

*Papers in Australian Maritime Affairs*

*No.16*

## Australian Maritime Issues 2005

SPC-A Annual

Edited by  
Gregory P. Gilbert and Robert J. Davitt

**SEA POWER CENTRE - AUSTRALIA**



**AUSTRALIAN  
MARITIME  
ISSUES 2005**

**SPC-A ANNUAL**

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# AUSTRALIAN MARITIME ISSUES 2005

## SPC-A ANNUAL

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Gregory P. Gilbert and Robert J. Davitt  
Sea Power Centre - Australia

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The Sea Power Centre - Australia (SPC-A, formerly the Maritime Studies Program) was established to undertake activities which would promote the study, discussion and awareness of maritime issues and strategy within the RAN and the defence and civil communities at large. The aims of the SPC-A are:

- To promote understanding of Sea Power and its application to the security of Australia's national interests;
- To manage the development of RAN doctrine and facilitate its incorporation into ADF joint doctrine;
- To contribute to regional engagement;
- Within the higher Defence organisation, contribute to the development of maritime strategic concepts and strategic and operational level doctrine, and facilitate informed force structure decisions; and
- To maintain, develop, preserve and promote the history of the RAN, Commonwealth and Colonial naval forces, through liaison with the Australian War Memorial, international bodies, and interest groups, maintain a research facility, and conduct historical research and analysis.

Internet site: [www.navy.gov.au/spc](http://www.navy.gov.au/spc)

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The Sea Power Centre - Australia *Papers in Australian Maritime Affairs* series is designed to foster debate and discussion on maritime issues of relevance to the Royal Australian Navy, the Australian Defence Force, Australia and the region more generally.

# Papers in Australian Maritime Affairs

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The 'Papers in Australian Maritime Affairs' series is a vehicle for the distribution of substantial work by members of the Royal Australian Navy as well as members of the Australian and international community undertaking original research into regional maritime issues. Papers will be drawn generally from manuscripts not scheduled for publication elsewhere but that nonetheless merit extensive distribution. Candidates are considered by an editorial board under the auspices of the Director of the Sea Power Centre Australia.

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- No. 12 *Australian Maritime Issues 2004: SPC-A Annual* edited by Glenn Kerr
- No. 13 *Future Environmental Policy Trends to 2020* by the Centre for Maritime Policy, University of Wollongong edited by Glenn Kerr and Barry Snushall
- No. 14 *Peter Mitchell Essays 2003* edited by Glenn Kerr
- No. 15 *A Critical Vulnerability: The Impact of the Submarine Threat on Australia's Maritime Defence 1915-1954* by David Stevens



# About the Authors

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## Midshipman Steve Bell, RAN

Midshipman Steve Bell has recently completed a Bachelor of Arts (Management/Geography) at the Australian Defence Force Academy, having joined the Royal Australian Navy (RAN) as a seaman officer in 2002. He has completed training on HMAS *Stuart* and is currently undertaking his Junior Warfare Application training. He conducted research on the Pacific Patrol Boats while visiting the Sea Power Centre - Australia during the summer break in the academic calendar 2004-05.

## Ms Vanessa Bendle

Ms Vanessa Bendle joined the Department of Defence in February 2002 as a member of the Graduate Entry Program, after completing a Bachelor of Arts (Honours) at Monash University, including university exchanges in China and Germany, and a period in Taiwan teaching English. On completion of the program she joined the Sea Power Centre - Australia in December 2002 as a Naval Historical Officer and subsequently as a Research Officer.

## Lieutenant Commander Penny Campbell, RAN

Lieutenant Commander Penny Campbell joined the Royal Australian Navy Reserves in 1994 as an Intelligence Officer. She transferred to the Permanent Navy Force in 1996, on completion of her legal studies, and commenced duty with the Directorate of Navy Legal Services, and subsequently, the Directorate of Operations and International Law. In 1999, she was posted to Darwin as the Staff Legal Officer in Headquarters Northern Command and deployed briefly to East Timor. She then served as the senior legal officer in HMAS *Stirling*. Lieutenant Commander Campbell was posted to the Directorate of Advisings before deploying to the Arabian Gulf as the legal adviser to Commander RAN Task Group 633.1, during Operations SLIPPER and FALCONER. On return to Australia in 2003, she was posted as Deputy Director of Operations and International Law in Canberra and in 2004 as legal adviser to the Chief of Navy. Lieutenant Commander Campbell is currently serving with Headquarters Integrated Air Defence System in Butterworth, Malaysia. She holds a Bachelor of Arts, a Bachelor of Law, a Masters of Law, a Masters of Arts (Maritime Policy) and is currently studying a Masters of Applied Linguistics.

## Mr Alastair Cooper

Mr Alastair Cooper is a student of Australian naval history and maritime strategy. He is a graduate of the Australian Defence Force Academy and served in the Royal Australian Navy for 12 years. He currently works in the telecommunications industry and is undertaking various small historical projects, including an ongoing study of the RAN's Chiefs of Naval Staff.

## Commander Roger Dobson, RAN

Commander Roger Dobson joined the Royal Australian Navy as a midshipman at HMAS *Cerberus* in February 1977. He commenced practical sea training in 1978 and was awarded a full Bridge Watchkeeping Certificate in 1979. During 1980 he successfully completed the



Mine Warfare and Clearance Diving Officers Course at HMAS *Penguin*. During the 1980s and 1990s he held various mine warfare positions, and command of HMAS *Cessnock*. In September 2000 he was promoted to Commander and assumed the position of Deputy Director Mine Warfare and Clearance Diving within the Capability Development Group. After three years he was appointed to his current position as Director Establishments and Infrastructure within Navy Systems Command.

### **Commodore Allan du Toit, RAN**

Commodore Allan Du Toit was raised and educated in South Africa and entered the South African Navy as a Midshipman in 1975. He is a mine warfare sub-specialist and Principal Warfare Officer, and served mainly in frigates and mine countermeasures vessels before moving to Australia in early 1987, where he accepted a commission in the Royal Australian Navy. In addition to commanding HMAS *Tobruk*, his command appointments have included Commander Amphibious Task Group (2001-02), and inaugural Commander Australian Navy Amphibious and Afloat Support Force Element Group (2000-01). He is currently the Director-General Navy Capability, Performance and Plans, and is a graduate of the South African Navy Staff College (Junior Staff and Warfare Course), the RAN Staff College and the Australian Joint Services Staff College. He holds a Bachelor of Military Science and a Master of Defence Studies.

### **Dr Gregory P. Gilbert**

Dr Gregory P. Gilbert is currently a Research Officer in the Sea Power Centre - Australia. He previously worked within the Department of Defence (Navy) from 1985 to 1996 as a naval design engineer, and subsequently as a Defence contractor. He has had a life long interest in military history and strategy. Although he maintains a working knowledge of maritime affairs, he has recently specialised in the archaeology and anthropology of warfare, having received his Doctor of Philosophy on Weapons, Warriors and Warfare in Ancient Egypt from Macquarie University in 2004.

### **Captain Andrew Gough, RAN**

Captain Andy Gough joined the Royal Australian Navy College at Jervis Bay in January 1975. After graduating in June 1979 he undertook seaman officer training, culminating with the award of his full Bridge Watch Keeping certificate in June 1981. Then followed an active sea-going career aboard HMA Ships *Parramatta*, *Warrnambool*, *Stuart*, *Sydney*, *Young Endeavour* and *Jervis Bay*. He was promoted to Lieutenant Commander in December 1988 and qualified as a Principal Warfare Officer in October 1989. Promoted to Commander in June 1995, he was appointed in command of HMAS *Melbourne* in October 1999, and soon after deployed for a tour of duty in East Timor as part of the INTERFET operations. He was substantively promoted to Captain in January 2002, and in January 2003 was appointed as the Commander Australian Amphibious Task Group. Captain Gough is now posted as the Director of Trials in the Defence Capability Development Group in Canberra.

## Commander Glenn Ker, RAN

Commander Glenn Ker joined the Royal Australian Navy as a Midshipman at HMAS *Creswell* in January 1980. He was awarded a full Bridge Watchkeeping Certificate in 1984 and in 1986 successfully completed the Clearance Diving Officers Course. From 1987 and into the 1990s he held various mine warfare and clearance diving positions. In 1996 he was posted overseas as the RAN Exchange Officer to the USN Mine Warfare Command in Texas, US. Upon his return to Australia in 1999 he became the Mine Warfare and Clearance Diving Tactical Development Officer at HMAS *Waterhen*. He was posted as Commanding Officer of Clearance Diving Team One in August 2001, commissioning the team in September that year. After the events of September 2001 he was responsible for deploying numerous Explosive Ordnance Disposal detachments to operations in the Persian Gulf, and an element of clearance divers to the 2003 Iraq War. In 2004 Commander Ker became the Deputy Director Mine Warfare and Clearance Diving within the Capability Development Group in Canberra.

## Lieutenant Commander Glenn Kerr, RAN

Lieutenant Commander Glenn Kerr joined the Royal Australian Naval College in 1984 as a Supplementary List Supply Midshipman. After supply training in 1986 he served in a range of supply, capital procurement and logistic support postings. On expiration of his Short Service Commission in 1993, he was transferred to the Naval Ready Reserve. During the following five years he undertook wide-ranging duties in supply, training support, naval strategic policy, and garrison support contract management. He was posted as Senior Research Officer at the Sea Power Centre-Australia from January 2003 until early 2005. He then served within the Headquarters Joint Task Force 633 in Iraq during Operation CATALYST. Lieutenant Commander Kerr is a graduate of the RAN Staff Acquaint Course, for which he received the Lonsdale Medallion in 1998, and the Australian Command and Staff Course. He holds a Bachelor of Arts, Bachelor of Science, Master of Education and Master of Management (Defence Studies), and has recently completed the requirements for a Master of Maritime Studies. He is currently undertaking Doctor of Philosophy research in education at Deakin University.

## Commander George McGuire, RAN

Commander George McGuire joined the Navy in 1985, and attended the Royal Australian Naval College. He completed a Bachelor of Science at the Australian Defence Force Academy in 1987. He has served in HMA Ships *Perth* and *Brisbane* before graduating as dux of his Principal Warfare Officer course. He was seconded to the Royal Navy serving as the Gunnery Officer and then Anti-Air Warfare Officer on HMS *Gloucester*, being deployed to the Persian Gulf in support of the UN sanctions against Iraq. He returned to Australia in mid 1996, serving at HMAS *Stirling* and later in HMAS *Adelaide*. Commander McGuire moved to Maritime Headquarters in 1999 and subsequently served as the Naval Operations Officer, Headquarters INTERFET, during the East Timor crisis. He attended the RAN Staff College prior to assuming command of HMAS *Hawkesbury* in 2001. He completed a Master of Business Administration in 2002, after which he joined Maritime Development Branch in Canberra as the Deputy Director Surface Combatants, and as Deputy Director Air Warfare Destroyer from August 2003. Commander McGuire assumed command of HMAS *Kanimbla* in late January 2005.

### **Captain Richard McMillan, RAN**

Captain Richard McMillan joined the Royal Australian Navy in 1973. He was awarded the Returned and Services League of Australia Memorial Sword in 1975 after achieving the highest aggregate results among the junior Supplementary List officers completing their training in that year. He is an Anti-Air Warfare sub specialist, having completed the Royal Navy's Principal Warfare Officer course in 1983. Operational seagoing postings have included Executive Officer of HMAS *Canberra*, and Commanding Officer of the guided missile frigate HMAS *Sydney* between December 1993 and July 1995. After attending the Joint Services Staff College in 1996, and serving in Maritime Development Branch, Defence Headquarters, he was posted as Staff Officer (Operations) to the Vice Chief of the Defence Force from December 1998 to May 2000. On promotion to Captain, he served as Chief of Staff of the Submarine Capability Team for the remainder of 2000. Captain McMillan attended the Defence Strategic Studies Course in 2001, and attained a Master of Arts in Strategic Studies through La Trobe University in 2002. After serving as the first Chief Staff Officer (Operations) of Australian Navy Systems Command from December 2001, he was appointed Director of the Sea Power Centre - Australia in February 2004.

### **Captain Richard Menhinick, CSC, RAN**

Captain Richard Menhinick joined the Royal Australian Naval College at Jervis Bay, in January 1976. After graduating in 1980 he undertook practical sea-training culminating in the award of his Bridge Watchkeeping Certificate in 1982. In 1987 he undertook the Principal Warfare Officer course and then served on exchange at sea in the Royal Navy. On return to Australia he served at sea in the 1990-91 Gulf War. As a result of this service he was awarded the Commendation for Distinguished Service. Later he was Deputy Director Surface Warfare Development, in Capability Development Group, for which he was conferred the Conspicuous Service Cross. Commander Menhinick assumed command of HMAS *Warramunga* in 2000. Following promotion to Captain he became Director of the Sea Power Centre - Australia in 2002 before being appointed as the Commanding Officer of HMAS *Anzac* in 2003. Captain Menhinick holds a Bachelor of Arts and a Master of Maritime Studies.

### **Mr Brett Mitchell**

Mr Brett Mitchell joined the Department of Defence in February 1988 and worked for the Naval Personnel Division before joining the Naval History Section as a Naval Historical Officer in 1992. Having read widely on RAN history, he has helped author numerous navy historical publications, by collating and verifying the accuracy of historical data. Brett has also provided research support to numerous naval veterans, organisations and Commonwealth agencies. Currently he is writing operational histories for each decommissioned *Fremantle* class patrol boat.

### **Mr John Perryman**

Mr John Perryman joined the Royal Australian Navy in January 1980 as a 16 year old Junior Recruit in HMAS *Leeuwin* in Western Australia. On completion of basic training he undertook category training as a Signaller in HMAS *Cerberus*, maintaining a family

tradition as a communications sailor. His postings included service in HMA Ships and establishments *Leeuwin*, *Cerberus*, *Harman*, *Kuttabul*, *Stalwart*, *Hobart*, *Stuart*, *Tobruk*, and *Success* as both a junior and senior sailor. Promoted to Warrant Officer Signals Yeoman in 1998 he served for three years as the Senior Instructor at the RAN Communications and Information Systems (CIS) School HMAS *Cerberus*. This service was punctuated at short notice by his secondment to HQ INTERFET in East Timor, where he served until INTERFET's withdrawal in February 2000. Later he was encouraged to apply for a commission and was appointed as a Lieutenant in the RAN in 2001. John remained at the CIS School until August 2002 at which time he was posted to Canberra to the RAN's C4 directorate. John transferred to the Naval Reserve in 2004 and took up the position as the Senior Naval Historical Officer at the Sea Power Centre - Australia.

### Mr Jozef Straczek

Mr 'Joe' Straczek joined the Royal Australian Navy as a Junior Recruit in January 1971. Following training at HMAS *Leeuwin* he was selected to undertake technical training at HMAS *Nirimba*. He was subsequently selected as an Officer Candidate and, after a course at the Royal Melbourne Institute of Technology, was commissioned as a Supply Midshipman in 1977. After specialist training at HMAS *Cerberus* he was posted to various supply positions. In late 1990 he transferred to the naval reserve to take up the position of Senior Naval Historian. Mr Straczek has had a long-term interest in naval history, writing his first articles in 1974. During his naval service he has been involved in the running of a number of naval museums. Mr Straczek is a graduate of the RAN Staff College and holds a Bachelor of Arts and Master of Defence Studies. He is currently working towards a Doctor of Philosophy on the topic of the History of Signals Intelligence in the RAN.

### Dr David Stevens

Dr David Stevens has been the Director of Strategic and Historical Studies within the Sea Power Centre - Australia since retiring from full time naval service in 1994. He joined the Royal Australian Naval College in 1974 and completed a Bachelor of Arts at the University of New South Wales (UNSW). After graduation, he spent time in a variety of Australian fleet units gaining bridge watch keeping experience. He undertook the Royal Navy's Principal Warfare Officer course in 1984 and specialised in anti-submarine warfare. Thereafter he served as a warfare officer on exchange in HMS *Hermione*, and was one of the first Australians to conduct a Falkland Islands peace patrol. In 1990-91 he was posted to the staff of the Australian Task Group Commander during Operation DAMASK and the 1990-91 Gulf War. He continues to serve as a Commander in the RAN Reserve, and in 2003 was deployed as the naval historian during the conflict with Iraq. Dr Stevens graduated from the Australian National University with a Master of Arts (Strategic Studies) in 1992, and in 2000 received his Doctor of Philosophy in history from UNSW at the Australian Defence Force Academy. He is the author or editor of numerous books on naval history and maritime strategy including, most recently: *The Navy and the Nation* (2005, with John Reeve); and *A Critical Vulnerability* (2005).

## Commander Andrew Tarpley, RAN

Commander Andrew Tarpley's career began in the Royal Navy in the 1970s, where, after training at the Britannia Royal Naval College and HMS *Dolphin*, he joined his first submarine, HMS *Opportune*. He remained with her for nearly four years, progressing from trainee to navigator, then sonar officer, before undertaking nuclear conversion training at the Royal Naval College in Greenwich. After completing the Principal Warfare Officer (Navigation) course, he served as Navigation and Operations Officer of HM Submarines *Warspite* and *Sovereign*. In 1986 he joined HMS *Warspite* again, this time as the Executive Officer, after graduating from the Submarine Command Course. His last posting in the RN was as the Executive Officer of HMS *Lancaster*. Transferring to the RAN in 1996, he became the Head, Submarine Warfare Training, before taking over as Acting Director of the Submarine Training and Systems Centre. He is now serving in Canberra in the Capability Development Group. Commander Tarpley holds a Masters in leadership and management.

## Professor Geoffrey Till

Professor Geoffrey Till is the Dean of Academic Studies at the UK Joint Services Command and Staff College, and is Head of the Defence Studies Department, which is a part of the War Studies Group of King's College London. Before that he was Professor of History at the Royal Naval College Greenwich. He has taught at the Britannia Royal Naval College Dartmouth, in the Department of Systems Science at the City University, in the Department of War Studies King's College London, where he completed his Master of Arts and Doctor of Philosophy, and for the Open University. With the help of a NATO Defence Fellowship he was a visiting scholar at the US Naval Postgraduate School, Monterey; later he held the Foundation Chair in Military affairs at the US Marine Corps University, Quantico, Virginia. He is also currently Visiting Professor at the Armed Forces University, Taiwan. He is the author of a number of major works on maritime history and strategy, including: *Maritime Strategy and the Nuclear Age* (1984); *Sea Power: Theory and Practice* (1994) and *Seapower: A Guide for the 21st Century*, (2004). His works have been translated into eight languages, and he regularly lectures at staff colleges and conferences around the world.

## Dr Nial Wheate

Dr Nial Wheate joined the Royal Australian Navy in 1995 as an Australian Defence Force Academy Midshipman. Following three years of study for a science degree, and a subsequent honours year, Dr Wheate was posted to the School of Chemistry, Australian Defence Force Academy as a Visiting Military Fellow. In 2000 he took two years leave from the Navy and was employed by the School as an Associate Lecturer, where he taught first year chemistry, while he completed his doctorate in platinum based anti-cancer drugs. He came back to full time naval service in 2002, and subsequently served in the Airworthiness and Coordination Policy Agency, Joint Health Support Agency and the Sea Power Centre - Australia. He resigned from the Navy in late 2005 and now works as a Senior Research Associate at the University of Western Sydney.

# Foreword

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The Sea Power Centre - Australia (SPC-A) seeks to further our national knowledge and understanding of Australia's broader geographic and strategic situation as an island continent in an oceanic region, and the role of maritime forces in protecting the national interests that result from our geography.

In supporting these objectives, the publication of *The Navy Contribution to Australian Maritime Operations* earlier this year was an important step in the evolution of the Royal Australian Navy's doctrinal thinking. In exploring how the RAN organises, prepares for and approaches operations, it offers practical examples of how the principles, roles and tasks outlined in *Australian Maritime Doctrine* are implemented in today's Navy.

These foundation works cannot spring from a vacuum, and the SPC-A also promotes a vibrant debate on maritime issues of relevance to the RAN, the Australian Defence Force, and to Australia and the region more generally. An active program of academic publishing is therefore one of the foundations of the SPC-A's work. Major research activities and compilations of shorter works are published in the SPC-A's *Papers in Australian Maritime Affairs* series, and shorter, more focused academic works appear as *Working Papers*.

Significant 2005 publications in these series included a selection of essays received for the 2003 Peter Mitchell Essay competition (which is open to officers and sailors of British Commonwealth Navies), and a major historical survey on the impact of the submarine threat on Australia's maritime defence from 1915 to 1954 entitled *A Critical Vulnerability*.

Immediately prior to publication of our 2005 Annual, the SPC-A released a Working Paper containing the *Database of RAN Operations 1990-2005*. This convenient reference work highlights the variety and ubiquity of recent naval operations in defence of Australia and its interests, and provides a solid factual basis for future doctrinal development and force structuring experiments.

The *Paper in Australian Maritime Affairs* that you are now reading is a compilation of shorter papers developed on maritime issues of interest during an eighteen month period, from early 2004 until the middle of 2005. The majority of the content is again drawn from the monthly *Semaphore* newsletters published by the SPC-A. These newsletters ranged from force structuring requirements and their implications through to current maritime operations; they marked the anniversaries of significant battles in the two World Wars and of peacetime rescue and relief operations. The articles were written in-house by members of the SPC-A staff, condensed from longer academic works, or commissioned by the SPC-A to ensure expert coverage of a topical subject. This SPC-A Annual also contains additional papers by Professor Geoffrey Till and Mr Alastair Cooper - which expand on their presentations to a recent SPC-A conference - as well as a paper by Dr Gregory Gilbert that summarises the 2004 parliamentary report on Australia's Maritime Strategy.

Regardless of the gestation of each article, the amount of time taken by the author is apparent in the quality of the product and the overwhelmingly favourable public response to those that have already appeared in one form or another. Collectively, these papers offer valuable contributions to the current maritime debate. This compilation recognises their long term value as a thought-provoking information resource, and allows individual authors to be publicly identified and recognised for their efforts.

**Captain Richard M. McMillan, RAN**

Director

Sea Power Centre - Australia

December 2005

## Editors' Note

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*Semaphores* 1 and 9 of 2004 as well as 1 of 2005 have been omitted from this publication, as they were used to advertise the Sea Power Centre - Australia's publications and the 2005 King-Hall Naval History Conference. In addition to the 21 remaining *Semaphore* newsletters, papers presented by Professor Geoffrey Till, Mr Alastair Cooper and Dr Gregory Gilbert were thought to be of sufficient value to be included in this volume. Both Till and Cooper examine the subject of future sea power. Gilbert on the other hand summarises the views presented in a recent parliamentary report on Australia's Maritime Strategy.

The information contained in the *Semaphores* published in this volume was current at the time they were initially printed. Some information, particularly relating to operations in progress may no longer be current. The views presented are not necessarily those of the Australian Commonwealth or the Department of Defence.

We gratefully acknowledge the following for the images that have been included within this publication: Professor Geoffrey Till, the United States Navy, the Defence Estates UK, the Australian War Memorial, the Australian Defence Image Gallery, the Royal Australian Navy, the RAN NAVSYS Computer Modelling Group, and the RAN Historical Section. Each image is acknowledged within its accompanying caption.





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# Abbreviations

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AAR	Air-to-Air Refuelling
ADDP	Australian Defence Doctrine Publication
ADF	Australian Defence Force
AEW&C	Airborne Early Warning and Control
AHC	Assault Helicopter Company
AIF	Australian Imperial Force
AMC	Australian Maritime College
AMD	Australian Maritime Doctrine
ANARE	Australian National Antarctic Research Expedition
ANMEF	Australian Naval and Military Expeditionary Force
ANZAC	Australia and New Zealand Army Corps
AO	Auxiliary Fleet Oiler
AOR	Multipurpose Replenishment Ship
ASL	Archipelagic Sea Lane
ASLP	Archipelagic Sea Lane Passage
ASW	Anti-Submarine Warfare
AWD	Air Warfare Destroyer
AWM	Australian War Memorial
BCE	Before the Common Era
C4	Command, Control, Communications and Computers
CBE	Commander of the Order of the British Empire
CDF	Chief of Defence Force
CDT1	Clearance Diving Team One
CDT2	Clearance Diving Team Two
CE	Of the Common Era
CIS	Communications and Information Systems
CMAC	Cambodian Mine Action Center
CS	Confederate States
CSC	Conspicuous Service Cross
CSS	Confederate States Ship
DCP	Defence Cooperation Project
DDG	Guided Missile Destroyer
DFC	Distinguished Flying Cross

DSC	Distinguished Service Cross
DSO	Distinguished Service Order
ed	Editor
EEZ	Exclusive Economic Zone
EMU	Experimental Military Unit
EOD	Explosive Ordnance Disposal
EU	European Union
FAA	Fleet Air Arm
FOCAF	Flag Officer Commanding the Australian Fleet
GPS	Global Positioning System
HDML	Harbour Defence Motor Launch
HMAS	His/Her Majesty's Australian Ship
HMPNGS	His/Her Majesty's Papua New Guinea Ship
HMS	His/Her Majesty's Ship
HQ	Headquarters
IEDD	Improvised Explosive Device Disposal
IMB	International Maritime Bureau
IMO	International Maritime Organisation
INTERFET	International Force in East Timor
IPMT	International Peace Monitoring Team
IWCO	International World Commission on the Oceans
km	Kilometre/s
KAA	Khawr Abd Allah
LCH	Heavy Landing Craft
LNG	Liquefied Natural Gas
LOSC	<i>1982 UN Law of the Sea Convention</i>
LSI	Infantry Landing Ship
LST	Tank Landing Ship
Ltd	Limited
LZ	Landing Zone
MBT	Main Battle Tank
MCM	Mine Countermeasures
MCO	Mine Clearance Operations
MFO	Multinational Force and Observers
MFU	Major Fleet Unit

MIF	Maritime Interception Force
MINURSO	United Nations Mission for the Referendum in Western Sahara ( <i>Mission des Nations Unies pour l'organisation d'un référendum au Sahara Occidental</i> )
MSC	Maritime Safety Committee
MV	Motor Vessel
MW	Mine Warfare
NAG	Northern Arabian Gulf
NATO	North Atlantic Treaty Organisation
NAVSYS	Navy Systems Command
NCW	Network Centric Warfare
NGS	Naval Gunfire Support
nm	Nautical Mile/s
NOCNA	Naval Officer Commanding the North Australia Area
NSS	National Security Strategy
OBE	Officer of the Order of the British Empire
OMFSTS	Operational Manoeuvre from the Sea
P&I	Protection and Indemnity
PMG	Peace Monitoring Group
PPB	Pacific Patrol Boat
Pty	Proprietary
PZ	Pick-up Zone
RAF	Royal Air Force
RAAF	Royal Australian Air Force
RAN	Royal Australian Navy
RANHFV	Royal Australian Navy Helicopter Flight Vietnam
RANR	Royal Australian Navy Reserve
RANVR	Royal Australian Navy Volunteer Reserve
RHIB	Rigid Hull Inflatable Boat
RIMPAC	Rim of the Pacific (a series of exercises)
RMA	Revolution in Military Affairs
RN	Royal Navy
RNR	Royal Navy Reserve
ROE	Rules of Engagement
Rtd	Retired
SAR	Search and Rescue

SCHQ	Shore Command Headquarters
SLOC	Sea Lines of Communication
SMS	<i>Seine Majestat Schiff</i> (His Majesty's Ship) - German WWI designation
SPC-A	Sea Power Centre - Australia
SPPKF	South Pacific Peace Keeping Force
STOVL	Short Take Off and Vertical Landing
TMG	Truce Monitoring Group
TV	Television
UAV	Uninhabited Aerial Vehicle
UK	United Kingdom
UN	United Nations
UNAMIC	United Nations Advance Mission in Cambodia
UNAMIR	United Nations Assistance Mission in Rwanda
UNIIMOG	United Nations Iran-Iraq Military Observer Group
UNITAF	United Task Force in Somalia
UNMCTT	United Nations Mine Clearance Training Team
UNOSOM	United Nations Operation in Somalia
UNSCOM	United Nations Special Commission on Iraq Weapons
UNTAC	United Nations Transitional Authority in Cambodia
UNTAET	United Nations Transitional Administration in East Timor
UNTAG	United Nations Transition Assistance Group (for Namibia)
UNTSO	United Nations Truce Supervision Organisation (for Palestine)
US	United States
USCG	United States Coast Guard
USMC	United States Marine Corps
USN	United States Navy
USS	United States Ship
USSR	Union of Soviet Socialist Republics
USW	Under Sea Warfare
UUV	Uninhabited Underwater Vehicle
WWI	World War I
WWII	World War II
YMS	Motor Minesweeper

# Seapower in the 21st Century

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Professor Geoffrey Till

The concept of seapower needs to be looked at from a number of perspectives. Here we will do so in terms of chronology by looking at historical influences, project them into the future, consider the unique attributes of the sea and their contribution to human development, and then finally place naval power into its broader maritime context, including the less military aspects of maritime power. In light of these influences, the paper will conclude by discussing the vital role that maritime strategy, and navies in particular (as well as coastguards and other maritime agencies), can be expected to play in defending the increasingly complex and interconnected strategic, commercial and environmental aspects of the maritime environment in the 21st century.

