the commander's plan.

Officer in Tactical Command (OTC) (NATO)

In maritime usage, the senior officer present eligible to assume command, or the officer to whom he has delegated tactical command.

Operation (NATO)

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.

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 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 (ADFP 101)

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 shipborne aircraft and helicopters, but can also refer to logistics, weapons and sensors.

Overt Operations (ADFP 101)

Operations 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.

Passive (NATO)

In surveillance, an adjective applied to actions or equipments which emit no energy capable of being detected.

Peace Building (ADFP 101)

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:

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

Post-conflict peace building involves rehabilitation and construction assistance generally, support for various kinds of institution building and specific practical programmes like de-mining.

Peace Enforcement (ADFP 9)

Peace enforcement is the coercive use of civil and military sanctions and collective security actions by legitimate, international intervention forces, to assist diplomatic effort to restore peace between belligerents, at least one of whom does not consent to their intervention.

Peacekeeping (ADFP 101)

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.

Peacemaking (ADFP 101)

Diplomatic action to bring hostile parties to a negotiated agreement through such peaceful means as those foreseen under chapter VI of the United Nations Charter.

Peace Operations (ADFP 9)

Peace operations encompass all types of operations designed to assist a diplomatic peace process.

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.

Policing

See constabulary applications.

Presence (BR 1806)

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.

Preventive Deployment (UK JWP 01-1.1)

Deployment of forces to avert a conflict.

Principles of War (UK JWP 01-1.1)

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.

Psychological Operations (NATO)

Planned psychological activities 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. They include strategic psychological activities, consolidation psychological operations and battlefield psychological activities.

Quarantine (BR 1806)

An expression used loosely to mean a restriction on the egress of certain types of cargo. Also used to mean embargo enforcement.

Radius of Action (NATO)

The maximum distance a ship, aircraft or vehicle can travel away from its base along a given course with normal combat load and return without refueling, allowing for all safety and operating factors.

Reach (UK JWP 01-1.1)

The ability to operate for extended periods at considerable distance from shore support.

Readiness (BR 1806)

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.

Recognised Maritime Picture (RMP) (BR 1806)

The fullest achievable agreed level of identification and tracking of all surface and sub-surface contacts in the area of interest. The RMP is normally associated with the Recognised Air Picture (RAP) of the same area.

Reconnaissance (NATO)

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.

Replenishment at sea (RAS) (NATO)

Those operations required to make a transfer of personnel and/or supplies when at sea.

Roulement (UK JWP 01-1.1)

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.

Rules of Engagement (ADFP 101)

Directives issued by competent military authority which specify the circumstances and limitations under which Australian forces will initiate and/or continue combat engagement with other forces encountered.

RAN Doctrine 1: ROE inform commanders of the parameters within which they must operate to carry out assigned tasks in accordance with national policy. They thus may also be employed to define the use of military force in situations short of actual combat.

Sanction (United Nations)

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

Screen (NATO)

An arrangement of ships, aircraft and/or submarines to protect a main body or convoy.

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 his own purposes for a period of time.

Sea Lift

The movement of resources between points by shipping.

Sea Lines of Communications (SLOCs)

The shortest 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.

Seakeeping

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

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.

Ships Taken Up From Trade (STUFT)

Merchant ships chartered, requisitioned or purchased to support maritime operations. This may include the transportation of land forces and their supplies by sea.

Soft Kill

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

Special Forces (ADFP 101)

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 Conflict

The full range of levels of violence from normal conditions to general war.

Strategic Level of Conflict (ADFP 101)

The strategic level of conflict is that level of war which is concerned with the art and science of employing national power.

Surveillance (NATO)

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

Tactical Command (NATO)

The authority delegated to a commander to assign forces under his command for the accomplishment of the mission assigned by higher authority.

Tactical Control (NATO)

The detailed and, usually, local direction and control of movements and manoeuvres necessary to accomplish missions or tasks assigned.

Tactical Level of Conflict (ADFP 101)

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.

Task Element (TE)

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

Task Force (TF) (NATO)

A temporary grouping of units, under one commander, formed for the purpose of carrying out a specific task or mission.

Semipermanent organisation of units, under one commander formed for the purpose of carrying out a continuing specific task.

A component of a fleet organised by the commander of a fleet or high authority for the accomplishment of a specific task or tasks.

In a task organisation, a task force is the highest level in which units are grouped.

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 Airspace (ADFP 101)

Australian Territorial Airspace is the airspace above any part of Australia, her territories, internal waters and her territorial seas.

Territorial Sea (ADFP 101)

Every State has the right to establish the breadth of its territorial sea up to a limit not exceeding 12 nautical miles, measured from the baselines. Section 2 of Part II of UNCLOS addresses the limits of the territorial sea in greater detail.