At the outset, we should begin with a very brief survey of the last 7000 years of human history and its interrelationship with the sea. The sea covers nearly three-quarters of the world, much more than used to be the case. Its coverage could also increase quite markedly in the future. Human life began in the ocean and ever since has been dominated by it. It is crucial to our way of life, our very survival as a species. But it is still a dark, mysterious and dangerous place, in which people cannot commonly live - and for the most part decidedly do not want to. Much of it is cold, still largely uncharted, and makes most people sick. It is a very common idea that seafarers seem often to live only on the fringe of settled society. The Greek philosopher Diogenes was not sure whether they should be counted amongst the living or the dead. The Bengali word for 'sailor' has strong affinities to that used for 'prisoner' - and so it goes on.

Yet, from earliest times, the sea has been a major focus of human concern. Humankind did not take to the sea for any single cause but for a variety of reasons that are linked to the four attributes of the sea itself, namely, as a resource, and as a means of transportation, information, and of dominion. Each of these four attributes are intimately connected with each other, and each also exhibits the same cooperative and conflictual tendencies characteristic of international relations. Since the sea is so important to human development, neither of these points should come as a surprise. Problems in making the most of these four attributes of the sea largely determine the functions of navies, both directly and indirectly.

The first attribute is the most obvious - the sea as a resource. All around the world, tens of thousands of years ago, humankind began gathering food from the sea, initially in the form of shellfish. From earliest Mesolithic times, in Europe and elsewhere, the sea and the estuaries were seen as 'an unlimited food resource to those with the technology and courage to pursue it on the open sea'. The sophisticated fishhooks and the bones of deep-sea fish like cod, haddock and hake that are frequently found in the rubbish heaps of the coastal communities scattered along Europe's Atlantic fringe from Portugal to Scandinavia show that 7000 years ago early Europeans were able to venture far enough out to sea to catch deepwater fish sometimes up to 1.5 metres long. In their lightly framed hide-covered boats, such early sailors evidently covered considerable distances in pursuit of their catch. It was dangerous, no doubt, but it was an easier way to get protein than attempting to hunt it, or later grow it, on land.



Moreover, the fatty acids to be found in all kinds of seafood were, and are beneficial to the brain and to human health generally, helping produce better, brighter and healthier people. The relatively easier access to these rich and varied resources encouraged an increase in the population, the adoption of agriculture and more sedentary habits. People operating on the interface between the sea and the land produced a raw human energy, which encouraged innovation and development, playing a major part in kick-starting European civilisation. According to Barry Cunliffe, one of Britain's leading archaeologists, these people also soon manifested a maritime, and in this case, an Atlantic mind-set. From the very beginning then, civilisation was heavily influenced by people who 'faced the ocean'.

This was a global phenomenon. As a source of resources, the sea was crucial to the development of world civilisation - and it remains crucial since humans still harvests some 20 per cent of its daily protein from the oceans. More recently, other marine resources (especially oil and gas) have become economically important too.

Indeed, demand for all these things shows definite signs of outstripping supply. Inevitably, this tends to increase the competitive element in the human exploitation of this attribute of the sea. Sadly, acute competition for scarce or valuable sea resources has always played an important and often destructive part in human history.

Secondly, the sea was, and is, a medium of transportation and exchange. In the process of following shoals of migratory fish far out from shore, European fishermen came into contact with fishermen from other areas and developed a sense of community. A loose but definite Atlantic community was established in which the sea was a medium for the exchange of goods, news and ideas. This sense of a distinct maritime community developed very early, by the Neolithic era, and explains the remarkable cultural similarities that can be seen along the Atlantic-facing coast from Scandinavia to Portugal. Evidence for this community includes strong similarities in their distinctive burial practices and their pottery (for example, the so-called 'bell beakers' of the third - second millennium BCE). Although these characteristics changed and grew more sophisticated over time, as contacts were developed with the peoples of the interior, it was the sea that linked them together.

There were equivalents to this all over the world - in the Asia-Pacific, the Indian Ocean, the Arabian Sea and the Mediterranean. These local trading systems are increasingly considered by archaeologists to be much older and sophisticated than originally thought. The resultant regional, sea-based communities overlapped and indeed interacted at the key nodal points that separated them geographically. Thus in the later Bronze Age, the Phoenicians based in the central and east Mediterranean, bringing luxuries from the south, went through the Straits of Gibraltar and established a big trading centre at Gadir/Huelva, in what is now southern Spain, to link up with the Atlantic community in their search for copper and tin. In the late 4th century BCE, the Greeks navigated these waters also and even made a remarkable circumnavigation of the British Isles, with an excursion to Scandinavia on the way, encountering yet other sub-regional local transportation systems along the way.

Fifteen hundred years later, the Vikings, inspired by the same spirit of adventure, enterprise, curiosity and greed, made their way across the North Atlantic via Iceland, Greenland and Newfoundland to make first contact with the Americans. After another 200 years the Portuguese, Spanish and other west Europeans followed these early explorers across the Atlantic, made their way by stages around Africa and into the Indian Ocean, eventually reaching the Asia-Pacific.

When they got there, they found a rich Islamic maritime community that had developed in the same kind of way, all around the shores of the Indian Ocean and into the western Pacific. This was another loose and shifting confederation of city-states and empires linked by their Islamic culture and by sea-based trade. Arab and South Asian traders sailed the waters of South East Asia and developed settled communities in China, while Chinese traders did the same in the opposite direction. By the 11th century, such overseas trade combined with overland commerce from the interior made the China of the Song and early Ming dynasties the world's largest and wealthiest commercial empire of the era; a magnet, therefore, for everyone else.

So, in effect, the sea turned the world into a complex maritime system based on international trade, attributable to two main, interconnected reasons. First, at least until the latter stages of the industrial revolution, it was faster, cheaper and safer to travel and to send goods by sea (or by river) than by land. Second, and connectedly, there were enormous profits to be made, despite the ship and crew losses of early trading ventures. In the 16th century it was said that the Portuguese, trading in spices through the Indian Ocean, could lose perhaps a quarter of their ships at sea, and up to half their crew, but still turn a profit. Even so, there was a darker side to all of this as well, because some of the things that travelled around the world in consequence of the sea's advantages as a means of transportation could hardly have been more harmful. Distinctive contagious and deadly diseases developed in various parts of the world, but the world transportation system spread them around before newly exposed populations could develop their immunities (the Black Death for example probably came to Europe through shipboard rats).

The sea was important for a third reason as well, namely as a medium for information and the spread of ideas. Because trade involves talking, it was, and is, about the conscious or unconscious exchange of ideas and information as well as goods. Early explorers discovered new hitherto unknown crops and brought them home. In this way, potatoes, tobacco, bananas, coffee and tea, and so forth arrived in Europe. Maritime traders from South East Asia and the Indian Ocean area brought early maturing rice, sugar cane, jasmine, cotton, pumpkin, cabbage and so on to early China.

Some people, however, went further and saw the sea as a means by which they could communicate their ideas to the unenlightened in a much more deliberate manner. There were strong maritime associations with the spread of Christianity, for example. Missionaries of the 9th and 10th centuries set out from Ireland across the Irish Sea to the other islands of the north Atlantic, perhaps finding their way in due course to America with the express and conscious purpose of bringing Christianity to the heathens and converting them if possible. Whatever their other motives may have been, the Spanish and Portuguese colonists of later centuries also came to America, the Indian Ocean and

the Far East in pursuit of souls. Although Christian sea-based proselytisation is the clearest and arguably most successful example of this sort of thing, it is not unique. Islamic rulers spread their faith in much the same way around the Indian Ocean, the Mediterranean and into the Far East.

Of course, people went not just to spread information but to gain it as well. The urge to explore, to find out what was over the far horizon, and sometimes to reach a better place, was part and parcel of the human relationship with the sea. The voyages of Captain James Cook and countless others are typical of these ideals, encompassing scientific, strategic and commercial motivations; however, although the pursuit of knowledge was regarded as a universal good, giving rise to cooperation among nations (for example Cook was given immunity from attack by the French, even during war), the sea's attribute as a means of gaining and transmitting information could also lead to rivalry and conflict. The most obvious instance of this was when Cook and others found 'new' bits of desirable real estate, they did not simply record its existence, but they claimed it for their countries - whatever the locals might think. The values of the peoples they discovered were often treated in the same way. Although some mariners and philosophers were sensitive to local perceptions and interests, like Denis Diderot, who pleaded for places in the Pacific such as Tahiti to be left unexploited and uncorrupted, there were those who strongly disapproved of local social values and sought to reform the benighted for their own good.

Inevitably, this brings us to the fourth and last attribute of the sea, and the pre-eminent reason for its importance throughout human history; the association with dominion and power. The fact that so many coastal communities are fortified both against, and from, the sea shows that the sea is a source of vulnerability to marauders from afar. Ireland itself has over 250 known cliff-top castles which acted both as a defence against invaders from the sea and a springboard for aggressive maritime endeavour, a pattern to be found all over the world.

In Europe and the Near East, the Phoenicians, the Greeks and the Romans demonstrated all too clearly that the sea is a strategic high road, a medium by which one group of people can come to dominate the affairs of another. Rome conquered Britain, by sea, because it was a refuge to political refugees and asylum seekers always causing trouble on the Roman mainland. The Vikings likewise came by sea, attacked and conquered most of Britain, partly to escape the pressure of other land-based marauders to their east and partly in search of the riches associated with dominion. They went on to the Mediterranean and across the Atlantic via Iceland to Greenland, Nova Scotia and the Americas. Their Frenchified successors, the Normans, followed suit a few centuries later still. Later Europeans, initially the Portuguese and the Spanish, followed soon after by the Dutch, the French, the British and most others to some degree, came by sea to North and South America, to the Indian Ocean and the Pacific, in tiny numbers overthrowing (often with extreme savagery) huge empires such as the Aztecs and the Incas. Of course the Islamic world around the Indian Ocean was another example of the way in which traders, missionaries and soldiers follow, and empires result.

The Portuguese are an especially good example of what the Greeks call a 'thalassocracy': an empire founded on mastery of the sea. The Portuguese first fought their way into a

new area and then had to protect their investments there. Their soldiers were never sufficiently numerous to engage in major continental campaigns, so their 160 year empire in the Indian Ocean rested on a few garrisons in strategic places and on superior naval forces. When others, especially the Dutch and the English, began to accumulate greater levels of naval force, the Portuguese Empire went into decline.

The British Empire, which succeeded it in this area, was likewise based on seapower. Its strategists conceived of the Empire as a huge landmass divided by eight chunks of water (the Dardanelles and Bosphorous, the Caspian Sea, the Tigris-Euphrates rivers, the Nile, the Red Sea, the Aral Sea and River Oxus, the Gulf and the Indus/Sutlej). Controlling these water areas assured control of the land. Losing them would result in imperial decline. The security of the Empire then rested on a series of defensive and offensive strategies centred on controlling the sea.

For better or worse, the Europeans created new empires and changed the world. And they did it by sea. To make it all possible, they developed navies and a strategy, a set of concepts of how to use them, from which all of the classic functions of seapower derived: assuring sea control, projecting power ashore in peace and war, attacking and defending trade, directly and indirectly, and maintaining good order at sea. Motivations for such maritime endeavour were mixed but certainly included a strong economic dimension, in that there was a widespread view that in order to sustain growth, modern states needed access to other areas, preferably controlled in some way, for further resources and markets. Strength at sea was such a clear path to dominion and power that countries sought to control it for what that control could apparently give them. All of these ideas were drawn together by Alfred Thayer Mahan, a late 19th century American admiral, who famously concluded:

Control of the sea by maritime commerce and naval supremacy means predominant influence in the world...and is the chief among the merely material elements in the power and prosperity of nations.

Accordingly, to the extent that they could profit from the sea as a medium of commercial transportation and trade, the economies of the sea powers would boom; to the extent that they could exploit the strategic advantages of deploying decisive military power at sea and then projecting it ashore against the land-bound, their strategies would succeed. Because, therefore, the sea powers would generally prosper in peace and prevail in war, they would inevitably become great. Seapower, properly understood, thus encompasses the geo-economic dimensions of human activity and can best be represented as a tight and inseparable system in which naval power protects the maritime assets that are the ultimate source of its effectiveness.

Of course, navies that have tended to prevail were generally those with great warships and effective weaponry, with better tactics and more advanced technology, and above all perhaps with first-rate commanders able to wield their fleets with ruthless efficiency. The Portuguese broke into the Indian Ocean because they had all these advantages and so prevailed against the much larger navies they encountered there. Fighting advantages were not, however, the exclusive property or the invention of the Portuguese or of

anyone else. After all, many of the navigational advances made towards the end of the European Middle Ages derived from contact with the Islamic world, even down to the use of the word 'Admiral', which in Arabic once meant the 'Prince at Sea'. Across the other side of the world, the Koreans deployed the first armoured warship, and, of course, China of the Song dynasty (from 1000-1500 CE) boasted 'the world's most powerful and technologically sophisticated navy'.

What was distinctive about the European approach to seapower at this time was that, like the Chinese and others before them, they had discovered the huge advantage to be derived from the close association between the military and the mercantile aspects of seapower. In the hands of the Venetians, the Dutch, the British and to a lesser extent the Portuguese, Spanish and French, a virtuous circle was at work.

From maritime trade, the Europeans were able to derive maritime resources that could be diverted to naval purposes when the need arose. Partly it was through having ports, merchant hulls and seamen that could be used to support the navy directly. Partly it was through having access to the indirect benefits deriving from the kind of sophisticated financial structures that maritime trade encouraged.

All this underpinned naval strength and meant it was much easier for the maritime powers (that is, naval powers with a strong mercantile element) to build a navy than it was for the merely naval powers. At the end of the 17th century, the French showed that with a real effort they could out-build the British and produce a bigger and indeed very fine fleet - but they could not maintain it. The British simply outlasted them. Maritime powers could devote huge resources to building and maintaining a fleet but at less real cost, and they often had enough left over to support the war effort generally, and, in Britain's case, to subsidise allies as well. Mercantile finance from the profits of trade also funded access to a mass of industrial and technological developments, which could be translated into specific military advantage. The British industrial lead in coke-smelting techniques and steam machinery for example, meant it was much easier for the Royal Navy than the French to copper-bottom its ships - making them more nimble and faster than old ships would otherwise have been. All this made for an approach to war that was uniquely cost-effective and does much to explain why the maritime powers predominated over the merely naval, and in most cases in the last few centuries over the continental ones too.

But of course this virtuous circle was not a closed system - it could be influenced decisively from outside. A good example of this was Oman. There is no wood in Oman to speak of, so Omani sailors needed to get teak for their dhows from the Malabar Coast of India. They were able to do this because trade produced the money that allowed them to go out and obtain the teak, and in turn produce warships to protect and maintain their maritime supremacy; however Oman was subject to overland attack by neighbouring enemies, and when that happened the circle could be broken up. So this is a useful corrective to Mahan, who tended to stress only the benefits of sea power, to bear in mind that being a maritime power can also be a source of vulnerability as well, especially if you don't have the naval strength to defend your weaknesses.

Even more so today, sophisticated maritime powers depend on a complex network of shipping that imports raw materials, food and uncompleted goods, and exports finished and manufactured products. This maritime element of the world economy should be seen as a system characterised by countless interconnections such that a disturbance in one component will affect the others, thereby requiring navies to act in defence of the system as a whole. Many people wonder, though, whether the above described historical pattern is still applicable to the globalised trading system in the 21st century. If we imagine a world map depicting the radio transmissions of the thousands of ships currently plying the oceans, we would see a globalised world made up of continents. Individual countries are no longer identifiable, although Australia, Japan, the United Kingdom and other island states escape this fate! Such a map would highlight some of the important sea routes; but at the same time, the focus on electronic communication, rather than the sea-borne variety, challenges traditional ideas about the centrality of sea power to the world economy, because it is the electronic web which is now the principal means by which capital is transferred and accumulated. Nonetheless, trade still underpins that capital.

In all of these ways, some people might argue, we are moving into a different sort of era. Indeed it could be said the merchant shipping industry is a victim of its own success, because the more shipping costs reduce (and they have gone down ten-fold since the 1980s) the less important shipping seems to be. The fact that an average container goes around the world 8.5 times a year shows just how global the maritime economy has become. The present system bears virtually no resemblance whatsoever to the national merchant fleets of Mahan's day. So, for example, were a ship to be attacked by pirates tomorrow, the beneficial ownership of the hull is likely to be vested in shifting multinational shipping alliances, with finance extended by one country, the cargo owned by another set of companies, insurance provided by a P&I club in London and crewed by people from a range of other countries. In such a globalised world, it may seem curiously anachronistic to expect nation-based entities like navies to be tasked with the protection of other people's property, especially in conditions where it is not particularly easy to discover who those other people are.

Accordingly, this raises the issue of whether sea power in the future, and the 21st century in particular, is going to be as important as it was in the past. To this there is surely little doubt, because despite the caveats already mentioned, it is still in fact merchant shipping that makes the whole system work. As an integral part of a global system, it is increasingly impossible, indeed almost pointless, to seek to disentangle merchant shipping from the rest of the total process. Moreover, just as the international shipping system is only as strong as its weakest link, its electronic under-pinning's are likewise dependent on the integrity of the computer network and its users remaining intact. The Internet indeed is a useful analogy for the sea-based trading system, and the use of phrases like 'surfing the net' and 'navigating the system', are a reminder of the similarities between both 'systems'.

In fact, it really is not a new thought at all that sea power needs to be thought of and treated as a whole, and that like any system, it is vulnerable to outside influence. To borrow Mahan's own words:

This, with the vast increase in rapidity of communication, has multiplied and strengthened the bonds knitting together the interests of nations to one another, till the whole now forms an articulated system not only of prodigious size and activity, but of excessive sensitiveness, unequalled in former ages.

Even so, there can be little doubt that the 21st century version of the system remains extremely vulnerable to a whole range of things. It is vulnerable to old-fashioned sporadic state-based attacks such as those that occurred during the Iran-Iraq tanker war, as well as to misuse and disorder by people who have an interest in instability such as African warlords, because that is how they manage to prosper in the first place. And of course, it is vulnerable to those who object to the system as a whole, such as Al Qaeda and its regional affiliates.

So what is the role of navies in defending this system in the 21st century? This essentially involves two basic tasks: the first is dealing with disorder, and the second is maritime power projection. A consideration of the myriad of issues falling within the first task highlights the fact that maritime security today is becoming a wider, broader concept than it was in the past. For instance, in the year 2001 the International Maritime Bureau (IMB) issued a report lamenting the increase in piracy in Indonesian waters, and attributing this to a general breakdown in law and order in the area, and to the activities of separatist guerillas in Aceh and elsewhere. This was creating a vicious downwards spiral; it disrupted passing shipping and local fishing activities, damaged local and national economies, thereby reducing the revenues and authority of local governments and weakening their capacity to maintain good order at sea and - more to the point from the terrorist's angle - ashore.

Furthermore, the success of other crimes at sea, such as drug, arms, and people smuggling, elevates the visibility of people who challenge civilised states and everything they stand for; it undermines national prosperity, security and the ability to connect with other countries. Countries that fail for such reasons tend, moreover, to become the security concern of others. This demonstrates both the intimate, two-way linkages between good order at sea and good order on land and the simple fact that, without it, the human ability to fully exploit the potential value of the sea will be severely constrained. The Director of the IMB's concluded, unambiguously: 'Security along the coast has to be tightened.' To a greater or lesser extent, this recommendation should be extended to all the world's seas.

Added to this, increasing concern over the degradation of the marine environment led to the establishment by the United Nations in 1995 of the Independent World Commission on the Oceans (IWCO), to investigate threats to marine resources and possible ways of protecting them. The report, released in 1998, made sombre reading. It argued that there was a 'crisis of the oceans' caused by pollution, jurisdictional disputes, over-exploitation and widespread ignorance. What takes hundreds, even thousands of years to develop can be unknowingly destroyed in days, and all too often is. Already two-thirds of the world's population lives within 100 km of the coast, and the pressure this puts on the fragile environment of the ocean is tremendous and bound to get worse, when the total population doubles over the next few generations.

For these and many other reasons, it is imperative that a fifth category now be added to the four traditional attributes of the sea already discussed, namely the sea as an environment. This is represented diagrammatically in Figure 1. If thought about at all, the marine environment’s perceived importance grew dramatically through the 20th century, roughly in line with increasing levels of threat. This too is likely to have significant implications for navies. But in many ways, the collapse of the marine environment would be the ultimate disorder, fatally weakening prospects for the stability and security of settled society ashore. Ocean currents help regulate our climate. The sea slows and masks the effects of global warming because of its immense thermal inertia and its ability to absorb carbon from the atmosphere. Its water level, coral reefs and fish stocks act as a barometer of the health of the planet as a whole. The deep ocean, in particular, may prove crucial to understanding our past and assuring our future. And yet much is still mysterious about the way in which the ocean system actually works. Because they matter to all of us so much, it is little wonder then that the oceans have come to be referred to as the ‘common heritage of humankind’.

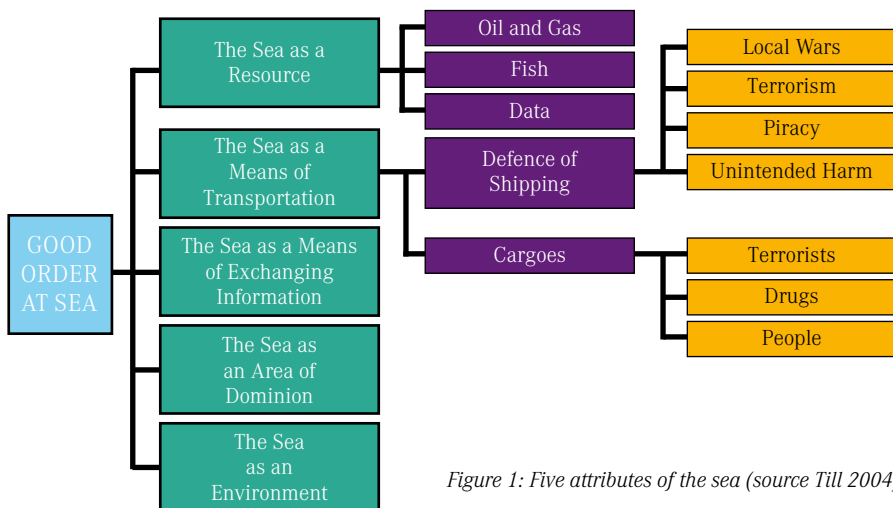


Figure 1: Five attributes of the sea (source Till 2004)

Navies, coastguards and other maritime agencies have an increasingly vital contribution to make in support of good order at sea. During much of the 20th century however, such activities were almost completely ignored by the main maritime thinkers. They were regarded as something that navies could do when nothing more important was occupying their attention; usually other maritime agencies bore the main burden. Nonetheless, the need for navies to address such issues more seriously grew steadily towards the end of the last century and seem likely to develop even faster this century. Again though, it is instructive to look to the past for guidance. This is a quotation from a British admiral at the end of the 19th century, which indicates that this breadth of interest would not be new for navies:



I don't think we ever thought very much about War with a big W. We looked on the Navy more as a world police force than a warlike institution. We considered that our job was to safeguard law and order throughout the world - safeguard civilisation, put out fires on shore, and act as a guide, philosopher and friend to the merchant ships of all nations.

In fact the good admiral was exaggerating. The Royal Navy in the 19th century did think about war quite a lot, especially against the French. But nonetheless they had a lot of energy for other things as well. If you go into the Chapel of St Mary's Church in Portsmouth Dockyard, for example, what you're immediately struck by is a whole wall of memorials to sailors, none of whom have fallen in conventional battles. They fell in 19th century wars, conflicts or disorders of one sort or another, in either long-forgotten colonial episodes, or anti-piracy and anti-slave trading patrols, and more often than not, from disease rather than violent death. This testifies to the fact that navies were routinely tasked to carry out this important policing function during the 19th century. But it does raise the issue of whether the 20th century, which has tended to be the model for contemporary naval operations, was in fact an aberration, because of its almost exclusive focus on dealing with what might be termed 'peer competitors' - the Germans, Japanese and Russians in the two World Wars, and the US and USSR in the Cold War. In the 20th century the preparations and priorities of one navy were largely based on its assessment of the threats posed by others. This is now much less true than it was, certainly outside the Asia-Pacific region. But looking back at the 19th century, it is clear that navies were then extensively used for many other tasks as well; based on current trends, it seems very likely that we are shifting back to this possibly more traditional pattern.

Of course, the maintenance of good order at sea and the question of how navies and other maritime agencies can most effectively work together to achieve this, requires an improved level of awareness, effective policy and integrated governance. Only a 'holistic' all-round maritime approach does justice to the complexity and importance of the linkages between the different values of the sea and its manifold connections with events ashore. The naval and civilian agencies that seek to maintain good order at sea need to develop an increasingly integrated approach to oceans management; they must think, talk, plan and operate together. Australia can justifiably boast that it has established itself 'as a world leader in implementing integrated oceans planning and management' through the establishment in 1998 of a comprehensive oceans policy of the sort that has long been advocated by analysts. Australia has one of the world's largest Exclusive Economic Zone (EEZ) and intends to:

Provide a strategic framework for the planning, management and ecologically sustainable development of Australia's fisheries, shipping, tourism, petroleum, gas and seabed resources while ensuring the conservation of the marine environment.

There is much to be said for the view that this should become something of a model for other countries to adapt to their own circumstances. Indeed, as recognised in the IWCO report, the fact is that many ocean problems cannot be resolved at a national level. Fish do not recognise national jurisdiction, and the effective management of 'straddling stocks' requires collective agreement. Pollution control, anti-drugs operations, the control of people smuggling, and so on, also require international agreement and collaboration. In all these cases, an insistence on traditional sovereignty would hamper the process.

On the face of it, the extensive development of the law of the sea should provide a much-improved legal framework for the defence of good order at sea. This is largely the result of the *1982 United Nations Convention on the Law of the Sea* (LOSC), which after many years of tortuous negotiation finally came into effect in 1994. Overall, LOSC provides a flexible and comprehensive framework for the maintenance of good order at sea that is likely to be further developed in the years ahead. Implementation and enforcement still remains a problem, however, as does the resolution of numerous ongoing delimitation disputes between various nations. The waters of the Asia-Pacific and especially the chain of islands from the south of Singapore to the north of Japan produce many potentially dangerous jurisdictional disputes. The issue of how you equitably share the seas and by extension their resources, and make it all work in practice has become a crucial *leitmotiv* of international politics, especially in the Asia-Pacific region. In some ways LOSC, by raising so many issues, has triggered as many disputes as it has resolved. Often though, the real problem is the lack of an effective means of enforcement.

What it does seem to be leading to is a marked reduction in the extent of the high seas and an increase in the other LOSC maritime zones, particularly the EEZ, which naval and coastguard forces will increasingly need to monitor and enforce. This raises all sorts of interesting questions for the future, including the possibility that at some point this century, we might be thinking of the sea more in the way that we currently approach the air domain. In other words, it is not inconceivable that before too long all merchant ships will have transponders fitted to them, reporting back their course, destination, cargo and speed, enabling them to be passed from one sea traffic controller to another, in the same way that airliners are today. Just how Mahanian thinking would need to be adapted to incorporate that type of concept is a topic worthy of further exploration.

In light of these developments, navies and coastguards should clearly be parties to the formulation and development of such an integrated policy of ocean management and enforcement, partly because their own sectional interests might be affected and partly because they are likely to be involved in its consequent implementation. Good order at sea requires a range of activities extending from law enforcement at one end of the spectrum to the defence of security at the other, necessitating shared responsibilities between navies, coastguards and civilian agencies, as well as policy coordination at the national, state and local authority levels. With the widening of the concept of security, accelerated perhaps by the events of 11 September 2001, the extent of potential spectrum overlap is increasing in ways that raise issues of who should be responsible for what. It is little wonder then, that this has produced a variety of models of how individual countries have decided to coordinate the various agencies involved in ocean management. Figure 2 shows the Navy/Coastguard spectrum and the various ways in which these responsibilities may be divided up.

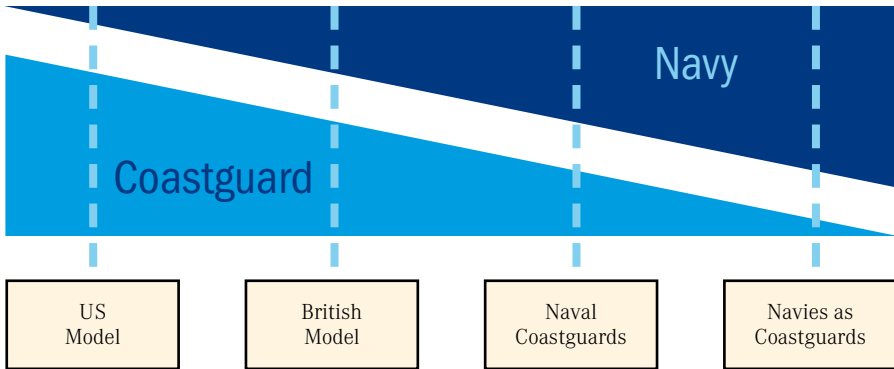


Figure 2: Navy/Coastguard spectrum (source Till 2004)

The US model is to have a very large coastguard, bigger than many other navies, which focuses on policing tasks at the low end of the spectrum, where the frequency of incidents is high but not very intense. Maritime safety, search and rescue, environmental protection, drug and arms interdiction and so on, are all done by the US Coast Guard (USCG), with a small naval role. At the other end of the spectrum, there is major theatre war, where obviously the US Navy (USN) is responsible for the bulk of the activity, with the Coast Guard (which is a separate military service in its own right) having only a very small role. Although separate from their navies, such coastguards maintain close relations with them in the expectation that this will facilitate economies of scale and efficient coordination. This is the thinking behind the idea in the US of a 'National Fleet', formed from both the USCG and the USN.

There are, of course, other models and many of the world's navies are really coastguards in all but name. Of the 32 navies in Latin America, only those of Argentina, Brazil and Chile, and maybe Peru, really look like conventional navies. The others are primarily designed for good order tasks within the EEZ. Norway and Chile provide a good example of naval coastguards, where the navy runs the coastguard but differentiates it from the rest of the naval service. In some variants of this, personnel remain attached to the coastguard for most of their careers, in others people are rotated through at various stages. Either way relations are close. In Britain, most patrol vessels are operated by the Navy, search and rescue (SAR) helicopters largely by the RAF, and other assets by various government departments, civilian contractors and even the splendid Royal National Lifeboat Institution (a charitable institution run by part-time volunteers). This federated rather than integrated system looks untidy and should not work, but oddly seems to most of the time. Australia has tidied this system up and formalised it, with the establishment of its 'Coastwatch' system. This is a coordinating organisation that has access to a variety of service-providers on the one hand (including the RAN) and customers on the other (fisheries, customs etc), and it effectively pairs up the appropriate agencies when the occasion demands.

The second important task navies will have to perform in defending the system is maritime power projection and the associated role of naval diplomacy. The nature of navies makes them very appropriate and relatively easy to use as instruments of foreign policy. There is hardly any dispute about this really, because if you view the ocean as the world’s greatest manoeuvre space, it is readily apparent that naval forces are able to freely navigate virtually anywhere they choose. Indeed, the US Marine Corps (USMC) was the first and loudest to say that most of the world’s problems today are within reach of the sea.

It is important clearly to understand what naval diplomacy involves. Whilst Figure 3 breaks this function down into manageable components, it should be noted that naval presence greatly facilitates, but is not necessarily a condition for, picture-building, acts of coercion and coalition building activities. Moreover, the same maritime force may find itself engaged in more than one type of activity simultaneously. A naval force intercepting coastal vessels running illicit arms may be deterring, compelling and coalition building all at the same time. On the other hand, it is impossible to be present everywhere in order to defend the system against events occurring at sea or ashore. Naval presence therefore takes many different forms. It can be routine and continuous, particularly in important areas where a country wishes to demonstrate a permanent interest. It can, on the other hand, be periodic and in accordance with some regular deployment rhythm, once a year, once a month or ‘whenever we can’ (the latter usually reflects a less acute sense of interest in an area or a shortage of the naval resources needed to protect that interest). Finally, there is ‘contingency positioning’ - when a government orders a naval force to an area in a way that diverts ships from existing schedules but without quite knowing what it wants that force actually to do. The big advantage of a presence, of course, is that naval forces are not only on the spot before a crisis happens, but may also be in a position to prevent it from happening in the first place. At the same time it is of great assistance in building pictures, gathering intelligence and informing officials back at home of the emerging situation. This is most important, because it enables them to be proactive rather than reactive, always a huge advantage in political and military terms.

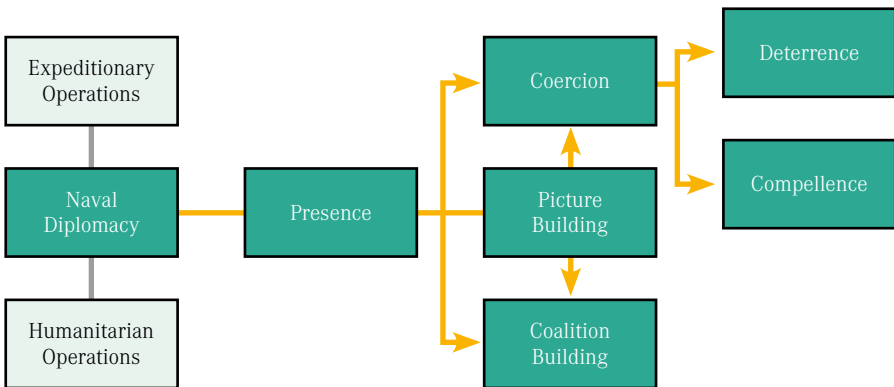


Figure 3: Naval diplomacy (source Till 2004)

If something goes wrong, or looks as though it is about to, a country can then shift into coercive naval diplomacy or gunboat diplomacy (a term first used by James Cable in his book of the same name). All naval activity is, or should be, in support of political policy, but coercion operations are particularly politicised. Coercion comprises two closely related dimensions: deterrence and compellence. The latter are maritime operations intended to compel an adversary to do something he does not want to do, through the coercive use of sea-based forces. Recent naval operations against Iraq, such as DESERT FOX in 1998, which were intended to compel the Baghdad regime to accept UN arms control inspectors through sea and land-based air strikes, fall into this category; however, as the ultimate ineffectiveness of international pressure on Iraq in the 1990s all too clearly demonstrated, compellence is an imprecise art and it is inherently difficult to assess the effectiveness of such operations.

All the same, these activities, when considered from a different perspective, show that the idea of using navies quite deliberately and explicitly as a way of building coalitions and influencing the behaviour of allies is highly significant. There is a strong argument that the sanctions campaign in 1990, effectively an exercise in building an international coalition to legitimise an attack on Iraq, was one of the biggest contributions made by navies to the successful outcome of the 1990-91 Gulf War.

The value of naval diplomacy may be seen when we consider the participating allied navy ships in the Persian Gulf during January 1991. For example, on 17 January some 26 warships from Australia, Canada, Denmark, France, Italy, and the Netherlands, the United Kingdom, and the United States were stationed within the Strait of Hormuz. This was a vivid demonstration of the intrinsic flexibility of naval force, since although numerous countries participated in this coalition building exercise, this was only made possible because governments were able to finely tune their naval contributions, and thus participate on acceptable terms. Accordingly, warships had to be deployed in a highly complicated manner that paid regard to their individual operational capabilities and their rules of engagement (ROE). While this added to the complexity of the undertaking and the difficulties faced by the force commander, the political delicacy of the operation increased the need to bolster its perceived legitimacy.

In today's world, naval diplomacy has a crucial role to play, because, as a means of 'engagement', it can materially help shape the international environment. This was very much in evidence in the more recent 2003 Iraq War, with the big emphasis on getting humanitarian supplies ashore in Umm Qasr as early as possible. This focus on the softer end of naval diplomacy, of winning friends and changing minds, through the delivery of humanitarian aid, was a policy driver in the 2003 maritime campaign since it was considered to be an extremely important way of dealing with concerns held by the international community.

Turning now to maritime power projection ashore, the stress on expeditionary operations seems to have become conventional wisdom since 11 September 2001, with some commentators even referring to this early phase of the 21st century as the expeditionary era. Of course, this is a subject where we have recourse to that other great maritime strategist, Sir Julian Corbett. He argued that no matter the importance of the sea, human

destiny is actually decided on the land. Therefore, in his view, it was when navies helped to determine the outcome of events ashore that they were most strategically effective. His focus was very much on power *from* the sea, whereas Mahan thought much more about power at sea. Corbett was supported in this approach by Major-General Charles Callwell, a prolific British author who wrote a series of books between 1896-1924, almost totally neglected for a century, which have suddenly come back into fashion. Callwell's emphasis was on expeditionary operations, in wars that were limited, distant and highly political; his stress on the importance of effective cooperation between sea and land forces is particularly topical now.

The USMC were among the first to develop a concept known as operational manoeuvre from the sea (OMFTS). OMFTS drew heavily on traditional amphibious thinking as well as on newer concepts such as manoeuvre, deep battle and experience derived from the famous landings of UN forces at Inchon, near Seoul, in September 1950 during the Korean War. OMFTS doctrine was developed in parallel with a tremendous growth of interest in littoral and expeditionary operations during the 1990s; however, in devising OMFTS, the USMC also took as a source of inspiration an early attempted application of such principles in the American Civil War - the Peninsula campaign of 1862 - and sought to apply its lessons to the 1990s.

In the early stages of that war, General George B. McClellan, the Commander in Chief of the forces for the North, looked carefully at the strategic situation and concluded that the fairly small area between the two capitals Richmond in the South and Washington in the North, was inevitably the centre of gravity, the focus of the most significant military operations. A slugging, attritional match followed, hugely costly to both sides. It seemed that there was going to be no immediate way for the North to achieve an early victory, so McClellan came up with a brilliant alternative. Instead of a costly frontal assault on Southern forces grouped before Richmond, why not make use of the North's maritime supremacy to sweep round the Southern Army by sea and launch a direct assault on the capital behind them? In this way, supported on both flanks by the navy on the York and James Rivers, Northern forces would be able to advance up the peninsula and take Richmond from the rear, before the South had time to bring their forces back to protect the capital.

McClellan believed that when the South lost its capital, the war would be over. As we know, his plan did not succeed. The USMC, nonetheless, became very interested in the campaign and devoted a great deal of study to the campaign for both its possibilities and its dangers, and as an object lesson in the exploitation of maritime power in support of expeditionary operations. This analysis suggested that there had been insufficient sea control to accomplish the mission. The North did not manage to gain enough sea control during the campaign, and the principal reason for this was the indecisiveness of the famous battle at Hampton Roads on 9 March 1862 between the terrifying Southern ironclad the CSS *Merrimack/Virginia*, and the Northern warship, the USS *Monitor*. Each ship was so advanced that it could have decimated the more conventional wooden ships belonging to the other side. Tactically, the result was a stand-off, but afterwards the ships warily watched each other and made menacing movements that effectively neutralised them

both, and seriously inhibited the North's capacity to use its naval forces in direct support of McClellan's forces ashore. It ended indecisively because *Merrimack's* role as a one-ship 'fleet-in-being' required a large squadron to watch her rather than participate fully in the expeditionary operation McClellan had planned. And when they did, they proved not to be sufficiently tailored to the task of supporting land forces ashore, unsurprisingly perhaps because this was not what ships like the *Monitor* had been designed for. As far as the US marines were concerned, this showed the need for naval forces explicitly designed for and wholly dedicated to the conduct of expeditionary operations. Only then could total 'battlespace dominance' be assured.

Sea control was not a problem in the same way in either Afghanistan or the recent Iraq operation, because there was no peer competitor on the high seas in any real sense. But nonetheless, there were still constraints on how much sea control could be taken for granted, not least of which because of the sheer size and extent of these operations. Something like a third of the USN, for example, was wholly devoted to the recent Iraq conflict. The British Chief of Defence Staff, recently retired Admiral Boyce, let it be known that he thought it would be a good idea if Britain could steer clear of another war in 2004, because British forces needed a period of consolidation and re-balancing. These were demanding operations in terms of resources and the suicide bombing attack on the USS *Cole* in Aden showed that nothing, not even western assumptions of sea control, could be taken for granted, especially in narrow, complex coastal waters

In fact, the 2003 Iraq War illustrates both the contribution and the limitations of maritime power projection, and particularly the crucial role navies play in providing force protection in littoral operations. It seems pretty clear that the British at least thought the opening maritime moves of this war were to be a grand act of sea-based coercive diplomacy, expanding on the compellence already in place through the sanctions operation. This campaign of coercion only turned into war when it failed to elicit the desired response from Baghdad. Thereafter, sea power moved sufficient military power into the area and provided a last-minute means of re-balancing the force strategically when it became clear that the Northern option of entering Iraq through Turkey was not available after all. From that point on, sea power kept the forces ashore supplied, no mean task given the complexity and the demands of modern military operations. When those operations eventually began, naval forces projected air and missile power far inland, engaged in classic shore bombardments and supported an amphibious operation against the Al-Faw peninsula. Because of the political imperative to get humanitarian supplies into Umm Qasr as soon as possible, minesweeping of that port's approaches became not merely an enabler of maritime operations and an essential ingredient of sea control, but in this area at least almost their whole point. The need for navies to cope with the very different challenges of maintaining sea control in the narrow seas and the littoral against everything from shore-based aviation, missiles and artillery, mines, coastal submarines and fast attack craft to swarming attacks from terrorists on jet skis, must be one of the most obvious and immediate lessons of this exercise in maritime power projection.

Additionally, navies around the world are increasingly recognising that to be really useful, they need to have an impact on the unfolding of events ashore. This is not merely a question of their being able physically to project military power; it also mandates their contributing to a thoroughly 'joint' force that is much more than just the sum of its parts. This requires a shift from looking at general inputs to specific outputs. For example, are carrier-based aircraft more or less useful than land based ones? What is the required *effect* and how might it best be achieved in a particular case? This shift towards 'Effects-Based Operations' is both facilitated by, and predicated on, network-enabled capabilities that challenge traditional naval ways of doing things and some very ancient naval expectations about their relative operational independence and freedom of manoeuvre.

Naval planners around the world are concluding that it is therefore essential to have the right kind of navy, one that is optimised for joint operations with the army and air force, and which also possesses the range of capabilities to put operational manoeuvre from the sea into effect. Nonetheless, although the overriding requirement here is to be able to project power ashore, the problem of how best to accomplish this in any given situation has left navies today with a choice. On the one hand, there is the option of the USN's projected 'littoral combat ship'. This is based on the quite radical concept that in the future, what will be needed is the capability to diffuse naval power into more small units, all of them linked together by an electronic network. This concept of course relies on the transformational technology associated with the Revolution in Military Affairs (RMA) and evolving concepts such as Network Centric Warfare (NCW).

The more traditional alternative is to continue utilising bigger ships, but to retain smaller units to operate from them, such as helicopters. The advantage of big ships is that they can sustain damage, be operated as command centres, and still be flexible enough to carry out multiple roles across the spectrum of conflict. The HMS *Ark Royal* is a case in point, when she was effectively re-roled from an aircraft carrier to an amphibious warfare ship, and operated alongside HMS *Ocean*, very far forward during the 2003 Iraq War. In addition, larger platforms are able to bring superior fire support to bear, not only through naval gunfire support (NGS) of the sort displayed in Iraq, but through potent land attack cruise missiles. Large platforms, the argument goes, are still the most effective way of adding depth to the naval contribution to expeditionary operations.

Navies must also be relied on to provide logistics and supplies in support of expeditionary operations. Today there is huge interest in the idea of sea basing, especially in the USN, because it reduces the footprint of the deployed forces ashore, thereby making them less vulnerable to local attack, sabotage, suicide bombers and the like. But it is still difficult operationally and logistically. Are there facilities to unload containers? Can the amphibious ships unload straight onto the beach? How do you cope with tidal rise and fall? How can you adequately keep track of all equipment - and so on? The logistic requirement is significantly increasing moreover, because land forces are becoming more complex and demanding. So much so, in fact, that it is now estimated that one division needs virtually five times more logistics support to wage a modern war than was required in the Normandy campaign. So this problem is going to represent a considerable challenge for navies in the future.



The last thing that must be mentioned is the absolutely critical importance of intelligence. One of the reasons why McClennan was so slow going up the Virginia Peninsula - he became known as the original 'Virginia creeper' incidentally - was because he constantly overestimated the size of the forces confronting him, often by a factor of about two. It follows that the importance of picture building, in order to secure 'battlespace dominance' through exhaustive intelligence gathering in all its various forms, can hardly be exaggerated.

Thus, as this brief overview of historical and contemporary events has tried to demonstrate, maritime power and sea control have played a fundamental role in the development of the world we know. There seems no reason to doubt that the importance of sea control in particular will remain significant in the 21st century, although the way in which it is exercised in the future may well take different forms, since we are unlikely to be confronted with the kind of peer competitor so familiar in the 20th century. In exercising sea control, navies are enabled to deal with disorder, and engage in power projection; unless some disaster changes foreign policy, these two tasks are likely to be the major flavour of the 21st century. Furthermore, navies will increasingly have to cope with a broader concept of what maritime security requires. Some navies are in fact becoming wholly devoted to coping with these 'softer' maritime security concerns while others have decided to move away from such tasks, handing the responsibility over to coastguards instead. But one way or the other, nations are increasingly being confronted by a whole new range of threats which demand both ingenuity and historical perspective on the part of naval planners and national policy-makers alike, in order to make the best use of the maritime power at their disposal.

*Editor's Note: This paper is an expanded version of the author's presentation at the 2003 King-Hall Naval History Conference. Those seeking further information may wish to consult the book: Geoffrey Till, *Seapower: A Guide for the Twenty-First Century*, Frank Cass, London, 2004.*

# Future Sea Power

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Mr Alastair Cooper

*Human presence in the maritime environment is increasingly pervasive and permanent, reflecting the growing value humanity perceives there. This is driving nations to treat their maritime jurisdictions more like their terrestrial domain, ie. they seek to exercise a much higher level of influence and control over activity therein. This change in state practice has occurred over the last 50 years and will necessitate a reappraisal of sea power theory, which assumes that for the most part the sea will be uncontrolled. It also has implications for navies charged with exercising national power within the maritime domain.*

## Introduction

One thousand years ago, humanity's relationship with the sea was quite different from today.<sup>1</sup> Oceanic voyages, while not unknown, were uncommon; even for the people who undertook them, they were fraught with dangers to which today's astronauts might relate. More common were riverine and coastal voyages, which encompassed both trade and fishing. Humanity's presence outside the narrow coastal areas was characterised mainly by its impermanence. The laws governing conduct in the maritime environment were limited, with little mutual agreement between states. While there were concepts of ownership, there was little which resembled the complex notions of sovereignty and sovereign rights and responsibilities that exist today. The oceans were inestimably vast, more or less unknown and beyond the ability of humans to influence, let alone control. For people of the time, this would have stood in stark contrast to their concept of land.

A century ago, the relationship with the sea was quite different again. Oceanic voyages were common and while there were risks, the risks were more or less understood; something akin to the way we view airline travel today. The uses of the sea for trade, transport and fishing still had not changed appreciably, except in their scale. Humanity's presence in the oceanic environment, while more frequent, was still transitory. By contrast, the basic concepts of maritime law had wide mutual consent: the sovereignty of the coastal state was very limited and freedom of navigation the predominant feature. The oceans remained a vast area, little explored and still beyond the ability of people to influence or control; the clear distinction between land and sea remained.

The people (such as Mahan, Corbett, and Castex) who laid the foundations for modern maritime strategy lived around one hundred years ago. Their basic conception of the oceans was different from that of today, and they had little, if any, chance to appreciate the impact of the aeroplane, massive population growth, and the increased number of nation states, to name just three developments which have affected the relationship between states and their maritime environment.<sup>2</sup> Although this paper will suggest that maritime strategy must evolve, it does not follow that the foundations from a century ago were ill conceived. Indeed, it is the contention of this paper that the underlying concepts have been remarkably durable and will remain an integral part of any future maritime strategy.<sup>3</sup>

## Contemporary Conceptions of the Ocean

Today, at the turn of the 21st century, humanity's relationship with the ocean has altered dramatically from the past. While the maritime environment remains vast, people are constantly present, in varying concentrations, in every ocean. This permanent human presence is the result of the massive increase in the value and relative scarcity of marine resources, and also the ubiquity of international trade.

The sea remains the primary means of transport for the bulk of world trade, the volume of which has expanded greatly. In some ways, this trade has become simpler, as containerisation of many products has meant relatively fewer ships, ports and routes for high value goods in particular. For the transport of bulk products (oil, gas, ores, wheat, etc.), ships are now often specialised to transport only a few types of cargo on specific routes; the paramount example being liquified natural gas (LNG) carriers. Although this makes the trade more efficient, it also makes it potentially more vulnerable to disruption. Fewer ships make each a more valuable target, and specialisation ensures that there is an even smaller pool of possible replacement vessels.

Knowledge of the resources the oceans contain has expanded. The concurrent growth in demand for and exploitation of marine resources has dramatically increased their relative scarcity and value. This is reflected in the current state of international maritime law: the *1982 United Nations Convention on the Law of the Sea* (LOS) is a detailed document, covering many aspects of humanity's expanded use of the maritime environment. Perhaps the most significant feature of the LOS is the extension of sovereignty and sovereign rights afforded to coastal states. A century ago a coastal state could only claim significant rights out to three nautical miles (nm) (about five and a half kilometres); under the LOS they can be claimed to between 200 nm and 350 nm, depending on the right being claimed and the proximity of other claimants. Even resources outside these vast areas may be claimed in part by a coastal state, under laws governing highly migratory species and those that straddle maritime boundaries. The oceans, which Mahan described as a 'great common',<sup>4</sup> are now increasingly being fenced.