Theatre (ADFP 101)

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.

Total Exclusion Zone (TEZ) (BR 1806)

Maritime geographical area including parts of the high seas within which a government states its intentions to enforce the exclusion of all ships and aircraft, both military and civilian, of a designated nation or nations or other grouping, using force if necessary.

Transit Passage (ADFP 101)

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

Underway Replenishment (NATO)

See Replenishment at Sea.

Unmanned Aerial Vehicles (ADFP 101)

Powered, aerial vehicles that do not carry a human operator, use aerodynamic forces to provide lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry lethal or non-lethal payloads.

Versatility (BR 1806)

The ability to change fighting posture quickly without recourse to outside resources.

Warfare Environment (BR 1806)

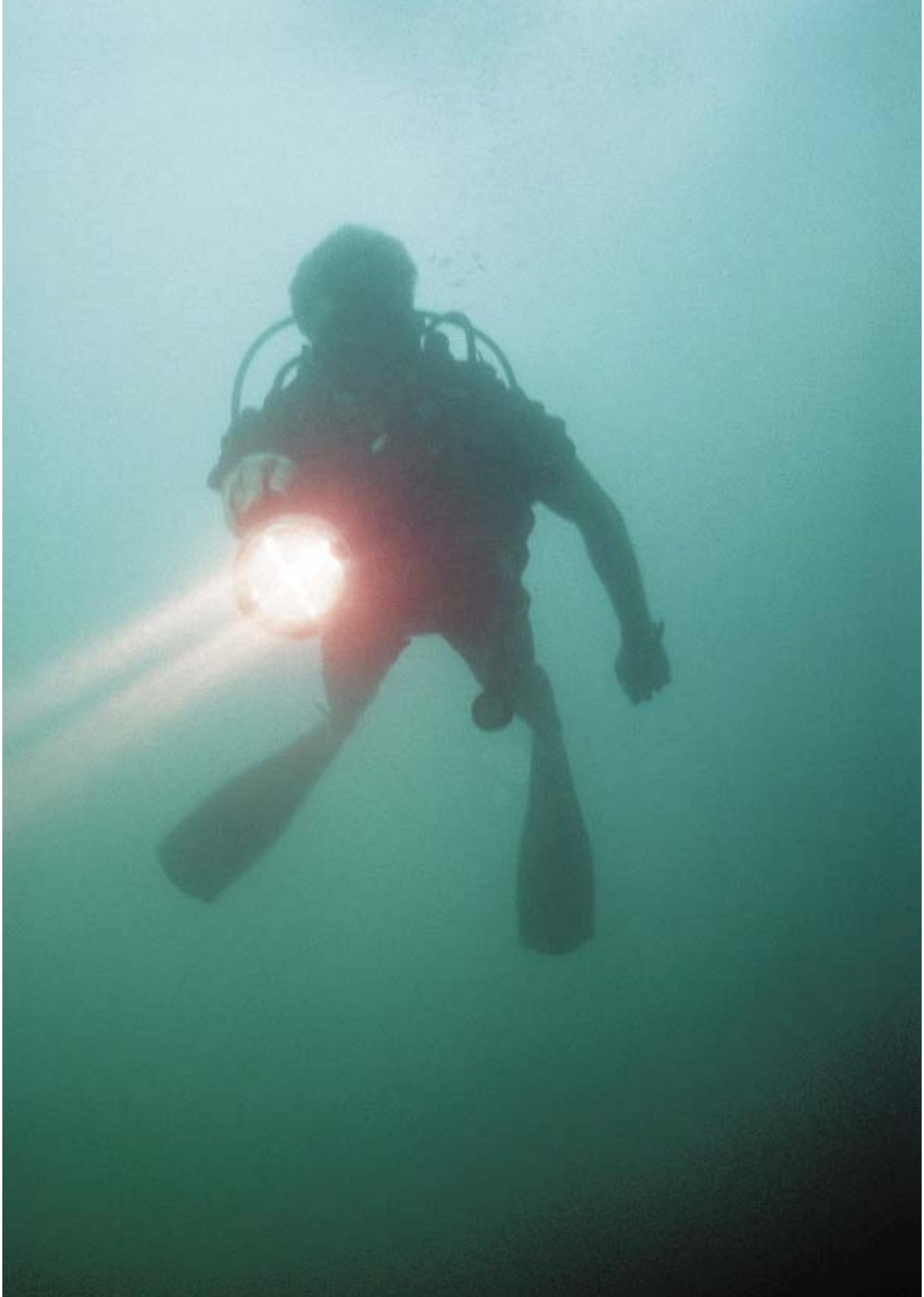
The five warfare environments are sea, land, air, space and the electromagnetic spectrum.

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



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