In addition to humanity's permanent presence in so many parts of the marine environment, our conception of the sea is quite different. Although the oceans are still vast and beyond control, they are demonstrably not beyond human influence. Pollution and the harvesting of marine resources are two of the most obvious examples. Marine resources, in particular fish stocks, have until quite recently been thought of as a valuable but effectively unlimited resource.<sup>5</sup> It is now known that this is not so and many stocks have simply collapsed from over-fishing. Pollution of the oceans has become an important issue and the extent of the degradation of the marine environment from both land and sea sources is now evident. The environment has become more highly valued as appreciation of its fragility and our dependence upon it has grown. Tourism and fishing are two important industries that are immediately affected by the state of the marine environment, and numerous other linkages may also be observed.<sup>6</sup>

Another factor, not uniquely marine in nature, which has changed human perception of the oceans, is globalisation. Although this term has come to mean a great many things,

some more contentious than others, it has long been a part of the understanding and practice of maritime strategy, in so far as the sea has always represented a means of global communication. What is significant today in terms of maritime strategy is the effects of globalisation resulting from the speed and pervasiveness of modern communications, and the work of international media outlets in particular. In the past, events occurring in a distant part of the ocean could only be directly influenced by those present, whereas today, local actions are very likely to be the subject of global scrutiny and influence. In this sense, the maritime environment is far less isolated than it was and this can make the implementation of maritime (and national) strategy more complex and contestable. Numerous parties, potentially from different states or jurisdictions, may believe they have an interest in a matter far distant from their actual location, and thus seek to exercise some degree of influence over the matter. Such intense but fleeting attention can have powerful but unpredictable flow-on effects.

A more direct maritime dimension of globalisation is the international nature of sea transport, particularly containerised shipping. It is conceivable that at one moment in time a single ship may have a Taiwanese operator, financed by a Japanese bank with recourse to a South Korean shipbuilder, registered in Liberia, crewed by Russian officers and Chinese sailors, carrying cargo from, and to, a dozen different countries, through Malaysian territorial waters. Closer examination would be likely to uncover even further levels of national interest and control, not to mention the innumerable navigational, environmental and security regulations arising from international bodies and regimes operating under UN auspices. The complexity of resolving any serious dispute or problem involving such a ship is considerable, and has led to the development of a large body of international maritime law, a great deal of which is overseen by the International Maritime Organisation (IMO).<sup>7</sup>

The delimitation of maritime boundaries and claims to scarce resources are obvious parallels between the way people now conceive of both land and sea; parallels which did not exist one hundred years ago. The LOSC is one example of the way in which nations are regulating parts of the maritime environment. This process will lead to a more structured maritime environment, at least as far as human activity is concerned. Activity that was previously ambiguous in nature, if it was even observed, is now seen and judged by nations. Most obviously in the protection of scarce resources such as fish stocks, nations show a high regard for their sovereignty and rights, and in some cases are willing to exert influence to demonstrate and maintain them. In the future nations will probably guard their maritime rights even more jealously, and hopefully this will apply equally to their responsibilities as well.

### **The Maritime Environment in 2050/2100**

Given the trends in the maritime environment toward a more pervasive and permanent human presence, what will characterise that environment in 50 to 100 years? While ‘nothing dates faster than a prediction of the future’<sup>8</sup> this section sets out some possible characteristics of the future maritime environment, though the list is neither exhaustive nor immutable.

The first and most obvious is that the sea will undoubtedly remain a major mode of communication, especially for bulk products such as oil, minerals, staple foods and containerised trade. The specialisation and 'simplification' that has occurred over the last 100 years will at least be maintained through the next century. Increasing international trade is likely, driven by continued integration of the globalised economy, which will in turn push growth in the volume and value of seaborne trade. It will thus represent a critical point from which pressure can be brought to bear against nations or organisations, particularly as no nation will have the capability to protect all sectors of their trades from point of origin to destination. Defence of trade (maintenance of sea lines of communication) will thus continue to be a fundamental task for maritime forces, although such forces will have to be flexible enough to adapt their operations to the changing characteristics of the globalised trading system.

The marine environment will be an increasingly important issue, for its own intrinsic value, as well as the tourist and fishing industries that it directly sustains. The fishing industry will grow, though it will be as much through the growth of fish farming as the harvesting of wild fish stocks. This in turn will lead to another potential source of tension. Existing customs and health laws attempt to restrict the transmission of diseases between national jurisdictions. These attempts are mainly focused on regulating the movements of the disease vector (the fruit, animal or object carrying the disease) and are land based activities (airports, seaports, railway stations); however, maritime boundaries are porous (the inhabitants of the world's oceans are not noted for their respect of borders) and the seas do not have the same focal points as on land. Populations of organisms with a high degree of genetic commonality (such as farmed fish) are potentially very susceptible to disease outbreaks, no matter whether they are the result of deliberate or inadvertent transmission. Nations may therefore look for ways to mitigate this risk.

Maritime transport and environmental management, already linked by issues such as ballast water, oily waste discharge and hazards from collisions and grounding, are likely to be driven closer together. Although many substantial reasons for this already exist, it has recently lacked a defining or focal episode, such as was provided by the *Exxon Valdez* disaster. It is quite possible that issues such as the trans-shipment of nuclear fuels may in future provide this.<sup>9</sup>

The extraction of minerals from the marine environment will remain important. Although in 100 years time the marine reserves of oil and natural gas may be diminished, there is the potential for the recovery of other minerals through techniques such as seabed mining, and most likely other processes which are as yet unknown. Moreover, the sea, by virtue of its currents and waves, is an untapped source of boundless energy (witness the 2004 Boxing Day tsunamis), which if properly harnessed, could reduce humankind's dependence on oil and gas. Such facilities, if developed in the future, would be located either on the coastline itself, or under/on the sea in offshore installations, thereby also making them susceptible to action from the sea by terrorists or other enemies for their economic and strategic value.

The sum of these trends is that people will have more and more reason to be in the maritime environment; human presence will be pervasive and permanent. With that will come the requirement for regulation of that part of human endeavour, further definition of boundaries and responsibilities with a common understanding, agreed methods of dispute resolution, and acceptable forms of behaviour. The 'great common' will be largely fenced in by 2100. Inevitably, disputes will arise more often as will the potential for the use of force if they cannot be settled peacefully by diplomacy. The form of diplomacy will probably be unchanged, as enduring human nature and traits, and not necessarily the substance of the particular issue at hand dictate this. But the means of threatening and applying force may well be more diverse than currently exists, if for no other reason than people's activities in the maritime environment will be more likely to come into contact with that of others.

### Sea Power and Technology

In examining the future of maritime strategy, it is important to make brief mention of the crucial role of technology. It is important principally as it either limits or enables human vision and desire; in other words, the most important aspect of technology is the use people make of it. But it is not on its own a fundamental determinant of sea power theory or grand strategy. Rather, it is assumed that future advances in technology will continue to facilitate the diversification of human impact on the marine environment, both in terms of exploitation and governance. Moreover, as technological advance is also a function of human vision and desire, such advances will most likely result in people placing greater value on marine assets, in turn promoting even more human infiltration of the marine environment.

### Some Thoughts on the Exercise of Power in International Society

Military theory (the study of the exercise of sea, land and air power) has traditionally tended to be split along partisan Service lines, each portraying their pre-eminent contribution to national power and global politics. (It is tempting to suggest that there might be a fascinating study into firmly situated appreciations!) From a historical perspective it makes some sense, as it was arguably the best way to understand the exercise of force at a time when humanity's relationship with each environment was quite distinct,<sup>10</sup> however, given the growth in human population, making it more pervasive through all environments (not just maritime, although it is the focus of this paper), future military theory will need to reflect the changed international scene, grounding its understanding in the nature of human beings.<sup>11</sup>

Power then (the ability to induce, dictate or enforce compliance with, in this context national will), is usually exercised in the pursuit of mass human needs, desires or behaviours. The influence of great and powerful individuals must be acknowledged, but they too operate within the constraints imposed by society. To this end military theory, and the strategic, operational and tactical concepts that flow from it should address the driving forces of human behaviour. Moreover, asymmetric conflicts underline the need to ground any theoretical understanding of the exercise of power in terms of the objectives and desires of people first, and only then the environment in which the actions take place.

People are driven by what they perceive as valuable. In the past this has often been something immediately and directly tangible; ie. a particular resource (gold/oil) or the ability to control a conduit for such valuables (communications, be they physical or wireless/wireline). Other issues are gaining similar status; the environment and human rights are two contemporary examples. While humanity in general derives tangible results (a better environment leads to less disease for example, human rights foster a happier more productive population), these are not always benefits that are immediate and tangible for those individuals and groups who exercise power. The important issue for military theory is to identify that which is perceived to be valuable, no matter what its nature. Additionally, if something is permanently valuable, then it will be more likely to attract a permanent human presence; this both facilitates and encourages the exercise of power (surveillance, control and enforcement of will).

### Sea Power Theory

Sea power theory, in its various forms and guises, is about exercising control of the sea to further national interests. Typically this has focused on either exercising control over a defined area for a defined period of time (eg. convoying), or denying that use to an enemy (submarines and mines being the best examples). Notions of sea control have been limited spatially and temporally, and the basic nature of the sea was assumed to be uncontrolled.<sup>12</sup> Another way to understand this concept is to realise that in areas where there is no human presence or interest, there is no need or desire to exercise control over it. If human presence in the maritime environment does indeed continue to become more pervasive and permanent, then the corresponding development of sea power theory will have to accommodate a notion of control of the sea defined by that human presence. It will be limited spatially, but the areas will be much larger, similar in scale to a coastal state's exclusive economic zone (EEZ). The control will, however, not be limited in time, as nations will perceive the need to constantly survey these areas and to be able to control them, enforcing their will where necessary. The introduction of an Australian Maritime Identification System in December 2004, extending as far as 1000 nm from Australia's coast, is just one example.

The notion of sea control should consist of two subsets. Sea control, as it has been understood in the past, should be termed *limited* or *temporary sea control*, and attempts by nations to exert ongoing control over their maritime jurisdiction should be termed *permanent sea control*. Sea denial remains an important concept in relation to both subsets. Temporary sea control is the fundamental theoretical tool for understanding the use of the sea as a means of communication, and is likely to remain so for the foreseeable future. Hence, it will not be the focus of this paper and in any event there are, as would be expected, numerous earlier discussions of it.<sup>13</sup>

Permanent sea control by contrast is a developing concept, reflecting the value nations see in their maritime jurisdictions. It will be characterised by attempts to survey, regulate and control activity within this jurisdiction: there will gradually be less distinction between the exercise of control over maritime and terrestrial jurisdictions. To achieve this, nations will utilise a mixture of sea control and sea denial to regulate activity in the areas that are most valuable. Areas within their jurisdiction that are perceived to have

little or no immediate value may be left in an uncontrolled state. Permanent sea control is the sum of these actions. The permanency of the objects of the control (marine resources, etc.) further distinguishes it from temporary sea control.

The surveillance task is the most significant issue which nations will face as they attempt to exert permanent sea control. Indeed, this is another aspect where developments within the last 100 years have changed the environment, in this case facilitating the change of attitude that nations have to their 'offshore estate'.<sup>14</sup> It is only with the advent of aircraft, reconnaissance satellites, advanced radars, computers and modern communications that a nation could contemplate surveying its maritime jurisdiction sufficiently to enable the kind of regulation and control that may be desired (surveillance which, even if only focused on the most valuable areas, will require it to cover large ocean areas, including the air, surface and submarine environments). It will be the success, or otherwise, of this effort which will underpin a nation's ability to exercise permanent sea control.

## Nations

Halford Mackinder argued that after the industrial revolution, the wellsprings of national power lay in factors which were to be found on land: industrial centres, large populations, markets, resources and railways to connect them.<sup>15</sup> These represented national 'heartland' (centres of gravity), exemplified in the 20th century by the USSR. This thinking was reflected by Corbett, who wrote that:

Since men live upon the land and not upon the sea, great issues between nations have always been decided - except in the rarest cases - either by what your army can do against your enemy's territory and national life, or else by fear of what the fleet makes it possible for your army to do.<sup>16</sup>

Given pervasive and permanent habitation of the maritime environment, a nation's heartland must, to some extent, be considered to lie in that environment. Oil and gas platforms, communications infrastructure such as undersea cables, fish farms and wild fish stocks, and the marine features which support tourism, are current examples of national heartland.

The corollary is that 'great issues between nations' may be decided by what maritime forces may do, or threaten to do, against marine assets. Unlike shipping these assets are permanent, usually in well-known locations, often but not always close to a coastline or near centres of population. They are a point against which pressure may be brought to bear. Control of the sea (or at least denial to an enemy) in which these marine assets exist and from which an attack against them may be launched, must therefore be permanent.

If it is possible to exercise direct and effective pressure on a nation's maritime heartland, this will have consequences for the ways in which conflicts are conducted. This will be particularly so for media saturated nations. For, while human presence may be pervasive and permanent, it will not be as widespread as it is on land. The assets in the marine environment will usually be more discrete (wild fish stocks are one exception), allowing for simpler targeting with much less chance of immediate collateral damage, especially civilian casualties (assuming the use of conventional explosives and not chemical,



biological, radiological or nuclear weapons). Such assets may be attractive in limited wars, possibly even lowering the threshold for conflict, as an aggressor perceives the opportunity to make a serious and direct threat or attack, further encouraged by the knowledge that modern media will help to amplify the effect on the target nation's population.

Day to day control of maritime zones is less dramatic than conflict, but equally as important. Border control issues such as the financial, immigration, sanitary and customs areas identified in the LOSC on the rights and responsibilities in the Contiguous Zone, presently dealt with mainly within ports, may have to be addressed at or near the maritime boundary to enable nations to exert effective control. This is complicated because the seas, as a medium, do not lend themselves to clear demarcation, so points of entry to a nation's maritime jurisdiction are less well defined than in the terrestrial domain.

Bismarck, Disraeli and Palmerston are variously quoted as saying that 'nations have no permanent friends, only permanent interests'. Assuming that alliance relationships arise mostly when national interests are coincident or complementary, it follows that acquisition of substantial 'maritime heartland' will create the potential for changes in existing alliances. This will be most obvious for nations that have substantial coastal state interests as well as relationships with traditional maritime nations, such as the United States (US) and Britain. Therefore this could represent a future challenge for Australia, and although no great power is likely to object specifically to Australia's exercise of power within its vast maritime jurisdiction, it may well object to the principles involved.

For Australia some of these issues will not seem as pressing, for although we have maritime boundaries, the distances involved act to reduce the pressure on the environment. While this might reduce the immediacy of the issue, it does not mean that it will be irrelevant: neighbouring countries, trading partners and allies will still require us to have a coherent position. Australian foreign and defence policies must therefore appreciate that other nations may regard activity in their maritime areas as an immediate interest, by virtue of the smaller distances and greater concentration of people and activity involved.

It is also worth noting that despite the almost certain opposition of the US to any further expansion of coastal state sovereignty/rights that impinge on its interests, this will not necessarily stop the progression advanced in this paper. For while the US may gain acquiescence through the threat or use of overwhelming force, this may not apply to relationships and issues which are not important to the US. Moreover, the pressure for change will be too great for even the US to resist: it will be a slow but relentless move driven by human interest in the environment and marine resources. National self-interest may not emerge like Minerva, but less confronting arms of government power such as coastguards will be used to assert control over maritime heartland.<sup>17</sup>

All of these matters of importance to a nation revolve around the ability to observe activity in their areas of maritime interest, to regulate it and, if necessary, to enforce their rights and responsibilities; thus exercising control of the sea, permanent or limited as the case may be. In the last century, navies, increasingly supported by air forces, fulfilled this function; however, protection of maritime heartland may require additional and different national institutions or institutional relationships. Possibly modern coastal

artillery will be the basis of permanent sea control. There may be great benefit to be gained in re-examining the concepts of flotilla defence espoused by Admiral Sir John Fisher and the French *Jeune École* in the late 19th and early 20th century.<sup>18</sup> A modern version might include elements such as: integrated satellite, aircraft, surface and sub-surface reconnaissance (including fixed sonar arrays, Electronic Warfare sensors and Over-The-Horizon-Radar), backed with mines, submarines, and missiles launched from the sea, land and air. Such a defence concept would have less mobility and reach, but still provide a powerful, concentrated ability to exercise sea control on a permanent basis over a defined area, and potentially cost less than traditional maritime forces. Coastguards too will play a role, as one further element of coastal state control. In any event, it is most likely that traditional maritime forces will have to evolve to remain effective providers of options for national governments.

### Maritime Forces

At the most fundamental level, maritime forces (navies and air forces) are usually considered to have three roles: warlike operations, constabulary duties and diplomatic functions.<sup>19</sup> While none of these functions will disappear altogether, there is likely to be significant changes to the way each is conducted in the future, as well as in the actual composition of the forces performing these roles.



*HMAS Manoora in the Solomon Islands, 2003 (Defence Image Gallery)*

### ***Constabulary Duties***

Maritime forces will undoubtedly continue to play a role in the conduct of marine constabulary duties, however, they may well be limited to support of police, coastguards and other less offensive (and expensive) forms of government control. Maritime forces may also be less welcome in providing constabulary assistance to other nations, precisely because they are perceived to be at least potentially offensive.

Even for nations that do not have a discrete coastguard (such as Australia), there will be pressure to provide such a capability. This will be through small patrol craft with limited capability, operated either by the navy or another government agency with jurisdiction over the maritime domain. Navies as national institutions will have to ensure that they are clear in defining their contribution to national security, lest their 'balanced capabilities' are gradually eroded, limiting their capacity to control the national offshore estate adequately.

### ***Diplomatic Functions***

The maritime doctrine and strategy of many nations assumes that the sea is always available and that the actions of their naval forces are transparent, because generally it is the state of relations between nations which tends to colour the activities of their navies, rather than bare physical presence itself. If, however, international law comes to be interpreted in a more restricted light in 20 years time or more, the physical movement of naval forces could begin to take on much more significance than just the stated attitude of their government. This would closely parallel the way in which the actions of armies are currently interpreted: an uninvited infantry battalion is nothing but a hostile act, whereas an uninvited warship's passage through territorial waters is more ambiguous, and the meaning is provided by the statements and interpretations of the governments involved.

There are many examples of state practice which suggest a trend in this direction: China's attitude to innocent passage of warships, Australia's attempts to interdict illegal immigrants, Indonesia's interpretation of archipelagic passage and transit regimes, Canada's actions against Spanish/European Union fishing vessels in the Atlantic and numerous countries' exclusion zones around oil and LNG installations. Based on these examples, and the general trend towards a strengthening of coastal state rights, it is not difficult to anticipate a quite different maritime environment within the next one hundred years, in which the diplomatic functions of naval forces become far more constrained than is currently the case.

### ***Warlike Operations***

Even if the innocent passage rights afforded to naval forces remain unchanged, the environment in which they operate will be substantially different. This will be most noticeable in areas where coastal states have some jurisdiction. The concepts of operation for maritime forces during war are to a large extent based on the assumption that the seas will, in general, be uncontrolled. This in turn allows such forces to remain difficult to locate, leaving them able to act at a time and place of their choosing. Permanent

sea control by coastal states, if achieved in the future, will invalidate this assumption. Pervasive and permanent human presence (coastguards, civilian assets, etc.) will make it a much more complex environment, as government and private entities are more likely to actively regulate larger areas of ocean. Maritime forces will therefore be operating within the fabric of a nation (in or near national heartland), and as such be more readily observable, with less time and room to manoeuvre unopposed.

On the defensive side of the equation, the protection of national maritime jurisdictions may not fall simply to existing, traditional maritime forces (navies and air forces). These forces have high capital costs, a large proportion of which can be attributed to operating in the marine and air environments, and being able to operate almost anywhere in the world. While this provides exceptional and valuable flexibility, this is not a necessity if the only aim is to protect a fixed asset. The cost of armaments is always an issue for any nation, any differences being ones of degree. In pursuit of maximum effect for minimum expenditure, a modern iteration of 'flotilla defence' may seem a cost-effective solution, just as it did at the start of the 20th century. For national armed forces this could pose a further institutional challenge, as the foundation may be coastal artillery rather than ships or aircraft. National military forces might have to critically examine how such defences can be provided, as any future coastal artillery will have to operate seamlessly with naval and air forces, as well as civil authorities.

The current pre-eminence of the US Navy (USN) is also likely to promote consideration of 'flotilla defence'. No nation can lightly contemplate directly challenging the USN: this is unlikely for anything other than the defence of vital national interests. Furthermore, as all nations' interests coincide in the safe passage of international trade, and US interests are at least the equal of other nations, it is unlikely that many nations would seek to have the ability to exert sea control at any great distance from their coasts.<sup>20</sup> In other words, few nations will have the motivation to exercise temporary sea control. But permanent sea control of national jurisdiction, provided by a form of 'flotilla defence', is very likely to be attractive and important to many countries.

## Conclusion

This paper is intended to stimulate debate on the future of the nature and practice of maritime strategy, both at the national and military levels; however, an appreciation of the history of humanity in the maritime environment over the last thousand years, and certainly over the last 50 to 100 years, does indicate firm trends. The most fundamental of these trends is for a more permanent and pervasive human presence in the maritime environment. This paper contends that this must have implications for our conception of that environment, and for the practice of international relations as they relate to maritime affairs. It also has implications for maritime forces and for navies in particular, as the ultimate representatives of national power at sea.

As the imprint of civilisation on this planet grows, our dependence on the oceans will at least remain at current levels, and probably grow. Nation states, as the basic unit of international governance, will compete to obtain the greatest benefit from their maritime jurisdictions, areas that will more than ever be regarded as their heartland, and

essential to the fabric of the nation. Navies and all maritime forces must understand and adapt to these changes if they are to remain relevant and effective in representing and implementing national will.

It should be noted that this paper is far from an exhaustive survey of the issues that are involved. It has focused on the future of maritime strategy from a national perspective, flowing from the principles established by Mahan and Corbett; however, the development of international fora, which may or may not be headed by the UN, and the conclusion of comprehensive treaties and other international regimes, such as the LOSC, will continue to open up avenues for the development of international relations. Clearly these issues are likely to have further impacts on maritime strategy in the future, but what is certain for now at least, is that sea power and properly configured maritime forces in particular, will remain an essential contributor to both national and international order in the 21st century maritime domain.

*Editor's Note: This paper is based upon the author's presentation at the 2003 King-Hall Naval History Conference.*

## Notes

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- <sup>1</sup> The author is indebted to Professor George Baer, Commodore Sam Bateman, RAN Rtd, Dr John Reeve, Commodore Jack McCaffrie, RANR, Captain Ian Pfennigwerth, RAN Rtd and Lieutenant Commander Jason Sears, RAN for their encouragement and assistance in commenting on various drafts of the paper. Any errors remain the responsibility of the author.
- <sup>2</sup> The idea that the maritime environment has changed is not new. See H. Moinville, (translation from French by Commander P. R. Compton-Hall), *Naval Warfare Today and Tomorrow*, Basil Blackwell, Oxford, 1983, pp. 46-48, and also B. W. Watson, *The Changing Face of the World's Navies: 1945 to the Present*, Arms and Armour, London, 1991, pp. 234-238.
- <sup>3</sup> It is important to distinguish between national maritime strategy, which pertains to a whole of government approach to maritime affairs, and military maritime strategy, which is concerned with the exercise of military power in the maritime environment. Military maritime strategy is usually a subset of national maritime strategy.
- <sup>4</sup> Alfred Thayer Mahan, quoted in J. Gooch, 'Maritime Command: Mahan and Corbett' in C. S. Gray and R. W. Barnett (eds), *Seapower and Strategy*, Tri-Service Press, London, 1989, p. 33.
- <sup>5</sup> Whale hunting was the first issue to gain international attention as far as the conservation of marine resources was concerned. The widespread realisation that similar principles applied to almost all commercial fisheries took longer. For an example of the transitional attitudes, on the cusp of modern appreciation of fish stocks see E. Grove, *The Future of Sea Power*, Naval Institute Press, Annapolis, 1990, pp. 42-44. There is an acknowledgment of the pressure on fish stocks, but a hope that technology will enable enough to be found and utilised.
- <sup>6</sup> Some other matters which are linked to the state of the marine environment are the sustainability of certain types of land use (land clearing and fertiliser usage), and the viability and health of some coastal communities.
- <sup>7</sup> I am indebted to Commodore Sam Bateman, RAN Rtd, for bringing to my attention some general trends in the development of maritime law.

- <sup>8</sup> D. Hobbs, 'The aircraft carrier: the experience of its conception, procurement and operation', in J. Reeve and D. Stevens (eds), *The Face of Naval Battle*, Allen and Unwin, Sydney, 2003, p.148.
- <sup>9</sup> I am indebted to Captain Ian Pfennigwerth, RAN Rtd, for raising the issue of nuclear fuel trans-shipment.
- <sup>10</sup> Military practice has in this area preceded the development of theories addressing the exercise of military power. While combined or joint operations became the state of the art during the World War II (at the latest), military theorists then and now tend to be advocates for a particular Service. It is beyond the scope of this paper to consider, but it is possible to suggest that military theory has been used as a tool to back budgetary claims, and that those with vested interests have argued for a particular theory which supports the funding of programs from which they benefit. Certainly the degree of 'jointness' in practice is not matched by the approach taken to issues of theory and doctrine.
- <sup>11</sup> This paper addresses the development of sea power theory in the context of national maritime strategy, and is an attempt to develop it along the more integrated lines suggested. The lack of attention to air power or ground force theory should not be taken as an indication that they are any less important or less in need of a more integrated revision.
- <sup>12</sup> J. S. Corbett, *Some Principles of Maritime Strategy*, Naval Institute Press, Annapolis, 1988, pp. 91-106.
- <sup>13</sup> Although there are many excellent books about sea power and what this paper has termed temporary sea control, it is difficult to ignore H. Richmond, *Statesmen and Seapower*, Clarendon Press, Oxford, 1946.
- <sup>14</sup> The term is drawn, for this author at least, from J. McCaffrie (ed), *Managing and Protecting the Offshore Estate*, Australian Defence Studies Centre, Canberra, 1995.
- <sup>15</sup> Based on Gooch, 'Maritime Command', pp. 36-37.
- <sup>16</sup> Corbett, *Some Principles of Maritime Strategy*, p. 16.
- <sup>17</sup> S. Bateman, 'Coast Guards: New Forces For Regional Order and Security', *Analysis from the East-West Center*, No. 65, January 2003.
- <sup>18</sup> N. Lambert, 'Admiral Sir John Fisher and the Concept of Flotilla Defence, 1904-1909', *Journal of Military History*, Vol. 59, No. 4, 1995, pp. 639-660.
- <sup>19</sup> K. Booth, *Navies and Foreign Policy*, Croom Helm, London, 1977, p. 16.
- <sup>20</sup> For example, during the Iran-Iraq war in the 1980s, the USN was deployed to prevent Iranian attempts to disrupt the flow of oil from Kuwait. In effect the US interest in the freedom of maritime trade acted as a stabilising influence to the benefit of nations engaged in maritime trade.



# Considerations in Maritime Barrier Operations

Captain Richard Menhinick, CSC, RAN

*Maritime barrier operations* are designed to prevent unauthorised incursions into maritime areas subject to Australian sovereignty or sovereign control, such as the Exclusive Economic Zone and Australian Fishing Zone. Activities that may be the focus of barrier operations include illegal immigration, weapon and drug smuggling, illegal fishing, piracy and maritime crime, maritime terrorism, and quarantine infringements. Barrier operations incorporate actions designed to: prevent unauthorised access activities from commencing, deter access through overt patrolling, respond and intercept prior to a barrier breach, and pursue and intercept following a breach.

These operations are traditional roles with which the Australian Defence Force (ADF) can expect to be involved on behalf of the Government. They have a long history, but were seen as peripheral to the defence of Australia by many during and after the Cold War. However, the reality of Australia's maritime environment meant that by 2000, when the world stood uncertainly between nation states, international organisations, and non-state movements (eg. religious, ethnic, criminal), barrier operations began to receive limited attention. This was an indication to some that security and certainty were two items missing in the New World Order. This was highlighted by the terrorist attacks in the US on 11 September 2001, which served to galvanise Western interest in border protection issues.



*RAN boarding party on the fishing vessel Lena during Operation SUTTON, 2002  
(Defence Image Gallery)*



A month prior to 11 September 2001 most Australians were focused on only one aspect of barrier operations - border protection. MV *Tampa's* actions brought the long-running maritime barrier operations against illegal immigration, smuggling and fishing to the full attention of the nation. The Royal Australian Navy (RAN), the Royal Australian Air Force (RAAF) and the Coastwatch organisation had been conducting a barrier operation against illegal activities in Australia's maritime resource zones for at least the previous quarter of a century, however, these were seen as 'low level' sovereignty issues. The terrorist attacks of 11 September 2001 served to make barrier operations a more central pillar in the defence of Australia's security interests and geography.

The developing uncertainty of the 21st century will in all probability continue to highlight issues of barrier operations, particularly those associated with border protection. This is because issues of oceans governance, disease, poverty, hunger, religious extremism, transnational crime, and disputes over resource exploitation and legal jurisdiction will continue to grow. Unless the causes of these issues are redressed, and there is little evidence they will be, the movement of people, the smuggling of illegal substances, and other illegal activities on and around Australia's borders will most likely increase over time.

Barrier operations will continue as a requirement for the ADF in response to these issues, with almost all barrier operations conducted at sea. This is a considerable advantage for Australia, as it removes the complex problems of concurrently managing an extensive and permeable land border. The India/Pakistan and Israeli/Palestinian border issues are extreme examples of such complex challenges. International maritime law permits significant control over maritime borders out to 200 nm and beyond, thereby providing a buffer zone that few countries with land borders enjoy.

Warships are fundamental to successful barrier operations, due to their inherent capabilities. Based on the fact that border protection will be a long-term requirement for the RAN, warships with good range, endurance, sea keeping, speed of response, and accommodation for embarked personnel will be required. Noting the open ocean nature of Australia's maritime zones,<sup>1</sup> and the distances involved, maritime characteristics such as poise, persistence, response, flexibility and adaptability are required.<sup>2</sup> Australia's maritime zone extends from the Antarctic regions through to the tropics, and is characterised by extremes of weather, sea state and temperature. No single ship design would be optimised to operate in all areas. However, certain principles are common.

It is important that a vessel utilised for barrier operations be functionally suitable for Australian requirements. Such a vessel should be capable of accommodating the ship's company plus additional personnel as necessary for specific operations, such as security elements or extra boarding party personnel. A degree of excess domestic services such as air conditioning, food services, amenities, and logistics will be necessary to support additional personnel. This additional capability would provide flexibility for a number of response and patrol operations at long range, a reality given Australia's extensive maritime zones. This spare capacity could be utilised for survivors recovered during a search and rescue mission, humanitarian workers, police and customs agents, or illegal immigrants. In times of tension it would provide for special forces insertion teams, reconnaissance and raiding parties, or evacuees from a country under threat.

Patrol and response vessels suitable for Australia may, where appropriate, be significantly enhanced by a capability to operate a helicopter and/or an uninhabited aerial vehicle (UAV). Over a vast maritime zone aerial surveillance is a force multiplier that permits the vessel to respond very effectively to cueing information from either its own aircraft or other external sensor systems. An organic aviation capability may also provide additional options for executing successful operations under Australian and international law. Legal compliance with issues such as 'hot pursuit' could be simplified if the continuous pursuit requirement were supplemented by an organic air capability. A helicopter also permits boarding operations in higher sea states where the use of the response vessel's boats may be deemed too risky.

Vessels optimised for barrier operations should also be technologically advanced. Simple navigational radars may detect a small, wooden vessel at approximately 8-10 nm in sea state 3. This may be adequate in some coastal areas, however, the size of Australia's maritime zones highlights the benefits of high technology combat system radars, which permit detection and tracking of such a vessel at greater than 40 nm. Advanced sensor technology provides a quantum leap in capability and efficiency for the task. Such systems must be supported by integrated detection and tracking equipment, with a computerised digital command and control system to provide comprehensive real-time information to the on-scene commander.

Other technological elements necessary in vessels required for barrier operations include, but are not limited to: electronic support systems to detect radar and communications emissions; electro-optical surveillance systems for low light conditions; fast watercraft operable in adverse sea states, potentially fitted with radar, communications and navigation systems for operations over the horizon from the parent vessel; maritime command, control and support systems that may include command decision aids, data links, automatic charting, and navigational and automated recording capabilities; satellite compatible secure communications capabilities including real-time video; and a weapon system that can be utilised in inclement weather and low light conditions.

Barrier operations exhibit the flexibility inherent in a maritime strategy, and should be seen as protecting interests rather than geography. Each major surface combatant or patrol and response vessel has the potential to exert influence over a vast sea area by using maritime manoeuvre. A modern surface craft has the ability to loiter at sea for upwards of thirty days without the need for refuelling or resupply. In this period it can cover some 500-600 nm per day, and search a vast area, which can be further increased with an organic aviation capability. The primary challenge is to ensure that a suitable intelligence and surveillance organisation is in place that permits advanced warning of an illegal activity taking place, to allow a patrol and response vessel in the vicinity to respond in an effective manner.

As an example, a surveillance and response line could be established to counter an identified threat. Given a 200 nm sea gap between the territorial seas of the adjacent nation, a threat craft travelling at about six knots would take some 33 hours to cover the distance from the time it sailed. If the threat vessel was not detected before sailing a patrol vessel could be some 500 nm away and still be effectively utilised in a barrier

operation. However, at times the surface response vessel could be even further away, perhaps conducting training with other assets and still respond effectively. This naturally depends on the accuracy of intelligence and the frequency of surveillance. If intelligence, weather or aircraft defects/availability are adversely impacting the situational awareness, then the patrol ship can be surged closer to the actual geographic position and threat as necessary. This is a manoeuvre-based philosophy which best maximises the advantages of operations in a maritime environment.

Manoeuvre at sea also has the advantage of keeping an adversary guessing. A criminal or terrorist organisation in the 21st century will have access to a vast amount of intelligence information, and will focus its illegal efforts in a location where the vessel or aircraft involved in a static barrier operation is not. If defending geography is the ADF's objective in a particular maritime barrier operation, then the inevitable objective of the opponent will be to operate where the defensive assets are absent. Only by optimising the access and adaptability of maritime forces will Australia be able to defend its borders and resource interests adequately when faced with well organised transnational crime or terrorist syndicates.

This manoeuvre-based philosophy is alien to those more attuned to the holding of territory and the defence of geography ashore. It will remain a challenge to convince some that a surface vessel can monitor and patrol a region as large as 500-600 nm, and that perhaps it is misused if restricted to a small geographic patrol box. Given Australia's vast maritime area of interest we will always have a limited number of assets, and thus the characteristics of poise, persistence, response, flexibility and adaptability, flowing from sea-based manoeuvre, need to be exploited to maximise the long-term effectiveness of barrier operations.

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## Notes

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- <sup>1</sup> Australia claims one of the largest maritime areas of all States, with an Exclusive Economic Zone (EEZ) and continental shelf covering an area of 16 million km<sup>2</sup>, and over 20 million km<sup>2</sup> when the features of the extended continental shelf are included.
- <sup>2</sup> See: Royal Australian Navy, *Australian Maritime Doctrine*, Defence Publishing Service, Canberra, 2000, Chapter 6.

# Replenishment at Sea: A Significant Force Multiplier

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Commodore Allan du Toit, RAN

One of the least glamorous aspects of maritime warfare involves the underway replenishment of warships at sea and the logistic support of forces deployed ashore. It is also one of the most important. Even a short conflict can rapidly use up missiles, ammunition, fuel and stores at a prodigious rate. This is where afloat support becomes so vital.

Replenishment at sea is a significant force multiplier that extends the range and sustainment of both surface combatants and amphibious vessels with land forces embarked. Afloat support ships provide greater reach and endurance and allow self-reliant and sustained operations to be conducted away from a shore support base. This is particularly important when friendly countries might be disinclined to offer port facilities or, for force protection or political reasons, we would wish to reduce our footprint ashore. This afloat support capability, which enables warships to provide an ongoing presence and an immediate response to a developing situation, is vital for Australia, given our enduring geo-strategic circumstances and because practically every conceivable operation must be conducted and sustained at considerable distances from Australian shore support.

For these reasons, and as noted in *Australian Maritime Doctrine*,<sup>1</sup> a credible surface task group will always include an afloat support ship to provide logistic support. Without an afloat support ship to replenish fuel and other essential consumable stores ships are restricted to operating at distances no greater than their half-range from support. When constrained to this half-range, surface combatants are unable to conduct operations or remain on station for protracted periods before having to return for resupply. To achieve extended periods at sea, surface combatants must either have access to closer shore support or be accompanied by a replenishment ship. Given Australia's long coastlines, neighbouring archipelagic and island nations, sparse infrastructure, and minimal options for forward operating bases, afloat support empowers the Australian Defence Force (ADF) to conduct a range of independent operations that would otherwise not be possible. Even when shore support facilities or a forward operating base might be available within our region, their use would be subject to host nation agreement, which may well be denied in some circumstances. Furthermore, extended operations using surface combatants in areas where shore support is not available, such as the Heard and McDonald Islands Exclusive Economic Zone, are not possible without a replenishment ship.

With suitable replenishment ships and the ability to resupply at sea, fighting units can remain on station for weeks at a time. As a general indication, a surface combatant supported by a replenishment ship is limited only by crew rest considerations. Replenishment ships are not, however, just tankers. They are a 'one-stop logistic shop' and must carry several different cargoes concurrently in order to provide the full range of afloat support to surface combatants and task groups in order to increase both their range

and sustainability. This not only includes diesel fuel, aviation fuel, oil and lubricants, but also dry stores including food, refrigerated and frozen stores, general stores and spare parts, water, and ammunition. Furthermore, a balanced and efficient onboard storage capability provides greater effectiveness, reducing the time required to replenish warships and increasing the time before the replenishment vessel itself must return to port to restock.

In addition to their primary role of supporting maritime task groups in both open water and littoral operations, replenishment ships are also critical *joint* logistic assets necessary to sustain forces operating throughout the littoral in operations ranging from humanitarian support to warfighting missions. The latter operations will depend on the ability of naval forces to contribute to the protection of the joint force, provide and safeguard sustainment from the sea and protect the logistic bridge from the home base across the open sea and through potentially hostile littoral waters. Afloat support for these operations includes supporting land forces, forward operating bases, and any forward land-based resupply points. This capability was convincingly demonstrated during operations in East Timor in 1999. With their ability to carry large amounts of stores and to operate helicopters, replenishment ships are also well suited to provide humanitarian aid.

Despite technological advances, replenishment at sea, whether ship-to-ship or by helicopter, remains a routine but potentially dangerous and personnel intensive evolution. This complex task is carried out by the replenishment ship and receiving warship steaming side-by-side in close proximity, linked by fuel hoses and wires rigged between the two vessels, whilst simultaneously transferring stores by helicopter. It demands great skill and the highest standards of seamanship, especially in rough weather and at night. However, the ultimate test in replenishment at sea, for both supplying ship and customer, is for a usually difficult exercise in peacetime to be carried out in time of tension or war, with ships faced with simultaneously carrying out replenishment while at a heightened state of readiness for action. In an *Anzac* class frigate for example, up to 20 of its complement of 165 are required as line-handlers at the receiving station to haul over the highline or spanwire and connect up to the replenishment at sea system. In addition, a significant number of people (up to 75 percent of the crew) are needed to close-up at various specialist stations and to manage and strike-down the ammunition and stores embarked, whether from another ship or by helicopter.

The Royal Australian Navy's (RAN) current afloat support capability is provided by the underway replenishment ships HMAS *Success* and HMAS *Westralia*. The locally-built *Success*, which entered service in 1986, is a multi-purpose replenishment ship (AOR), which effectively combines the functions of a fleet oiler and stores ship. This very versatile ship is equipped with a flight deck and helicopter hangar. *Success* is capable of simultaneously replenishing two ships, one on each side, and concurrently by the embarked helicopter to both the receiving ships and other ships in company. Four main replenishment at sea stations are fitted, two of which have dual functions and can be used to transfer either fuels or solids, including ammunition.



*HMAS Success replenishing HMAS Adelaide at sea, 2002 (Defence Image Gallery)*

The less capable auxiliary fleet oiler (AO) *Westralia* was designed and built as a commercial petroleum tanker and modified by the British Royal Fleet Auxiliary for underway replenishment in 1979. Originally leased by the RAN in 1989, *Westralia* was purchased outright in 1994. Although it can carry some food and stores, its principal cargo is diesel and aviation fuel to refuel warships at sea. *Westralia* has transfer points for fuel, water and stores and is capable of replenishing up to two ships at a time. Both ships saw active service in the 1990-91 Gulf War as part of the Multi-National Naval Force conducting operations in support of Kuwait, and more recently also provided essential logistic support to INTERFET operations in East Timor.

Although the acquisition of new surface combatants and amphibious ships is important, being able to support them as part of the RAN's capability to deploy locally, regionally and worldwide, is also of crucial importance. A key issue in determining the number and capabilities of future replenishment vessels, is the issue of concurrent operations, often in geographically dispersed locations. A replenishment vessel used to support the deployment, projection and sustainment of land forces would invariably be unavailable to replenish other, geographically dispersed vessels at sea. This is an important point because in addition to projecting and sustaining land forces, an operation in the littoral will often require surface combatants to conduct operations over a wide geographical area. These units will be required to undertake such diverse activities as shaping operations, patrolling choke points and escorting merchant vessels. In addition, surface combatants may also be required to concurrently conduct border protection operations, or even to participate in wider multinational and coalition operations in support of Australian national interests, all of which will also require replenishment at sea.

As a result of the 2003 Defence Capability Review, the ageing and single-hulled *Westralia* will be replaced by a more modern, but similar, double-hulled commercial tanker.<sup>2</sup> This will be purchased in 2005 and converted locally to an auxiliary fleet oiler, entering service in 2006.<sup>3</sup> It is, however, envisaged that *Success* will be replaced by a multi-purpose afloat support and sustainment capability next decade. In addition, it is expected that the major amphibious ships to be acquired will also be capable of providing limited afloat support to accompanying ships, in addition to their primary role of landing and supporting a force ashore.

Rather than landing all logistic support for land forces on arrival in theatre, it is expected that the ADF will embrace a joint 'seabasing' concept in the future, tailored to our specific requirements but on a more modest scale than that envisaged by the US. This would see the retention of material such as ammunition and fuel onboard ships until such time that it was required ashore. This would reduce the footprint ashore and as a result, the vulnerability of stores dumps ashore, reduce reliance on host-nation support, streamline logistics resupply and provide flexibility for rapid redeployment or manoeuvre operations in the littoral. Afloat support and amphibious ships, supported by strategic sealift capabilities, will have a key role to play in providing sea-based logistic support to forces deployed at sea and ashore in the littoral.

Given the realities of Australia's geostrategic situation and recent Government priorities, an afloat support capability is essential. This capability will provide flexible response options to ensure that surface combatants and joint task groups are able to successfully conduct operations from and at sea for the protection, projection and sustainment of ADF land and air elements, as well as for the conduct of broader maritime operations in support of Australia's national interests.

*Published as Issue 3, May 2004*

## Notes

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- <sup>1</sup> Royal Australian Navy, *Australian Maritime Doctrine*, Defence Publishing Service, Canberra 2000, p. 100.
- <sup>2</sup> Project SEA 1654 in Department of Defence, *Defence Capability Plan 2004-2014, (public version)*, Defence Material Organisation, Canberra, 2003, pp. 155-156.
- <sup>3</sup> Editorial note: the replacement of HMAS *Westralia* with the modified merchant tanker Delos (to be commissioned as HMAS *Sirius*) is presently well advanced; see Minister of Defence, *Media Releases 145/2004* of 28 July 2004, and *23/2005* of 11 February 2005.

# The Great Amphibious Invasion: D-Day, 6 June 1944

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Mr Jozef Straczek

One of the clearest demonstrations of sea power occurred on 6 June 1944, when the Allies landed in German-occupied Normandy in the greatest sea-borne invasion in history. Operation OVERLORD was the culmination of four years of maritime operations against the Axis forces in the European theatre. In the space of a day the Allied forces gained a foothold in occupied Western Europe that could not be dislodged, and which formed a bridgehead for subsequent operations that would drive German forces progressively back toward their ultimate defeat in 1945.



*Troops wade ashore on Omaha Beach, (US Navy Official)*



Following the Allied defeat in France in 1940, Adolf Hitler prepared his forces for Operation SEA LION, the planned amphibious assault on Great Britain. German control of both the air and sea were imperative for the conduct and sustainment of such an operation. Due to the success of the Royal Air Force in the Battle of Britain and ongoing Royal Navy (RN) operations, Germany never gained sufficient command of the sea or air to hazard such a risky venture. The operation was cancelled on 12 October 1940 when Hitler's priority shifted to Operation BARBAROSSA and the invasion of the Soviet Union. As well as contributing to the defence of Great Britain from invasion the RN was responsible for ensuring the safe passage of convoys carrying vital supplies, men and equipment to the United Kingdom from America and the British Empire that allowed the war to continue against the Axis.

After Pearl Harbour and Hitler's declaration of war on America the armed forces and, perhaps more significantly, the industrial might of the United States joined the war in Europe. Shipyards in America were crucial to the war effort, as not only were they building and repairing warships of all types, but also constructing merchant ships and a variety of specialised amphibious craft. These amphibious craft would form the backbone of the future D-Day invasion force.

Planning for an Allied return to the continent had commenced in 1941, with Stalin pushing for a Second Front in Europe from 1942. The Casablanca Conference in January 1943 set 1944 as the year for the invasion of France. At the Tehran Conference in November 1943, Roosevelt and Stalin forced Churchill to commit to a firm invasion date of May 1944. General Eisenhower was appointed the Supreme Allied Commander for Operation OVERLORD. Once the invasion decision had been made, planning commenced in earnest. The date subsequently changed to June 1944 after two invasion beaches were added to the plan, necessitating a month delay to obtain additional landing craft and transport aircraft.

Admiral Sir Bertram Ramsay, RN was appointed the Naval Commander and given responsibility for organising Operation NEPTUNE, the naval element of Operation OVERLORD. This was no simple task, as sufficient forces had to be built up, equipped, sustained, and transported across the Channel to France. The movement of thousands of ships of various sizes had to be carefully choreographed to ensure that they arrived at the right time in the right place to perform their allotted tasks. Prior to the assault, minefields and other obstacles had to be cleared and channels marked for the landing craft. During the assault phase other warships were to bombard enemy forces ashore, and to protect the transports and support ships from enemy submarines, surface craft and aircraft. Still more warships were required to maintain a blocking force in the North Sea to prevent German surface units in the Baltic impeding the invasion, while other escorts would continue to protect convoys to and from the United States and Russia, and support operations in the Mediterranean and the Pacific.

After the initial landings the assault and follow-on forces required stores, ammunition, fuel, reinforcements, and casualty evacuation. Because most of Europe was still under Axis control, all logistic support to the invasion and follow-on forces had to be provided across the Channel from England. While very limited support could be, and was, provided to advanced land forces by parachute drop or glider, the massive size of the invasion force required the bulk of support to be provided from the sea.



*The D-Day Wall Map in Southwick House, HMS Dryad  
(Defence Estates UK)*

Initial planning for the operation quickly identified problems with the obvious landing area of the Pas de Calais. Not only were the German defences much stronger, the landing beaches were too narrow and would only allow a force of two divisions in the first wave, increasing the vulnerability of the landing force. Following extensive analysis of possible landing sites the beaches of Normandy were chosen. These beaches allowed for the initial landing of five infantry divisions supported by three Airborne divisions<sup>1</sup> on a 50-mile front in an area where, though the geography favoured the defenders, the German defences were not very strong.

The amassing of the necessary ships, support craft and aircraft to move this force took time, as the Allied war effort was spread between Europe and the Pacific. Compromises on equipment allocation between theatres were necessary despite the 'Germany First' policy. The date of the assault was initially set for 5 June, to meet the requirements of a half tide at dawn, to allow landing craft to cross the German beach obstacles, following a night with a full moon, to allow for the pre-landing parachute drops of the Airborne divisions. The invasion was subsequently delayed for 24 hours to 6 June to take advantage of a gap in a storm front passing over the English Channel.

Once the executive order was given an armada of nearly 7000 ships and small craft began to move, crewed by over 195,000 naval personnel. The force consisted of: 1212 naval combatants, ranging from battleships to motor torpedo boats; 4126 landing ships and assault craft; 736 ancillary ships and support craft; and 864 merchant ships. On the night of 5 June, 97 minesweepers began clearing channels for the invasion force. This hazardous task was made more difficult by the poor weather conditions. The assault forces passed down the swept channels and took up their allotted positions. At 0200 troops began to embark in the assault craft. The landings began at 0630 and achieved

complete tactical surprise. German maritime and air operations against the invasion force were uncoordinated and ineffective, particularly in the face of overwhelming Allied air superiority and sea control.

During the assault phase 6 battleships, 2 monitors, 23 cruisers, 101 destroyers, 17 frigates, 21 corvettes, 6 sloops, 30 trawlers, 17 patrol craft, 228 specialised gun and rocket armed landing craft, and a host of coastal craft provided bombardment support to the soldiers ashore and protected the transports and support ships from enemy submarines, surface craft and aircraft. While over 12,000 Allied combat aircraft, including fighters, ground attack, tactical bombers, and heavy bombers, supported the landings, both before and during 6 June, naval fire support was crucial to overcoming the enemy defences, particularly the coastal guns. Eisenhower noted in his post battle report that 'no instances were found of damage done by bombs perforating the covering shields. Such of the guns as were silenced had been so reduced by shellfire through the ports.'<sup>2</sup> The shore bombardments at Gold, Utah, Juno and Sword beaches were particularly effective, silencing the German counter battery fire and disrupting beach defences and troop movements behind the beaches. By the end of the day the German beach defences had been neutralised, around 133,000 troops had landed across the beaches, another 23,400 troops had landed from the air, and the greatest concern of the Allied command was the weather.



*Landing ships landing cargo ashore during low tide, Normandy 1944 (US Navy Official)*

Allied naval and air units also strove successfully to neutralise German naval attempts to disrupt the landings and the resupply effort. In the days following the invasion 11 U-Boats, 2 destroyers, 15 E-Boats, 2 torpedo boats and 40 smaller craft were destroyed, and 5 U-Boats and a destroyer badly damaged. Allied losses in return comprised a destroyer, 2 frigates, 3 landing ships, 3 cargo ships and 9 smaller vessels sunk.

Following the successful lodgement on the Normandy beaches the land forces had to be sustained and reinforced. During the period 7 to 30 June, 570 Liberty ships, 788 coasters, 905 Tank Landing Ships, 1442 Tank Landing Craft, 180 troop ships, and 372 Large Infantry Landing Craft arrived off France. By the end of June ships had transported 861,838 personnel, 157,633 vehicles and 501,834 tons of supplies to France. Coupled to this effort were the continuation of the Atlantic supply line from the east coast of North America to the United Kingdom and the convoys from the United Kingdom to Russia.

More than 2500 Australians took part in the D-Day operation, in the air, on land, or at sea. Although no Royal Australian Navy (RAN) ships were present, Australian naval personnel, mainly members of the RAN Volunteer Reserve (RANVR), did serve in or command landing craft, coastal craft and warships of the naval force. One notable individual was Lieutenant Ken Hudspeth, RANVR, who commanded the X-Craft (midget submarine) *X20*. Prior to the planned departure of the invasion force *X20* crossed the Channel to take up a submerged position off Juno Beach. On the night of 4 June *X20* surfaced to pick up a BBC broadcast, which contained a coded message that the invasion was postponed. This meant another 18 hours in the cramped, smelly, humid submersible.

On the night of 5 June the coded message indicated the invasion was to proceed. Hudspeth and his crew mounted and checked their equipment. As the pre-invasion bombardment began they turned on their radar beacon and shone a light to seaward to allow the assault craft to navigate to the correct beaches. For his part in the invasion Lieutenant Hudspeth was awarded a third Distinguished Service Cross. He had received the first award for his part in the attack on the *Tirpitz* in 1943 and the second in January 1944 for beach reconnaissance operations in preparation for the D-Day landings.

Meanwhile, half a world away, Australian forces in the South West Pacific were an integral part of amphibious operations in General Douglas MacArthur's drive toward the Philippines. These operations were complicated by being launched and sustained from further away than simply 55 nm across the English Channel, as there was no significant industrial or logistic support closer than Australia. Harbours and repair facilities had to be created, logistics stockpiles, troops and naval units amassed in forward areas, and forward airfields captured or constructed.

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## Notes

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- <sup>1</sup> 1st US Infantry Division (including elements of the 29th US Infantry Division), 4th US Infantry Division, 3rd British Infantry Division, 50th (Northumbrian) Infantry Division, 3rd Canadian Infantry Division, 82nd US Airborne Division, 101st US Airborne Division, 6th British Airborne Division.
- <sup>2</sup> *Report by the Supreme Commander to the Combined Chiefs of Staff on the Operations in Europe of the Allied Expeditionary Force 6 June 1944 to 8 May 1945*, HM Stationary Office, London, 1946, p 21.



## A Loss More Symbolic than Material?

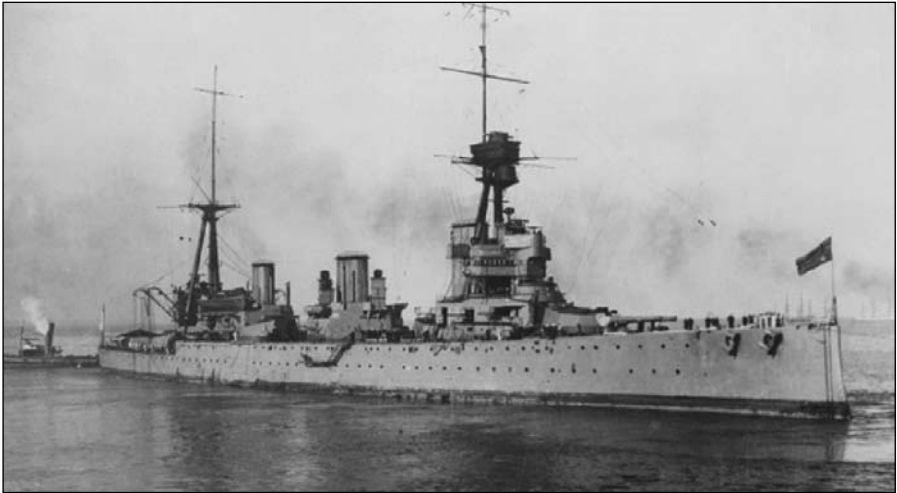
Lieutenant Commander Glenn Kerr, RAN

In 1921 the United States (US) President Harding called a conference between the US, Britain, Japan, France and Italy to advocate mutual naval arms limitation. Faced with massive post-war debts all parties agreed on limitations. The immediate result of the ensuing *Washington Five Power Naval Treaty 1922* was that Britain, America and Japan scrapped a number of unfinished capital ships and older dreadnoughts.<sup>1</sup> For Australia, the casualty of the Washington Treaty closest to the heart of the nation was the *Indefatigable* Class battlecruiser HMAS *Australia* - flagship of the Australian fleet, pride of the nation and the first and only capital ship of the Royal Australian Navy (RAN). When she was scuttled off Sydney Heads on 12 April 1924 as part of the British quota *Australia* had been in full commission for less than nine years.

Two schools of opinion surround the loss of the battlecruiser. The first believes that it was a mistake that removed an important Australian naval asset, a sentiment typified in the words of Captain Feakes at her scuttling in 1924: 'Strong men were wet-eyed. Many cursed. It was a tragic blunder.'<sup>2</sup> The second school, prevalent at the time and since, claimed that the vessel was obsolete and of no great loss to the RAN. Most recently the centenary history of the RAN stated that 'the loss was more symbolic than material'<sup>3</sup> largely predicated on the fact that the 12-inch ammunition required for the main armament was no longer in production. The questions then are whether *Australia* was obsolete, whether the vessel's retention was possible, and whether it would have had any significant impact on inter-war deterrence.

When *Australia* was scuttled in 1924, the burden of the nation's naval defence fell on four 1906 designed 6-inch gun light cruisers. The Royal Navy (RN) possessed no armoured cruisers, and based only light cruisers in Asia. Japan and America possessed 8- to 10-inch gun armoured cruisers, many of which were based in the Asia-Pacific region. Imperial relations with these two nations fluctuated in the 1920s, and the possibility of conflict could not be entirely ruled out. Positioned at the end of long imperial sea lines of communication, and dependent on foreign trade, Australia was particularly vulnerable to a commerce war in the event of conflict with Japan or America. A RN squadron would take at least a month to arrive in the Pacific from Europe. During this time Australia would be isolated and largely dependent on the RAN to defend its maritime interests. The presence of *Australia* alone in 1914 had deterred the German East Asiatic Squadron, comprised of two armoured cruisers and four light cruisers, from conducting commerce war close to Australia.

Battlecruisers were designed with high speed, long range and heavy guns primarily to hunt down and destroy commerce raiding armoured cruisers and to interdict enemy commerce. Accompanied by a cruiser escort, a battlecruiser was capable of deterring a weaker enemy raiding force, destroying commerce raiding cruisers preying on imperial shipping, and overpowering enemy cruisers escorting convoys, and it required a disproportionate response to counter. In the vastness of the Pacific, prior to the advent of large aircraft carriers and long-range high performance aircraft, a battlecruiser and escorts were relatively safe from air attack. As such, the battlecruiser provided considerable strategic reach for a navy with extensive sea lines to control.



*HMAS Australia (I) (RAN Historical Section)*

Between the wars *Australia* and the light cruisers could have provided a force suitable to deter any military threats against Australian interests in the Pacific, particularly the mandated territories, from Japan or the US. It would also have provided an overt threat to Japan's mandated territories and America's external territories should economic or military pressure have been brought to bear on the Australian government.

*Australia* would have required modernisation, involving at the minimum: new turbines and boilers to increase her speed and reduce weight, improved fire control systems, increased armour protection, main armament modification, increased secondary and anti-aircraft armament, and other minor work. In the mid 1920s this would have cost around the same as the construction of a new 8-inch gun *County* class heavy cruiser, but provided a more powerful capability. With only minor improvements to her armament, *Australia* could have delivered up to 45 percent greater weight of fire than a *County* class cruiser. Even as late as 1942, a modernised *Australia* would have had no less than 19 percent greater weight of fire than the best-armed Japanese heavy cruisers and up to 69 percent greater weight of fire than a Japanese light cruiser.

The Washington Treaty contained several areas of ambiguity that would have allowed the Australian Government to mount an argument to retain the battlecruiser. Firstly, the treaty definition of a capital ship, as one armed with greater than 8-inch guns, only applied to ships built after the signing of the treaty. The definition for existing ships was simply agreement that they were a capital ship by virtue of an ability to take their place in the line of battle. By 1922 the capital ship standard was 14 to 15-inch guns, with new 16 to 18-inch armed vessels under development. *Australia* was not fit to take its place in the line of battle, and it could have validly be argued that 12-inch armed vessels such as *Australia* should be re-classified as armoured cruisers and therefore exempted from the treaty tonnage limitations. The treaty provisions did not preclude retaining old cruisers

with larger than 8-inch guns. The United States Navy retained its 1906 vintage 10-inch gun *Tennessee* class armoured cruisers after 1922, with USS *Seattle* remaining in full commission as a heavy cruiser until 1941. This could have provided grounds to argue for the retention of *Australia* along similar lines.

Secondly, Commonwealth naval vessels were paid for, manned and maintained at Commonwealth expense. They were under the control of the Commonwealth at all times, unless transferred to RN control in wartime by agreement of the Commonwealth. Section 51 of the *Defence Act 1903* gave the Commonwealth power in all respects for the defence of Australia, without any legal need for agreement by Britain in making defence policy. Accordingly, Britain could not include *Australia* in its quota for the purposes of the Washington Treaty without the agreement of the Australian Government. Had the Australian Government not agreed to the inclusion of *Australia* in the quota, it could have voiced its opposition in the Imperial discussions, and refused to countersign the treaty. Australia would then have been able to put a strong case that, while bound by the strictures of the treaty with regard to tonnage limitations on the British empire, it was not required to sacrifice its own ship as part of that total.

Thirdly, the Australian Commonwealth did not receive the legal power to enter into extra-territorial treaties that might be against the interests of Britain until the Statute of Westminster in 1931. However, the Constitutional Conventions provided that treaties entered into on Australia's behalf by Britain could not be self-executing, and had to be entered into Australian domestic law by the Commonwealth Parliament.<sup>4</sup> In short, if the Australian Parliament did not agree with a treaty imposed by Britain, it could refuse to enact the treaty in Australian law, and would thus not be bound by that treaty.

The argument that ceasing production of 12-inch ammunition was sufficient reason for the disposal of *Australia* (under the provisions of the Washington Treaty) is difficult to support. By 1912 13.5 to 15-inch guns were superseding the 12-inch gun in new RN capital ships. From 1922 the treaty removed from service all other RN capital ships carrying the 12-inch/45 Mk X gun. Existing stocks of barrels and ammunition could have been transferred to the RAN, thereby providing many years of support. Research indicates there were at least 95 barrels and 40,000 rounds of 12-inch ammunition available in the early 1920s. Moreover, the Brazilian dreadnoughts, which remained in active service until 1953, carried the same 12-inch/45 gun, while the Spanish dreadnoughts, whose 12-inch/50 guns remained in active service as shore batteries until the 1990s, used the same ammunition.

Although there were no technical or logistic impediments to retaining *Australia*, there were cogent reasons for the Australian Government to dispose of the ship. The world slipped into a sharp recession in 1920-21. Australia suffered due to its reliance on foreign trade, although to a lesser extent than Britain, America and Japan. The Nationalist Party, facing a general election, was under pressure from the Australian Labour Party, backed by a powerful militant working-class movement, to divert additional funding into social benefits schemes such as soldier housing and other repatriation benefits. The Australian Government was paying off war-related loans of £262.5 million, or 68 percent of GDP, including a debt to the United Kingdom of £43.4 million. Maintaining *Australia* in operational status took the largest slice of the RAN's budget and personnel. Even before



the Washington Conference *Australia* had been laid up in reserve to reduce expenses. Accordingly, there was little support in early 1922 to retain the vessel. Defence was no longer a key portfolio and funding was being progressively reduced. The disposal of the battlecruiser allowed for a major reduction in defence expenditure, providing funds for redirection to more pressing social benefits schemes. Prime Minister Hughes understood that the naval limitations did not represent a permanent solution to Japanese expansion, but that they would buy peace in the Pacific for ten years.<sup>5</sup> In this heated economic and social climate, many governments refocused public expenditure from arms to economic rehabilitation.

Despite opinions to the contrary, *Australia* was not obsolete in 1924. Notwithstanding the vessel's known weaknesses, it was still fit for the purpose for which it was designed, specifically the destruction of enemy armoured cruisers. Indeed, the restrictions placed on new cruiser construction in the Washington Treaty ensured that *Australia* would have remained effective for some time, by limiting the armament of new cruisers to 8-inch guns. The disposal of *Australia* under the terms of the Washington Treaty was by no means a given. There were a number of loopholes that could have allowed the Australian Government sufficient room to bargain for retention of the vessel, had it so desired. The Australian Government made a conscious decision to allow the ship to be listed for disposal to free up funds for dispersal on higher Government spending priorities. However, it did accept a risk that neither Japan nor America would conduct operations against *Australia* and the Empire in the aftermath of the treaty, for with the battlecruiser gone the light cruisers of the RAN would be vulnerable to Japanese and American armoured cruisers.

The Australian Government had realised soon after the 1923 Imperial Conference that it was vulnerable to fluctuations in Imperial defence policy, due to its position on the periphery of the Empire. Nonetheless, it chose not to unilaterally retain and rebuild *Australia* to counter possible threats to its sea lines of communication. The Australian Government could have provided itself with a greater deterrent capability and a wider range of maritime security and diplomatic options had it argued for the retention of *Australia* as an armoured cruiser under the Washington Treaty provisions.

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## Notes

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- <sup>1</sup> G. H. Gill, *Royal Australian Navy, 1939-1942*, Australian War Memorial, Canberra, 1957, pp. 9-14.
- <sup>2</sup> H. Feakes, *White Ensign, Southern Cross: A History of the Navy in Australia*, Ure Smith, Sydney, 1951, p. 214.
- <sup>3</sup> D. Stevens, (ed), *The Australian Centenary History of Defence - Volume III : The Royal Australian Navy*, Oxford University Press, South Melbourne, 2001, p. 65.
- <sup>4</sup> A. Twomey, 'Federal Parliament's changing role in treaty making and external affairs', *Parliament of Australia Research Paper* 15 1999-2000, 2000, p. 8.
- <sup>5</sup> J. McCarthy, *Australia and Imperial Defence, 1918-39: A study in air and sea power*, University of Queensland Press, 1976, p. 12.

# Naval Operations other than War 1901-2004

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Ms Vanessa Bendle

For over a century, since its inception in 1901 with the creation of the Commonwealth Naval Forces, the Australian Navy has performed many operations other than war. These operations fall into the *diplomatic* and *constabulary* categories of the Span of Maritime Operations outlined in *Australian Maritime Doctrine*.<sup>1</sup> Diplomatic operations involve supporting Australian foreign policy, while constabulary operations involve enforcing the provisions of international and domestic law in Australia's maritime zones. The Royal Australian Navy (RAN) has regularly been involved in deployments in support of Australia's foreign policy, as well as exercises on both regional and international levels to show presence. The RAN has had an ongoing role in national surveillance, and has also provided military assistance to the national and international community in the form of hydrographic surveying and charting. It has provided assistance to overseas communities, as well as disaster relief, search and rescue, and the evacuation of Australian and approved foreign citizens from regional trouble spots. The RAN has also been involved in peace operations, environmental and resource protection, the prevention of illegal immigration, and drug interdiction. The following examples provide a brief overview demonstrating the diversity of operations that Australia's Navy has undertaken over the last century.

In November 1918 the cruiser HMAS *Encounter* delivered drugs, stores and a Medical Relief Force to Fiji during the midst of the Spanish Influenza pandemic that killed over 25 million people worldwide. Despite a death rate of 10 percent amongst the native population, almost all of the crew volunteered to go ashore to assist, although these landing parties were not subsequently required.

During the Prince of Wales' visit to Australia in 1920 the battlecruiser HMAS *Australia* played a leading part in naval activities associated with the visit, including the RAN's first review in Port Phillip. During the interwar period, RAN ships regularly visited the New Guinea mandate, the Portuguese and Dutch territories, and the islands of the South Pacific to show the flag and maintain order. This included a request in 1927 by the British government for the light cruiser HMAS *Adelaide* to conduct a punitive expedition to put down a native uprising in the British Solomon Islands. The RAN also provided essential assistance to the Australian community, including bushfire and search and rescue assistance.

In the 1930s the economic situation worldwide worsened and naval activity in Australia was drastically reduced as funding was cut. Notwithstanding this, the RAN was still involved in a range of operations other than war. In 1934, the heavy cruiser HMAS *Australia* embarked the Duke and Duchess of Gloucester for a Royal Tour of New Zealand and the Pacific, with the heavy cruiser HMAS *Canberra* acting as an escort. The sloop HMAS *Moresby* provided assistance to Rabaul after a catastrophic volcanic eruption in 1937 that destroyed much of the city and killed over 500 people. There was also a visit to New York in 1939 by the light cruiser HMAS *Perth* to represent Australia at the World Fair, and to express gratitude for an earlier visit to Australia by ships of the United States Navy in connection with the New South Wales 150th anniversary celebrations.



*Providing medical assistance in East Timor (RAN)*

In the years immediately after World War II (WWII) the RAN conducted operations to prevent smuggling and illegal immigration in Japan, as well as operations to dump unwanted ammunition and explosives. The destroyer HMAS *Warramunga* visited Guadalcanal to exercise a steadying influence during a period of unrest. The RAN also intercepted Japanese fishing vessels operating without authority in the waters of the New Guinea mandate.

In 1951 HMAS *Bataan* was involved in preventing the Nationalist Chinese enforcing a blockade outside China's territorial waters, thereby illustrating the ability of warships to exercise a coercive diplomatic role. During this decade, the RAN conducted surveillance tasks around Australia, performed its first rescue operation by helicopter, and conducted anti-smuggling patrols off North Borneo. The RAN surveyed shipping lanes, conducted a successful visit to Thailand, and the frigate HMAS *Queenborough* completed a global circumnavigation to show off Australia's technical capabilities after her conversion to an anti-submarine frigate. The Tank Landing Ship HMAS *Labuan* also carried an Australian National Antarctic Research Expedition (ANARE) party to Heard Island, to claim the territory for Australia.

Throughout much of the 1950s and 1960s, the RAN maintained a presence in the defence of Malaysia and Singapore under the banner of the Far East Strategic Reserve, and although the Navy did participate in several conflicts, it operated mostly as a deterrent force, ie. a fleet-in-being. Australian ships participated in the Malayan Emergency, 1948-60, largely carrying out patrol and interdiction duties. RAN participation in the Indonesian Confrontation, 1963-66, was again mostly indirect and related to the diplomatic aspects

of continued presence and the symbolic use of sea power.

In 1962 and 1963 RAN ships made goodwill visits to Saigon to demonstrate Australian support for the South Vietnamese regime, and surveyed shipping routes for ore carrying vessels in the Port Hedland area. Mid-decade, the destroyer HMAS *Anzac* represented Australia at the coronation of the King of Tonga. As part of Australia's diplomatic efforts the Navy assisted overseas communities, including conducting minesweeping operations off Bougainville and building a 210 foot pier on Salakan Island in Borneo. As ever, the RAN was involved in search and rescue missions, including a high-speed dash from Melbourne to Macquarie Island to rescue a seriously ill member of ANARE. Assistance was provided after serious bushfires in Tasmania, and the first foreign vessel was arrested for illegally fishing in Australian waters. The RAN was also involved in a two-month operation shadowing a Russian trawling vessel in the Gulf of Carpentaria, as well as shadowing Soviet ships in the waters off Australia.

In the 1970s the RAN was involved in one of the biggest peacetime disaster relief operations conducted in Australia, Operation NAVY HELP DARWIN, following the devastation of Darwin by Cyclone Tracy in December 1974. In January 1975 Navy clearance divers responded within seven hours to the Derwent Bridge disaster in Hobart. The Navy also provided disaster relief during the decade fighting bushfires around Sydney. This decade also saw a commemoration of Cook's landing, including 48 ships from ten nations. The guided missile destroyer HMAS *Hobart* completed the RAN's first global circumnavigation in 21 years. The Navy was also involved in patrol and surveillance duties in northern Australian waters, directed towards the protection of territorial waters and contiguous fishing and resource zones. Overseas, a RAN task group visited Osaka at a time when Japan was rapidly becoming Australia's major trading partner. RAN ships supported the protest against French nuclear tests in the Pacific in 1973. The RAN's exercise program provided a significant presence overseas, highlighted by the commencement of the RIMPAC series of exercises and of regular bilateral naval exercises with Indonesia. The RAN also provided assistance to Indonesia through the Defence Cooperation Program, and assistance to Papua New Guinea in the form of channel clearance and cyclone relief. In 1975, when the Portuguese territory of East Timor was invaded by Indonesian forces, an Australian naval task group was assembled in Darwin for the emergency evacuation of refugees. When the Australian Government accepted the subsequent annexation of East Timor as a *fait accompli*, this task group was not deployed.

The 1980s were a period of high activity for the RAN. In 1980, as part of an Australian task force, the aircraft carrier HMAS *Melbourne* deployed on an extended cruise to show the flag in the Indian Ocean. Commencing in 1981 a major fleet unit was maintained in the North West Indian Ocean to observe Soviet ship movements during the Soviet invasion and occupation of Afghanistan. That year HMAS *Swan* also conducted its first visit to China in 32 years. Between 1982 and 1986, RAN personnel also provided assistance to the United Nations Emergency Force in the Sinai. In December 1985 the destroyer tender HMAS *Stalwart* conducted a resupply run to the ANARE mission on Macquarie Island, when the regular Antarctic supply vessel *Nella Dan* was trapped in ice for six weeks. In response to the 1987 Defence White Paper, the RAN initiated a high profile presence in

the South West Pacific region and rolling deployments to South East Asia. Importantly, the RAN was involved in a wide range of renovation and construction projects in local communities. Overseas deployments were conducted to demonstrate presence and military capability, thereby reinforcing Australia's foreign policy and strengthening defence relationships with countries in our area of primary strategic interest. The Pacific Patrol Boat project saw 22 vessels delivered to reinforce the capacity of 11 South West Pacific nations to protect their maritime resources. The RAN provided relief assistance after an earthquake in Bali, wharf construction and channel clearance in the Solomon Islands, and cyclone assistance to the Solomon Islands and Tonga. The Navy conducted patrols and provided helicopters in support of counter terrorist units for the protection of Bass Strait oil rigs. Operation MORRIS DANCE saw ships placed on alert to provide evacuation of Australian and approved foreign nationals and intervention after the 1987 military coup in Fiji, repeated in 1988 during Operation SAILCLOTH for instability in Vanuatu. The RAN also contributed to Operation IMMUNE, an ADF operation that provided essential transport during a domestic pilots' strike.



*Grinding a clam for tagging on HMAS Tarakan during  
Operation CLAMSAVER, May 1992 (RAN)*

During the 1990s the RAN continued to undertake deployments to South East Asia and the South West Pacific as a commitment to presence in our region of interest. The commitment to national surveillance remained, with many boardings and apprehensions of suspected illegal fishing and people smuggling vessels. The exercise program continued, with the RAN participating in ADF, regional and international exercises. During this period, the RAN was placed on alert to evacuate Australian and approved foreign nationals from Papua New Guinea. It also provided assistance in a range of peacekeeping and relief operations to Cambodia, Somalia, Indonesia, the Solomon Islands and East Timor. The RAN played an important role in the Maritime Interception Force in the Persian Gulf, enforcing United Nations sanctions against Iraq. The largest number of RAN survey vessels assembled since WWII took part in survey operations off Arnhem Land. In a change of pace, the RAN took part in Operation CLAMSAVER, transporting baby clams to alleviate overcrowding on the Great Barrier Reef. It was also involved in several high profile rescue operations in the Southern Ocean that attracted a large amount of media attention.

At the turn of the century, the RAN was undertaking many and varied activities spanning the globe. As well as conducting military campaigns, the RAN provided support to the Centenary of Federation Celebrations, the Olympic and Paralympic Games, the Commonwealth Heads of Government Meeting, the Rugby World Cup, and a visit by the President of the United States of America. The RAN also provided assistance to East Timor, the Solomon Islands and Bougainville, as well as continuing to participate in the Maritime Interception Force in the Persian Gulf. There were also some high profile chases, in conjunction with foreign navies and other Government agencies, to intercept vessels suspected of conducting illegal activities in Australian waters. The RAN provided disaster relief to overseas communities, as well as flood relief and bushfire relief in Australia. There were also ongoing sovereignty patrols in the Southern Ocean and surveillance operations to prevent the arrival of illegal immigrants.

Over the last century or so, the RAN has repeatedly demonstrated its capacity to undertake a diversity of operations other than war. It has been used diplomatically in both benign and coercive operations to support the Australian Government, as well as providing assistance and disaster relief to civil communities in Australia and overseas. The RAN has also played an increasingly important constabulary role, related to both international and domestic law, including supporting United Nations peace operations, enforcing sanctions, environmental and resource protection, counter-drug operations, and preventing illegal immigration. These few examples demonstrate how significant the RAN's operations other than war have been over the last century, and suggest their continued relevance to Australia in the future.

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## Notes

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<sup>1</sup> Royal Australian Navy, *Australian Maritime Doctrine*, Defence Publishing Service, Canberra 2000, p. 57.



# Why the ADF needs a Minewarfare Capability

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Commander Roger Dobson, RAN and  
Commander Glenn Ker, RAN

Mining can occur in any level of conflict and the sea mine represents a viable threat to Australia and its interests that cannot be ignored. The ability to counter the potentially serious threat to national security and trade posed by covertly laid sea mines requires an effective and balanced Mine Warfare (MW) capability incorporating a combination of minehunting, minesweeping, clearance diving, and mining capabilities. MW forces need to be capable of deploying throughout Australia's area of strategic interest to conduct mine countermeasures operations in order to ensure the safe transit of naval units and commercial shipping through mine threat areas. The Australian Defence Force (ADF) MW force must be able to conduct:

- mine surveillance and reconnaissance operations to establish the presence or absence of mines;
- timely clearance of ports, port approaches, off-shore resource installations, choke points and focal areas;
- hydrographic reconnaissance, survey and clearance of obstacles;
- protection of Sea Lines of Communication;
- Explosive Ordnance Disposal (EOD), Improvised Explosive Device Disposal (IEDD), and demolition of ordnance and explosive devices; and
- offensive, defensive and protective mining.

The maritime mine is a comparatively cheap, effective weapon that can be used in a variety of ways to achieve different strategic or tactical objectives. Mines can be used in small numbers to sink ships, or in large numbers to blockade ports and deny sea areas to an adversary. They can be used at all levels of conflict, particularly in the early stages where political pressure can be exerted without fear of immediate higher level retaliation. They can be laid by aircraft, submarines and surface vessels, covertly and without advance warning. The low cost and highly effective nature of mines means that economically constrained countries or non-government groups may be able to employ a destructive capability out of all proportion to its cost. In the Australian geo-strategic environment, mines are a particularly effective method of interdicting sea communications in the archipelagic choke points of South East Asia.

The use of naval mines and the need for effective mine countermeasures (MCM) has been one of the most notable features of naval operations in the post World War II (WWII) era. Since the Corfu Channel incident in 1946<sup>1</sup> the threat of naval mines has been a regular feature of international conflict and crisis. In recent decades the use of naval mines has increased, and their potential use by terrorist and criminal organisations has added another dimension to the threat. Incidents in the Arabian and Persian Gulfs since the 1980s have reinforced the need to be able to combat both low and high technology mines.



Early sea mines were relatively simple devices; however, modern mines are more technically advanced, versatile in their deployment and difficult to counter. Today, there are many types of mines available, each with their own delivery system and purpose. Mine actuation methods vary significantly, including the use of ships' magnetic, acoustic and pressure signatures, as well as contact or remote control. Therefore, a combination of minehunting, minesweeping and clearance diving is required to allow for the efficient and effective location, identification and disposal of sea mines and underwater obstructions.

Minehunting is a highly specialised operation that requires purpose built vessels equipped with mine detection and disposal equipment. It is a complex task that involves a slow, methodical search of the seabed and water volume using high definition sonar projected ahead of the minehunting vessel to detect moored and ground mines.<sup>2</sup> Once an object has been located and classified as a possible mine, a Mine Disposal Vehicle or a clearance diver is dispatched to positively identify the contact and, if necessary, dispose of the mine. Minehunting is the preferred method in areas where the seabed and sonar conditions are good, where pressure mines are part of the threat, and where intelligence indicates that MCM vessels may be targeted. Its major advantages are the speed of clearance and because the MCM vessel does not have to pass over the mine to detect it.

Minesweeping involves using mechanical sweeps, which physically remove a moored mine by cutting the mooring wire, or influence sweeps, which emulate the magnetic or acoustic signatures of a surface or sub-surface vessel and explode the mine. Minesweeping can be carried out by non-purpose built vessels such as trawlers, and is the preferred method:

- against a known moored mine threat;
- when the percentage of undetectable mines is assessed as high;
- in areas where environmental conditions degrade sonar performance;
- to provide a level of protection to the higher value minehunter;
- in very shallow water; and
- to increase the overall probability of clearance in combination with minehunting.

Clearance divers are used to augment conventional forces in confined or shallow waters where MCM vessels cannot easily gain access. Clearance divers use a variety of techniques to survey, detect, classify and dispose of mines and underwater obstacles.

Generally, mine clearance operations would begin with exploratory operations by minehunters to determine the extent of the minefield and the general bottom condition. A decision is then made to either clear a channel or divert vessels around the danger. If the clearance option is selected, both minehunting and minesweeping are usually required to achieve an acceptable level of safety to allow the transit of vessels through the area. In clearing a channel remote controlled drone boats would conduct precursor operations, using acoustic and magnetic influence sweeps, to provide a modicum of protection to the larger MCM vessels. The minesweepers would then conduct minesweeping operations with mechanical and influence sweeps configured to emulate the target vessels. Once the minesweepers have achieved a certain level of statistical clearance the minehunters would continue operations to raise the clearance to a level suitable for vessel transit.

When faced with a threat of maritime mining, the most effective MCM operation is to prevent mines being laid in the first place. At the beginning of the 2003 Iraq War a boarding party from HMAS *Kanimbla* intercepted two Iraqi minelaying tugs, which were carrying over 80 mines between them. Had these mines been laid as intended then a substantial mine clearance operation would have been required to allow the safe passage of ships.

Adoption of an effective mining capability by the ADF could facilitate our ability to achieve strategic control of Australia's maritime approaches, whilst at the same time denying an adversary freedom of action in this area. Mines can be particularly effective in constraining the actions of an adversary, as was demonstrated with the United States (US) mining of Haiphong harbour during the Vietnam War, and the Allied mine blockade of the Japanese homeland and occupied ports and harbours in WWII. The opposite side of this capability is being able to conduct effective clearance operations to remove offensive and defensive minefields on completion of a conflict. The World War I (WWI) mine blockades in the English Channel, North Sea and the Heligoland Bight employed approximately 300,000 mines. Some 700,000 mines were laid in the Atlantic, Mediterranean and Pacific Oceans during WWII.<sup>3</sup> The Royal Australian Navy cleared mines from Australian and regional coastal areas continuously from 1945 until 1950.<sup>4</sup> The US Navy Task Force 78 took 132 days in 1973 to clear Haiphong, Hong Gai and Cam Pha harbours and their approaches of mines.<sup>5</sup>

Mines could be deployed in the approaches to an adversary's forward operating bases, and focal areas in the vicinity of the major archipelagic straits, to constrain or deter adversary initiatives in mounting operations against Australia. Similarly, protective minefields could be laid in the vicinity of Australian port approaches and major choke points to contain the threat posed by adversary surface and submarine forces, as was done in WWII, thus freeing high value ADF assets to contribute to other national tasks.

In many respects MCM is approaching a watershed in its development. Australia seeks to exploit decisive manoeuvre operations and high technology to achieve short, sharp campaigns with minimal attrition to our limited resource and asset base. Our forces must be capable of operating effectively in the littoral and open ocean environments with limited constraint from adversary operations. Additionally, regional countries will look to MCM-capable forces such as the ADF for assistance if non-state groups, including terrorist and criminal organisations, lay mines in their national maritime areas and international straits. While the ADF's current MCM capability is good in regional terms, the changing nature of ADF operations and the evolving regional mine threat will require ongoing assessment to ensure the capability is maintained at an appropriate level to meet the Government's future strategic directives.



*The Australian minehunter HMAS Hawkesbury (RAN)*

Developments in mine technology, especially stealth technology, will make future mine clearance operations increasingly hazardous for crewed MCM vessels. The ADF will need to transition to systems that enable remote detection and clearance, with a greater use of remotely operated or airborne vehicles for high-risk operations.

In the future, an MCM capability is envisaged as being incorporated into Major Fleet Units and submarines, providing an inherent MCM capability to deploying task groups for operations in the littoral. Future MCM operations will begin with clandestine advance force operations by clearance divers in conjunction with remote uninhabited systems conducting rapid environmental assessment and MCM. This would be followed by the arrival of a task group with onboard MCM systems providing a capability to conduct rapid mine clearance to an objective area through previously explored areas. Current MCM systems may follow the deployed task group to provide area expansion and further risk reduction through longer endurance MCM operations.

A Mine Warfare Force is essential to meet the needs of decisive manoeuvre operations, as well as being able to perform operations needed to ensure the sea lanes are safe from hostile mining. This capability will help ensure the mobility of maritime forces and the maintenance of commerce and trade, which are so important to Australia's diplomatic, economic and social interests.

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## Notes

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- <sup>1</sup> On 22 October 1946 the cruisers HMS *Mauritius* and HMS *Leander* and the destroyers HMS *Saumarez* and HMS *Volage* were exercising innocent passage through Albanian territorial waters via the North Corfu channel, a strait used for international navigation. Both destroyers hit mines, killing 45 sailors and injuring 42. The International Court later ordered Albania to pay Britain £843,947 in damages.
- <sup>2</sup> Moored mines are suspended from the sea floor by cables or wires. Ground mines sit on the sea floor.
- <sup>3</sup> E. Fortin, 'Those Damn Mines', *United States Naval Institute Proceedings*, Vol. 118, No. 7, July 1992, p. 31.
- <sup>4</sup> The South West Pacific clasp for the Australian Service Medal 1945-1975 was issued for post-war minesweeping operations conducted in Australian and regional waters up to 16 August 1950.
- <sup>5</sup> L. M. Hunt, 'Mines remain the weapons that wait', *United States Naval Institute Proceedings*, Vol. 124, No. 5, May 1998, p. 50.



# ADF Amphibious Capability: Implications for Navy

Captain Andrew Gough, RAN

The Government's announcement in November 2003 that the Australian Defence Force (ADF) will acquire major amphibious and sealift ships should not be underestimated in the challenge it represents to the Royal Australian Navy (RAN) and the ADF.<sup>1</sup> Strategic concepts, joint doctrine and tactics, and individual and collective training will all require development in order to maximise the potential advantages that an amphibious capability can provide. This applies not just to the amphibious fleet units, but to the entire RAN, as sea control is both a central tenet of a maritime strategy and a prerequisite to successful power projection and expeditionary operations using amphibious forces.

The Chief of Defence Force's (CDF's) direction to reinvigorate the Joint Amphibious Warfare Capability and to develop an Amphibious Ready Group, based on a high readiness Amphibious Ready Element, highlights the growing appreciation of the utility that a true Amphibious Warfare capability offers to Australia's strategic circumstances. Australia lies within an archipelagic region in which over 95 percent of cities and the population are in the littoral. The littoral may be defined as that area of the sea susceptible to influence or support from the land, and that area of the land susceptible to influence or support from the sea. Many strategists and historians have noted that the principal purpose of sea power is to 'determine or influence, and sometimes decide issues upon the land',<sup>2</sup> for as the maritime theorist Corbett pointed out, because 'people live on land, decisive results can only be concluded on land'.<sup>3</sup> Liddell-Hart described an amphibious force as 'the best kind of fire-extinguisher because of its flexibility, reliability, logistic simplicity and relative economy.'<sup>4</sup>



*The land-sea interface requires a joint response (RAN)*

The Australian experience of amphibious operations is extensive, ranging from World War I (WWI) to the present day. Our first national land operations were landings conducted in Rabaul and Gallipoli in 1914-15. Australian forces participated in raids and amphibious assaults in the Persian Gulf, Mediterranean and Pacific in World War II (WWII). RAN ships supported the Inchon landing in the Korean War, the INTERFET and UNTAET operations in East Timor, and riverine operations and the Royal Marines assault on the Al Faw Peninsula during the 2003 Iraq War. Most recently, Australian forces conducted a limited entry operation in the Solomon Islands.

Naval forces have a vital strategic ability to be used for political and diplomatic purposes, by being able to poise in international waters without appearing to directly interfere in another nation's affairs, yet able to act quickly when required.<sup>5</sup> Freedom of navigation is enshrined in the *1982 UN Law of the Sea Convention* (LOSC). Amphibious warfare provides a unique capability to exploit the maritime environment and achieve freedom of manoeuvre. Unlike land and air based forces, maritime forces can use the sea as an open medium by which to choose the time and place of landing. They are not reliant on forward operating bases, permissive entry or host-nation support, making them highly responsive to changing circumstances. Such forces can directly influence the critical vulnerabilities of an adversary.

In terms of amphibious capability, a small, dedicated, high-readiness force, trained and embarked, can threaten a vast area of the battlespace, achieving disproportionate effect for its size by representing a dilemma of uncertainty to an adversary. Such potential was most recently demonstrated in the 1990-91 Gulf War when an embarked US Marine Corps force diverted Iraqi units to defending the Kuwait shore, weakening the opposition to the real assault across the border of Saudi Arabia. Given the small scale of the ADF, it is crucial to achieve this kind of disproportionate strategic or operational effect, using a mobile tactical manoeuvre force, able to strike at will in time and space.

Sea Control, the freedom of action to use an area of sea for one's own purposes for a period of time or, if required, deny its use to an opponent,<sup>6</sup> is central to amphibious operations. Sea Control must be obtained to reduce the risk to the embarked force and the high-cost amphibious assets. At the same time, amphibious operations can assist in gaining Sea Control, for instance by denying land areas adjoining strategic straits and waterways to hostile elements.

Chief of Defence Force (CDF) has reiterated the requirement for the ADF to have a Navy capable of Sea Control and Power Projection and an Army that is smart, hard, trained and ready to be projected in this complex environment.<sup>7</sup> The ADF must shift from a 'lift and lodge' philosophy, where Army units are deposited on a foreign shore for autonomous land operations, to a true manoeuvre warfare philosophy, using joint forces to exert influence in an uncertain littoral security environment.<sup>8</sup> The ADF must think of operations as a continuum, flowing seamlessly from initial deployment and lodgement, through redeployments, to the military end state, in order to achieve the operational and strategic effects articulated by Government. Single Service and joint doctrine and capabilities must reflect these shifts.

The Army must adopt a key role in our national maritime strategy.<sup>9</sup> As the Army continues to define its Amphibious Battlegroup and Combat Team concepts,<sup>10</sup> a shift is required to a view that a sea-based amphibious landing force can exploit littoral manoeuvre to achieve a decisive effect. This idea is being explored in emerging Army concepts and may be linked to a coordinated and concurrent airborne assault to achieve an overwhelming 'system shock' on an adversary.

The Royal Australian Air Force (RAAF) will also have an integral role in the national maritime strategy, providing support to the ADF amphibious warfare capability, both during the sea movement and land-based phases. RAAF assets will provide essential functions including: Combat Air Patrols; a contribution to the maritime situational awareness through Airborne Early Warning and Control Aircraft; anti-submarine and anti-surface operations via Strike and Maritime Patrol Aircraft; and offensive support to land forces employing strike capable aircraft.

All elements of the RAN will have a role in maximising the utility of an amphibious warfare capability. The new specialist amphibious ships and their landing craft will need to operate with a large force of personnel, helicopters, armoured and other vehicles, as well as medical and headquarters capabilities. They will need to extend and maintain skills in multiple-aircraft flight deck operations while conducting concurrent landing craft well-dock operations, in all weathers and conditions, and in all threat environments. The future sealift capability, while not purpose built for amphibious warfare, will contribute to the amphibious mission by ferrying troops and equipment.

Surface combatants and submarines have a critical role in establishing Sea Control around an amphibious task force and assisting in projecting force ashore. Future combatants like the Air Warfare Destroyer will be crucial to this task and their weapon, sensor and combat data systems must be optimised for littoral operations. Naval fire support systems, potentially including enhanced range gun munitions and land attack missiles, will be essential to both shaping operations and the early phases of the landing while land-based fire support systems are deploying. While the ADF does not plan to operate against defended entry points, experience on South Georgia Island in the 1982 Falklands War demonstrated the threat that even an infantry section armed with light support weapons can pose to a landing force, and the utility of naval fire support in its neutralisation. Surface combatants must be able to protect the task force they are escorting from land, air and maritime threats, be they missile, torpedo, electronic or direct-fire attacks. Submarines will contribute essential reconnaissance and surveillance information as well as interdicting hostile maritime forces sent to interfere with operations.

Mine warfare and clearance diving forces will have a vital role in ensuring freedom of manoeuvre, from conducting clandestine beach reconnaissance to the clearance of mines and obstacles in the beach approaches. Hydrographic forces are also redeveloping the tactical application of their skills in providing 'rapid environmental assessment' of the hydrography, oceanography and meteorology of the littoral zone. Patrol boats may also have a role in assisting the protection of amphibious forces in the inshore littoral, including riverine operations as demonstrated by coalition forces during the recent 2003 Iraq War. None of these skills are new to the RAN. Our hydrographic, mine warfare and patrol boat



forces earned a high reputation in WWII in the South West Pacific for their support to Allied amphibious operations against Japanese forces. RAN surface combatants provided essential anti-aircraft defence and naval gunfire support to most of these operations. These hard earned skills were allowed to decline post-war as the focus on littoral warfare shifted to a focus on Cold War anti-submarine warfare as a result of the growing Soviet submarine threat in the Pacific.

In terms of doctrine, the RAN needs to continue to develop an understanding of what it means to wield a landing force as a maritime weapon. A broad understanding of how Army conducts land warfare will be crucial to developing joint concepts, tactics and doctrine. RAN amphibious doctrine must be developed in coordination with Army, RAAF and joint concepts such as Manoeuvre Operations in the Littoral Environment, Expeditionary Air Warfare and Ship-to-Objective Manoeuvre. Developing the intimate understanding of each other's domains, between the Commander of the Amphibious Task Force and the Commander of the Landing Force and their staffs, is an essential factor in the command and control of amphibious operations and training. Exercising and habitual working relationships are the keys to achieving this.



*Unloading at night from HMAS Tobruk (Defence Image Gallery)*

Individual training will embrace amphibious warfare skill-sets, flowing through warfare officer, logistic and staff training, and introducing Amphibious Warfare elements into many individual RAN sailor and officer courses. Collective training will also evolve. A revised approach to managing joint and single Service training is being developed. In

order to provide the directed Amphibious Ready Element at short notice, and ultimately the Amphibious Ready Group, a much greater degree of lower tactical level, integrated training is required. This will ensure personnel in the ships, landing craft, land force, helicopters and headquarters have the intimate understanding of each other's requirements to be able to deploy to meet short notice contingencies such as evacuations and interventions in non-permissive or hostile environments.

The enhancement of Australia's Amphibious Warfare capability, as part of a balanced force, is a very significant one for the ADF and the RAN. New thinking, new and re-learned skills, and a degree of joint cooperation, never seen before and reflecting the ADF's vision of a seamless force, will be required.

*Published as Issue 8, August 2004*

## Notes

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- <sup>1</sup> Minister of Defence, *Media Release 142/2003, Defence Capability Review*, 7 November 2003.
- <sup>2</sup> Edward L. Beach, quoted in C. G. Reynolds, *Command of the Sea*, London, 1976, p. 1.
- <sup>3</sup> J. D. Gibson, 'Sir Julian Corbett on Amphibious Operations', *Marine Corps Gazette*, March 1998, p. 69.
- <sup>4</sup> Basil Liddell-Hart, quoted in ADDP3.2 - *Amphibious Operations*, Defence Publishing Service, Canberra, 2003, pp. 3-6.
- <sup>5</sup> Royal Australian Navy, *Australian Maritime Doctrine*, Defence Publishing Service, Canberra, 2000, p. 43.
- <sup>6</sup> Royal Australian Navy, *Australian Maritime Doctrine*, p. 39.
- <sup>7</sup> Peter Cosgrove, *Transcript of Speech to Senior Leadership Recall Day*, 31 July 2003.
- <sup>8</sup> Jack McCaffrie, 'The New Maritime Security Environment', in G. Kerr, (ed.), *Australian Maritime Issues 2004*, Sea Power Centre - Australia, Canberra, 2005, pp. 47-51.
- <sup>9</sup> Department of Defence, *Defence 2000: Our Future Defence Force*, Defence Publishing Service, Canberra, 2000, Section 6.7.
- <sup>10</sup> Australian Army, *Army Development Concept for Entry from the Air and Sea*, Future Land Warfare Branch, Canberra, July 2002.



## 90 Years On: Rabaul and Sydney/Emden, 1914

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Mr John Perryman

This year marks the 90th anniversary of the Royal Australian Navy's (RAN) baptism of fire both at sea and ashore during the period September-November 1914. Just three years after the new fleet unit arrived in Australia the RAN made a substantial and significant contribution to Imperial security in the Pacific region. The diverse events that took place during this short period, although now largely forgotten in the annals of Australia's military history, formed the cornerstone on which the RAN's enduring tradition of achievement has since been built.

At the outbreak of war in August 1914 the Australian fleet consisted of the battlecruiser HMAS *Australia*, the light cruisers HMA Ships *Melbourne*, *Sydney* and *Encounter*, the small cruiser HMAS *Pioneer*, the destroyers HMA Ships *Parramatta*, *Yarra* and *Warrego*, and the submarines *AE1* and *AE2*. The Commonwealth also possessed some old gunboats and torpedo boats from the colonial navies. The permanent strength of the RAN in August 1914 comprised 3800 personnel, of whom some 850 were on loan from the Royal Navy. The naval reserve forces provided another 1646 personnel.

The first task of the RAN following the declaration of war was to seize or neutralise German territories in the Pacific stretching from the Caroline and Marshall Islands in the north to New Britain and German New Guinea in the south. The British War Office considered it essential that Vice Admiral von Spee's East Asiatic Squadron of the Imperial German Navy should be denied the use of German facilities and, if possible, brought to battle. Based in Tsingtao in China, the German squadron comprised the armoured cruisers *Scharnhorst* and *Gneisenau* and the light cruisers *Emden*, *Nürnberg* and *Leipzig*. The German possessions represented a formidable network capable of providing intelligence and logistic support to von Spee.

On 30 August 1914, in Australia's first coalition operation, *Australia* and *Melbourne*, in company with HM Ships *Psyche*, *Philomel*, *Pyramus* and the French cruiser *Montcalm*, escorted a force of 1400 New Zealand troops to occupy German Samoa. Faced with this force the colony surrendered without a fight. *Melbourne* was then ordered to the German territory of Nauru to destroy its wireless station. On 9 September *Melbourne* landed 25 personnel without opposition, arrested the German administrator and destroyed the already disabled wireless equipment. This lack of opposition, however, was not to last.

Australia's major effort was now directed at seizing German interests in New Guinea, particularly New Britain. To achieve this, during August a volunteer force known as the Australian Naval and Military Expeditionary Force (ANMEF), consisting of a battalion of 500 naval reservists and time-expired Royal Navy seamen and a battalion of 1000 infantry, was hastily raised and trained. As the whereabouts of von Spee's squadron was still unknown, strict orders were given that the expedition was not to proceed without a strong naval escort. On 7 September the force, consisting of *Australia*, *Sydney*, *Encounter*, *Parramatta*, *Warrego*, and *Yarra*, *AE1*, *AE2*, a store-ship, three colliers, and the transport

Berrima (with the ANMEF embarked), sailed for Rabaul and Australia's first joint operation. Intelligence indicated that two enemy wireless stations were operating in the area, one inland from Kabakaul at Bitapaka and the other at Herbertshöhe.<sup>1</sup> Consequently, two parties of naval reservists were ordered to capture them. The initial landings took place at dawn on 11 September 1914.

Under the command of Lieutenant Bowen, RAN, 25 sailors landed at Kabakaul to seize Bitapaka. They immediately struck inland to secure their objective and a scouting party, having deviated from the main road, soon found itself directly in the rear of the German first line of defence. The German in charge was shot and wounded and, after a short skirmish, ordered his natives to surrender. The captive was then directed to march ahead of the main force and announce in German that 800 troops had landed and that his comrades should surrender. Bowen's deception was rewarded, for word filtered back to the commander of the German defences that a superior force had landed. Believing himself outnumbered, he consequently ordered a withdrawal of his forces inland, resulting in the break down of the entire scheme of German coastal defence. This left only Bitapaka's defenders offering active resistance.

Bowen called for reinforcements but continued to push on towards his objective. His party encountered a series of enemy trenches and came under fire from snipers positioned in the trees. It was here that Australia suffered its first casualties of the war.<sup>2</sup> At 1000 reinforcements arrived under the command of Lieutenant Hill, RNR of *Yarra*. Hill's group comprised 59 men drawn from the crews of the Australian destroyers, variously armed with rifles, pistols and cutlasses. Bowen and Hill swiftly agreed on the next phase of the operation and began outflanking the enemy. However, as the new advance began Bowen was wounded by a sniper, leaving Hill to take command, whilst at the same time calling for additional reinforcements. At 1300 a company of naval reinforcements arrived under the command of Lieutenant Commander Elwell, RN who immediately took command, ordering Hill to take charge of the flanking movement on the left whilst he took charge on the right. Elwell was killed leading a bayonet charge on the German defences, leaving Hill to continue the attack with Lieutenant Gillam, RANR, whose timely arrival with a small band of reinforcements carried the day.

The now overwhelmed defenders reluctantly agreed to the unconditional surrender both of the German forces and the wireless station. Lieutenant Bond, RANR, was ordered to advance and secure the wireless station. Following several small skirmishes, during which more casualties were incurred, the last German resistance was quelled.<sup>3</sup> For his efforts Bond became the first Australian decorated during World War I (WWI), receiving the Distinguished Service Order.

The following day Herbertshöhe and Rabaul were secured without opposition, following a bombardment by *Encounter*, and the remaining German forces in the field subsequently surrendered. Within a few weeks most of the German territories in the area, including Bougainville and the Admiralty Islands, had been occupied without further opposition, at a cost of six dead and four wounded.<sup>4</sup> The success of the operation was marred by the disappearance of *AE1* on 14 September while patrolling the narrow St George's Strait between New Britain and New Ireland - the first RAN unit lost in wartime. No trace of the submarine or its 35 crew has ever been found.<sup>5</sup>



*Staff of the Royal Australian Naval Brigade at Herbertshöhe, October 1914  
Centre row: Lieutenant Bracegirdle, Commander Beresford and Lieutenant Bowen  
(RAN Historical Section)*

The next major challenge for the RAN was the apparent disappearance of von Spee's squadron into the vastness of the Pacific. This, coupled with news that the German raiders *Königsberg* and *Emden* were at large in the Indian Ocean, caused grave concern for the safety of the troop transports assembling in Australian and New Zealand ports to convey the ANZAC expedition to Europe. Tensions eased on 30 September when news was received that von Spee's cruisers had raided Tahiti on 22 September, thus placing them well to the east. This allowed the Australian and New Zealand troops to begin embarkation and proceed to their convoy assembly point at Albany, Western Australia.

During this period other vessels of the RAN were steadily engaged in capturing or detaining German merchant shipping in the Bismarck Archipelago, home waters and in Australian ports. Whilst this important work was taking place a decision was made to dispatch *Melbourne* and *Sydney* to Western Australia to counter the threat building in the Indian Ocean, and form part of the escort for the first ANZAC convoy assembling at Albany.

Of particular concern was the light cruiser *Emden* under the command of Captain von Müller. In just six weeks von Müller had captured or sunk almost 100,000 tons of merchant shipping, destroyed oil tanks at Madras and, in a daring raid on Penang, sunk the Russian light cruiser *Zemtchung* and the French torpedo-boat destroyer *Mosquet*. With *Emden* at large in the Indian Ocean the scene was now set for the RAN's first epic sea engagement.

On 1 November 1914 the first ANZAC convoy, comprising *Melbourne*, *Sydney*, HMS *Minotaur*, the Japanese battlecruiser *Ibuki*, and 38 transports, sailed from Albany for the Middle East. On the morning of 9 November the convoy was in the vicinity of the Cocos Islands when it intercepted distress signals indicating that a 'strange warship' was approaching the islands. *Sydney*, under the command of Captain Glossop, RN, was immediately detached to investigate and within a few hours sighted *Emden* close to Cocos Island. Von Müller soon realised that he would have to fight and, leaving behind the shore party that had landed to destroy the international cable and wireless station, steamed out to meet the enemy.

*Sydney* was faster than *Emden* and possessed superior firepower, but von Müller opened the engagement with rapid and accurate long-range fire, attempting to inflict as much damage as possible at the outset. All of *Sydney's* casualties occurred in the opening stages of the battle, from hits to the control platform and the range finder located on the upper bridge. Using his ship's superior speed and armament, Glossop soon caused hits to be scored on *Emden*. After forty minutes *Emden's* fire control positions, forward funnel and foremast were gone, and the ship was holed all over and burning fiercely fore and aft. Realising that *Emden* was at *Sydney's* mercy, von Müller ran his ship onto the reef at North Keeling Island in order to save the lives of his surviving crew. Glossop then broke off the engagement to pursue and overhaul the *Emden's* collier *Buresk*, which had appeared during the action, but the crew scuttled their ship before it could be seized.

On returning to North Keeling Island Glossop observed that *Emden* had not struck its ensign to indicate capitulation. Confused signals were exchanged between the two vessels, but the ensign remained flying until after *Sydney* fired a further two salvos at the wreck. The ensign was consequently struck, heralding the end of Australia's first and decisive naval engagement. As a result of the destruction of *Emden* the Indian Ocean was freed from the threat of von Spee's squadron.<sup>6</sup>

Ninety years after the events of late 1914 the RAN is still participating in joint and coalition maritime operations, in the Pacific and further afield. As in 1914, the RAN is a comparatively small force, yet it is now acknowledged as a world class medium-power navy and a diverse force multiplier whose presence is welcomed in the pursuit of world wide maritime security. While the threat of enemy cruisers preying on Imperial merchant shipping and troop convoys is now only a dim memory, the RAN remains a significant contributor to security in the Pacific region.

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## Notes

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- <sup>1</sup> It was subsequently discovered that both were located at Bitapaka - one was the primary station and the other a secondary station.
- <sup>2</sup> Able Seaman C. V. Williams and Captain B. C. A. Pockley (Australian Army Medical Corps) were mortally wounded and died later that day. Williams has the distinction of being the first Australian wounded in action in World War I.
- <sup>3</sup> For reasons now unclear, apart from a single machine-gun section, the ANMEF infantry company took no part in the fighting in Rabaul.
- <sup>4</sup> Able Seaman J. Walker (enlisted as Courtney but re-buried under his real name by the Commonwealth War Graves Commission) and Able Seaman H. W. Street were killed in action. Able Seaman R. Moffatt was mortally wounded and died the next day. Lieutenant R. G. Bowen, Able Seaman D. Skillen, Able Seaman T. Sullivan and Able Seaman J. H. Tonks were wounded but subsequently recovered.
- <sup>5</sup> A. W. Jose, 'Capture of the German Colonies: German New Guinea', in *The Official History of Australia in the War 1915-1918, Vol. IX: The Royal Australian Navy*, Angus & Robertson, Sydney, 1928, p. 97.
- <sup>6</sup> *Königsberg* had withdrawn into the Rufigi River in East Africa in late September 1914 to repair serious engine defects, and was blockaded by Allied cruisers, including HMAS Pioneer, until destroyed by the monitors HMS *Severn* and HMS *Mersey* on 11 July 1915.





## 60 Years On: Leyte Gulf, 1944

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Mr Jozef Straczek

Following the initial Japanese advance in late 1941 and early 1942, and the halting of the offensive in the Solomons and New Guinea, the United States (US), supported by its allies, began its trans-Pacific assault. This campaign followed two lines of advance: the first, commanded by General Douglas MacArthur, along the northern coast of New Guinea, and the second, commanded by Admiral Chester Nimitz, through the island chains of the Central Pacific. By 1944 these two lines began to converge on the 'Taiwan-Luzon-China' triangle. At a meeting on 26 July 1944 with his two theatre commanders, US President Roosevelt decided that the next objective would be the Philippine Islands.

Although the liberation of the Philippines is generally seen in a political context, it also had important strategic implications. If the Japanese lost their hold in the Philippines, their Empire would be cut in two, and maintaining the flow of oil to the home islands would become even more difficult. The Allies would also gain another staging base for subsequent assaults on islands closer to Japan.

The retaking of the Philippines began with an assault on the Leyte Gulf-Surigao Strait area. Planning was complicated by the huge distances involved, for while the Normandy landings on 6 June 1944 were conducted 50 nm across the English Channel, Leyte Gulf was more than 500 nm from the main staging areas in Morotai and Palau. Much of the logistic support had to be sourced from the US West Coast, more than 5000 nm from the front. The assault would also take place beyond the range of land-based aircraft, hence all air support would need to come from US Navy (USN) aircraft carriers. The advance from Morotai to Leyte in one bound was a calculated risk, as the Allied forces would be ringed by Japanese airfields and land-based aircraft with greater staying power than the USN aircraft carriers.<sup>1</sup>

The naval forces assigned to the landing operation under Vice Admiral Thomas Kinkaid, USN comprised 157 combat ships (including 6 battleships, 11 cruisers and 18 escort carriers), 420 amphibious ships and 84 patrol, minesweeping and hydrographic vessels. Another 17 aircraft carriers, 6 battleships, 16 cruisers and 56 destroyers belonging to the US 3rd Fleet, under Admiral William Halsey, USN, were tasked with covering the assault. The Royal Australian Navy's (RAN) contribution to Kinkaid's force, under the command of Commodore John Collins, consisted of the heavy cruisers HMA Ships *Australia* and *Shropshire*; the destroyers HMA Ships *Arunta* and *Warramunga*; the infantry landing ships, HMA Ships *Westralia*, *Kanimbla* and *Manoora*; the frigate HMAS *Gascoyne*; and the motor launch HDML 1074. The RAN was also represented in Task Group 77.7, the Leyte Gulf Service Force of the 7th Fleet, by the oiler *Bishopdale*, the provision ship *Merkur* and the ammunition ships *Poyang* and *Yunnan*.

Every shell, spare part, and morsel of food required for this vast armada had to be carried in ships from either the US West Coast or Australia. Fuel and lubricants were sourced from the US and the West Indies. Ammunition arrived from the US via Australia. A third

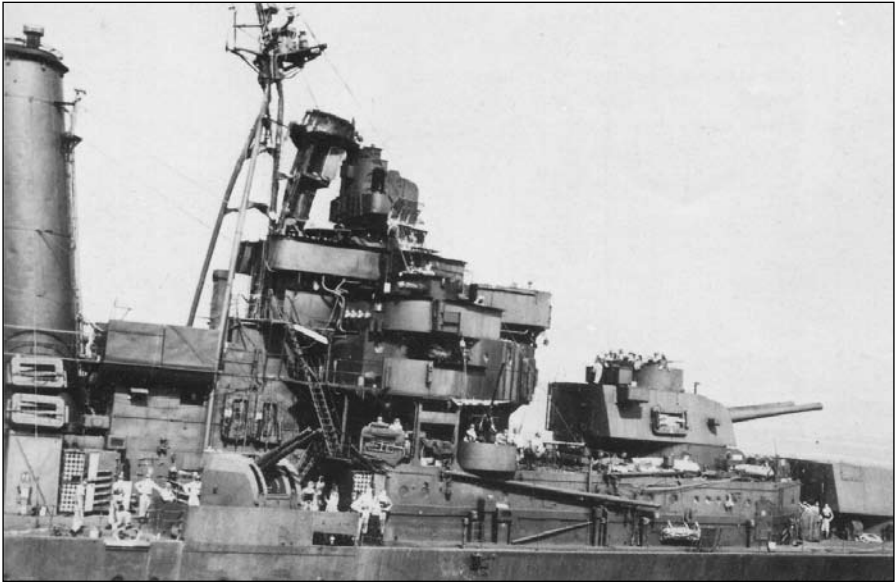
of all fresh produce came from the US, the rest from Australia. This required a massive fleet train to carry the necessary supplies. Task Group 30.8 of the US 3rd Fleet, which provided logistic support to the Pacific fleet, comprised 34 oilers, 11 escort carriers, 19 destroyers and 26 destroyer escorts. Additional lift capacity, and an escort force, was required for supplies necessary to project and sustain the land operations.

On 10 October the assigned forces sailed from their assembly areas at Hollandia, Manus Island, Morotai and Guam. 'No one', wrote Captain Tarbuck, USN, the Senior Naval Adviser at MacArthur's headquarters, 'could see this great panorama of ships without realising the impotence of any great army engaged in oceanic warfare without control of the sea and air'.<sup>2</sup> The fleet arrived on 17 October and began bombarding Japanese shore positions and sweeping defensive minefields. On 18 October *Gascoyne* and the American minesweeper *YMS 393* entered San Pedro bay and laid channel markers and shoal water buoys.

On the morning of 20 October Task Group 78.3, which included *Westralia*, *Kanimbla* and *Manoora*, entered Leyte Gulf and began landing operations at Panaon Island. Within 45 minutes the three Australian ships had disembarked over 2800 troops of the US 21st Regimental Combat Team on the undefended island. The main landings at Tacloban and Dulag were accompanied by a full bombardment from battleships, cruisers, destroyers and rocket ships, including *Australia*, *Shropshire*, *Arunta* and *Warramunga*. By that afternoon the situation was secure enough for MacArthur to wade ashore and make his famous 'I have returned' broadcast. Shore based opposition to the landings was light and Japanese aircraft made only sporadic attacks during the day.

On the following morning, the two Australian cruisers were attacked by a lone Japanese dive-bomber, which crashed into the port side of *Australia*, killing 30 crew and wounding 64, many of them skilled and experienced bridge and gunnery control personnel. The Commanding Officer, Captain Emile Dechaineux, was killed and Commodore Collins was wounded.<sup>3</sup> *Australia* was the first Allied vessel at Leyte hit by a suicide aircraft; although this was not part of the organised *kamikaze* attacks on the Allied forces, which began four days later, but the act of an individual pilot.<sup>4</sup> As a consequence of the casualties and damage *Australia*, escorted by *Warramunga*, sailed for Manus Island. These were the only Australian casualties of the operation.

The Japanese Navy activated its Operation SHO-1 defence plan as soon as the Allied assault forces were sighted on 17 October. The Japanese attack was scheduled for 25 October because of the time required to fuel the ships and embark aircraft. The Japanese naval forces, organised into Northern, Centre and Southern Forces, sailed on 22 October to intercept the Allied invasion force. The Japanese mustered one fleet aircraft carrier, 3 light aircraft carriers, 6 battleships, 2 hybrid battleship-carriers, 13 heavy cruisers, 6 light cruisers, and 31 destroyers. The Northern Force aircraft carriers were intended to distract and divert the American fast aircraft carrier group while the 2 Japanese battleship groups entered Leyte Gulf and attacked the invasion shipping. On paper this was a formidable force, however, there were a number of major weaknesses, primarily the lack of trained aircrews.



*Damage to HMAS Australia, 21st October 1944 (RAN Historical Section)*

Three naval engagements were fought in the battle for Leyte Gulf on 25 October 1944. At the Battle of the Surigao Strait the Japanese Southern Force night attack on the landing forces was repulsed by Admiral Kinkaid's covering forces, including *Shropshire* and *Arunta*, to prepare for an attack. Two Japanese battleships and 3 destroyers were sunk without loss to the Allied force, and a damaged heavy cruiser succumbed to air attack the following day.

Admiral Halsey ordered his ships to intercept the approaching Northern Force. In doing so he left the San Bernadino Strait unguarded, subsequently sparking a major controversy as to whether his main focus should have been to destroy the Japanese fleet or protect the landings. Thus, the US fleet carriers were successfully lured away from the entrances to Leyte Gulf, opening a path for the enemy.

At the Battle of Cape Engano the Northern Force lost 4 aircraft carriers, a light cruiser and 4 destroyers, before the remaining force withdrew. At the Battle off Samar Island the Japanese Centre Force attacked the US Navy Escort Carrier Force, which was left exposed by Halsey's departure. This enemy force of powerful fast battleships and cruisers sank an escort carrier and 2 destroyers, but lost 3 heavy cruisers in return and withdrew without attacking the landing forces in Leyte Gulf. The failure of the Centre Force to press home its attack on the landing forces meant that the Japanese Northern Force aircraft carriers had been sacrificed in vain.



*Japanese shells falling amongst USN Escort Carriers during  
the Battle of Samar Island (US Navy Official)*

The Battle of Leyte Gulf, including submarine attacks on 23 October and the air attacks in the two days after the Battle of Cape Engano, cost the Imperial Japanese Navy heavily,<sup>5</sup> effectively destroying it as an offensive force. The potential naval threat to this and future invasions was removed, and the need to provide extensive protection to logistics forces was also greatly reduced. The Japanese had failed to achieve their objectives whilst the Allies would ultimately achieve theirs. Several important lessons can be drawn from the Leyte Gulf operation.

A key principle of war is the selection and maintenance of the aim of an operation. The aim of SHO-1 was to disrupt the landings by attacking the transport shipping in Leyte Gulf. The Centre Force became distracted by its attack on the Escort Carrier Group, instead of carrying through the attack on the transport shipping. At the same time, the Allied force also failed to clearly select its aim. Halsey believed his primary role was destroying the Japanese fleet, while MacArthur believed Halsey's primary role was protecting the landings. This should have been clarified by higher command prior to the operation. Kinkaid's covering force was almost out of ammunition after the previous day's bombardments and the Surigao Strait night action. Had the Centre Force pressed home its attack the landing force could have suffered serious losses and the invasion might have been placed in jeopardy.

Another key principle of war is sustaining an operation. As Leyte Gulf demonstrated, the difficulty of sustaining power projection operations over extended distances should not be underestimated. The logistics effort was enormous, with extended and potentially vulnerable supply lines stretching over 5000 nm. Of particular note is the substantial additional effort required to protect the ships of the logistic force, removing escort vessels and aircraft from offensive operations.

A third key principle of war is cooperation. Units of the RAN provided essential capabilities that complemented those of the US Navy at Leyte Gulf. Several, such as the infantry landing ships and logistics ships, were what might now be considered as 'niche' capabilities. The ability to operate in Allied coalitions and alliances, from 1901 to the current day, has been predicated on cooperation, in terms of shared or substantially similar doctrine, equipment and control arrangements.

The landings and naval battles at Leyte Gulf in October 1944 demonstrated the utility of maritime forces in power projection operations. Amphibious ships moved ground troops 500 nm to landing beaches. Logistics ships moved vital stores, ammunition and rations, directly and indirectly, over 5000 nm to maintain land and naval forces in the area of operations. Sea-based air power provided essential air cover to the fleet and land forces in an operation beyond the range of Allied land-based aircraft. In all but the latter, the RAN made a small, but substantial, contribution to the successful outcome of the operation.

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## Notes

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- <sup>1</sup> Royal Navy, *Naval Staff History Second World War: War with Japan, Volume VI; The Advance to Japan*, British Admiralty, 1959.
- <sup>2</sup> G. H. Gill, *Royal Australian Navy, 1942-1945*, Australian War Memorial, Canberra, 1968, p. 501.
- <sup>3</sup> The current RAN submarines HMAS *Collins* and HMAS *Dechaineaux* commemorate these officers.
- <sup>4</sup> Gill, *Royal Australian Navy, 1942-1945*, p. 511. He notes that instances of suicide attacks by damaged aircraft had been observed since 1942. The first organised kamikaze attacks occurred on 25 October 1944 in the attack on the US escort carriers *Santee* and *Suwannee*.
- <sup>5</sup> Sunk: battleships *Musashi*, *Fuso*, *Yamashiro*; fleet aircraft carrier *Zuikaku*; light aircraft carriers *Zuiho*, *Chitose*, *Chiyoda*; heavy cruisers *Nachi*, *Atago*, *Maya*, *Chikuma*, *Chokai*, *Suzuya*, *Mogami*; light cruisers *Tama*, *Noshiro*, *Abukuma*; destroyers *Nowake*, *Hatsutsuki*, *Akitsuki*, *Yamagumo*, *Michishio*, *Asagumo*, *Hayashimo*, *Fusinami*, *Shiranuhi*. Damaged: battleships *Yamato*, *Ise*, *Hyuga*; heavy cruisers *Kumano*, *Takao*, *Myoko*; light cruiser *Yahagi*; destroyer *Kiyoshima*.



# Network Centric USW - Exploring the Realities

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Commander Andrew Tarpley, RAN

In 1900 John Holland, the father of the modern submarine, stated 'as nearly as the human mind can discern now, the submarine is indeed a 'sea devil', against which no means that we possess at present can prevail.'<sup>1</sup> This is a reminder that even the most forward thinking individuals can experience hubris when predicting the future of undersea warfare. When the German submarine *U9* sank the old armoured cruisers HM Ships *Aboukir*, *Cressy* and *Hogue* in a fateful 75 minutes on 22 September 1914, maritime strategists of the day may well have been persuaded by Holland's view. Yet by contrast, in the month of May 1943, when fortunes changed in the Battle of the Atlantic, the Kriegsmarine lost 41 U-Boats, and never regained ascendancy in the campaign, demonstrating that the undersea threat could be effectively countered.

The history of undersea warfare (USW) in the 20th century was one of a series of leaps in technology, in which primacy alternated between the hunters and the prey. In the decades following World War II (WWII) the march of technology caused the pendulum to swing back in favour of the submarine. Some observers have argued that this period represented the zenith of submarine capability, and that the advent of new sensors and networked USW systems heralded the demise of crewed submarines.<sup>2</sup> Yet submarine procurement continues apace across the globe. The question is whether, in the midst of this rapid growth in submarine numbers, there has arrived unheeded a new suite of USW and Network Centric Warfare (NCW) technologies that will make the oceans transparent, and hence render the submarine as obsolete as the battleship.

NCW is a superficially simple concept, involving the linkage of engagement systems to sensors through networks and the sharing of information between force elements. The aim of NCW is to allow a force to make decisions faster than its adversary and apply firepower with greater precision.<sup>3</sup> A review of the literature on NCW reveals two opposing camps. Advocates such as William Owens<sup>4</sup> see NCW as the key to decision superiority, enabling NCW-capable forces to maintain a tempo of operations that will keep the enemy continually off-balance. On the other hand, sceptics predict information overload: 'What is new is the potential for inundating participants with an ever-increasing flow of data masquerading as information because it has been slickly packaged within the common operating picture.'<sup>5</sup> Aldo Borgu, of the Australian Strategic Policy Institute, is even more caustic, stating 'in theory NCW will result in revolutionary change in the way we think about and conduct warfare. Human nature being what it is in reality it's more likely to result in business as usual, namely incremental, evolutionary changes in military capability and doctrine.'<sup>6</sup> NCW then is itself a subject of controversy, even before applying the concept to the undersea battlespace.

The past decade has seen the advent of some potent new tools in the undersea battle. Processing power, software engineering and communications have between them facilitated the deployment of a variety of sensors that in the past may have been theoretically feasible, but were technically unachievable. Synthetic aperture radar, virtual sonar



arrays, superconducting magnetic anomaly detectors, forward looking infra-red sensors, autonomous air and sub surface vehicles, satellites, geo-location systems, low probability of intercept sonar, low-frequency active/passive sonar, and multi-statics (combining data from multiple sonars) all threaten to upset the balance of power in USW. When combined as a network of above and below water sensors, linked through the information, sensor and engagement grids, they potentially offer a new dimension of USW capability. Yet despite these advances, the oceans remain anything but transparent.

The physical properties of the oceans, and their vastness, continue to favour the submarine. In 1997 the United States (US) Panel on Undersea Warfare acknowledged that the submarine threat will increase in the 21st century. This increase, 'fuelled by the proliferation of advanced submarine quieting, sensors, and processing techniques and technologies, could result in the submarine becoming the dominant threat to the accomplishment of naval missions.'<sup>7</sup> This was echoed in a review of anti-submarine warfare (ASW) sensor effectiveness:

Submarine quieting degrades this vast array of capability to the point that the ASW force is capable of placing only small diameter detection circles in the water, around sensors (fixed and mobile) that individually have only a very small detection range - perhaps as small as a mile or less, without the overlapping areas of coverage that would be needed for the sensors and subsystems to work cooperatively.<sup>8</sup>

Advocates of NCW extol the virtues of precision and speed of response, value-added decision making, and information superiority. Yet USW is an inherently ponderous business; platforms, weapons and energy travel more slowly, and generally over shorter distances, underwater than they do above it. For this reason, the application of NCW in the underwater environment becomes more an issue of how to fuse data to leverage the contribution of multiple sensors, than of merely faster, more accurate, decisions based on improved situational awareness. But for data fusion to work, communications must be effective. This is one of the biggest inhibitions to making undersea NCW a reality.

The bandwidth required for effective above-water NCW continues to push the limits of technology. As identified in the US, 'the exchange of information among sensors that is entailed in netting them ... will require sturdy communications networks that have enormous capacity, in both bandwidth and data rate.'<sup>9</sup> Satellite communications systems are stretched to capacity by the demands of network information exchange at data rates of hundreds of kilobytes per second, and the adoption of extra high frequency systems operating in the tens of megabaud range is gathering pace. Underwater though, effective low probability of intercept digital communications are in their infancy. Using spread spectrum techniques, ranges of up to 30 km may be achieved, but at data rates of only a few hundreds of bits per second. Even the US Space and Naval Warfare Systems 'Command Communications at Speed and Depth' program is targeting data rates well below those currently available on UHF satellite systems. Given such limitations, the exchange of sensor information between multiple underwater systems seems unlikely to generate real network synergy for some years to come.

Tactically speaking, there are significant challenges to the use of bottom sensors and uninhabited underwater vehicles (UUVs) in the littoral. Such waters can be dangerous to navigation, prone to strong tidal streams, amenable to effective, low-technology countermeasures. Deploying arrays, using UUVs or submarines, and exposing antennae for above water communications all carry risks. Achieving comprehensive coverage with bottom arrays is also problematic. For example, given a 50 nm x 10 nm area, and detection ranges of about 1000 metres, at least 1000 bottom sensors will be needed to achieve gap-free cover. The time required to deploy them and the frequency of interrogation are not likely to aid rapid compilation of the Common Operating Picture. Tidal streams can play havoc with sensor disposition, and severely limit the endurance of mobile platforms. If an adversary controls the sea and airspace in the littoral, the choice of our mobile platforms able to cooperate in the network, or deploy and monitor its static and mobile sensor fields, is severely constrained.

UUV technology has yet to overcome some of the problems of accurate navigation, and achieve the optimum balance between payload, speed and endurance. Small, expendable UUVs are relatively cheap and readily available, but at speeds of, typically, three knots for eight hours, with a payload of a few kilograms, their utility is limited, especially when 'swimming against the tide'. Larger UUVs capable of deployment from a mother submarine, autonomous operation and subsequent return for replenishment and reconfiguration are under development. Yet the engineering obstacles are formidable, given the complexity and risk involved in mating a 10 metre UUV with a submerged submarine. Subsequent docking of the UUV and connection to the submarine systems in preparation for the next mission is a challenge, given the difficulties of designing a launch and recovery system for even small, tethered objects such as communications buoys.

No military operation exists in a vacuum and, as Field Marshal Helmuth Von Moltke noted, 'No plan of operation survives the first collision with the main body of the enemy'.<sup>10</sup> The advocates of NCW can thus expect their concepts to be followed with the closest interest by potential adversaries and, even as the debate gathers pace, counters to the technology will be under development. Historically there has been a very small lag between a new military technology or tactic and its counter. Indeed, the technology itself may be employed to attack the concept. If UUVs can be used to interrogate sensor fields, they could also be used to find and defeat them, either physically or by acoustic jamming. Countermeasures to multi-static systems are already under consideration, and the notion of defeating a network by information overload is a real threat to its effectiveness. Attacking the communications infrastructure directly is one option, but the damage could be compounded exponentially by a small fleet of cheap and expendable decoy UUVs released into the sensor field.

In conclusion, a variety of technologies promise to advance the sophistication of USW, offering the hope that increased mission effectiveness will derive from a combination of improved sensors, multiple platforms, and efficient, rapid data exchange and fusion. But there are profound difficulties in the practical application of both the technology and the doctrine. The larger debate about the nature and value of NCW is far from settled, and the debate about how to apply and manage it in the underwater battlespace is even

less mature. Australian Defence Force (ADF) doctrine acknowledges the as yet unformed nature of NCW and the risks inherent in trying to incorporate it into Australia's future warfighting concepts.<sup>11</sup> What is clear is that we have not yet witnessed the genesis of either a concept or a technology that will make the oceans transparent. It also seems likely that rather than a revolution, NCW operations will ultimately be seen as another step in the leap-frogging process USW has followed since World War I (WWI). Certainly, there is nothing to suggest that the next two decades will witness other than a continuation of this process.

*Published as Issue 12, November 2004*

## Notes

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- <sup>1</sup> J. P. Holland, 'The Submarine Boat and its Future', *North American Review*, 1900.
- <sup>2</sup> M. Hewish, 'No hiding place: undersea networks flush out littoral targets', *Janes International Defence Review*, No. 37, June 2004.
- <sup>3</sup> Department of Defence, *Enabling Future Warfighting: Network Centric Warfare*, Defence Publishing Service, Canberra, 2004, pp. 2-1 to 2-2.
- <sup>4</sup> W. A. Owens, 'The Emerging System of Systems', *United States Naval Institute Proceedings*, May 1995, pp. 36-37.
- <sup>5</sup> T. P. M. Barnet, 'The Seven Deadly Sins of Network Centric Warfare', *United States Naval Institute Proceedings*, January 1999, pp. 36-39.
- <sup>6</sup> A. Borgu, *The Challenges and Limitations of Network Centric Warfare; Initial Views of an NCW Sceptic*. Presentation to ADF Network Centric Warfare Conference, 17 September 2003.
- <sup>7</sup> Committee on Technology for Future Naval Forces, *Technology for the United States Navy and Marine Corps, 2000-2035*, Vol 7 - Undersea Warfare, National Academy Press, Washington DC, 1997, p. 10.
- <sup>8</sup> Committee on Technology for Future Naval Forces, *Technology for the United States Navy and Marine Corps, 2000-2035*, Vol 7, p. 19.
- <sup>9</sup> Committee on Technology for Future Naval Forces, *Technology for the United States Navy and Marine Corps, 2000-2035*, Vol 7, p. 3.
- <sup>10</sup> The Australian Army, *Fundamentals of Land Warfare*, Land Warfare and Development Centre, Puckapunyal, 2002, p. 37.
- <sup>11</sup> See Department of Defence, *Enabling Future Warfighting: Network Centric Warfare*, Chap. 3.

# The Roles and Tasks of Maritime Forces

Ms Vanessa Bendle

Over the last year, the Sea Power Centre - Australia (SPC-A) has conducted research in order to develop a database of Royal Australian Navy (RAN) operational activities. This research clearly demonstrated the flexibility of maritime forces and illustrated that the nature of the roles and tasks undertaken in any given operation can change rapidly. Some of the research results were published in the paper *Naval Operations other than War, 1901-2004*.<sup>1</sup> A complete database of operations for the period 1990-2005 has been published.<sup>2</sup>

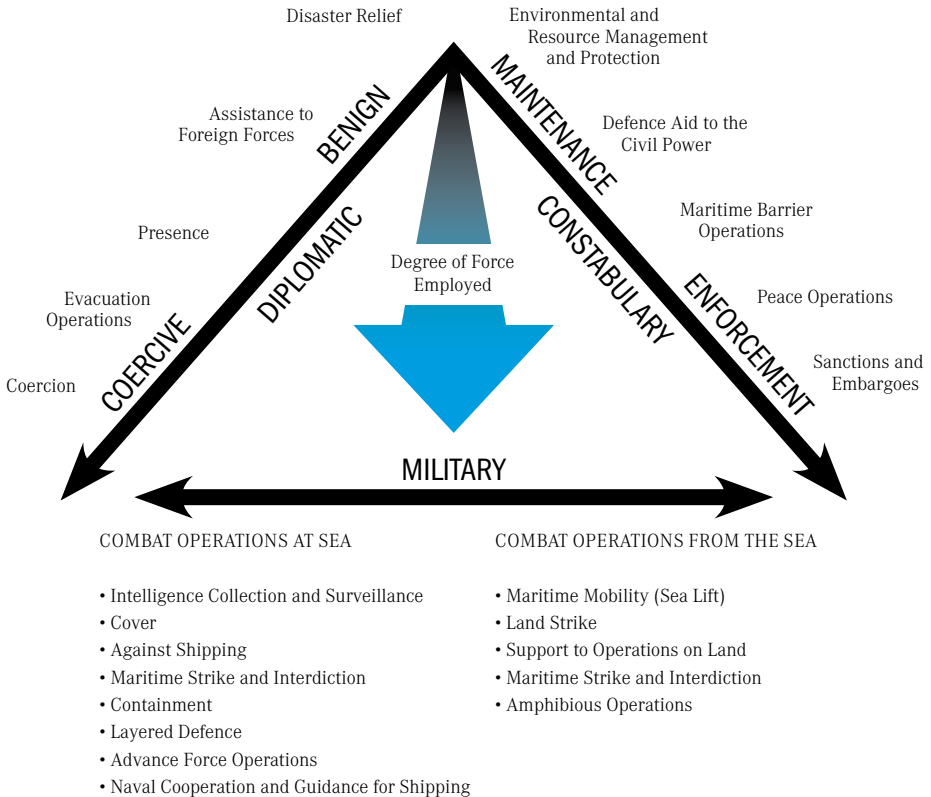
Doctrine development is a dynamic, iterative process that is informed by both history and the current activities of the Australian Defence Force (ADF). Accordingly, the results of SPC-A's operational research have been reviewed against the RAN's current philosophical doctrine ('the body of thought on the nature, role and conduct of conflict'<sup>3</sup>). This article focuses specifically on a review of the roles and tasks of maritime forces, and of the 'triangle of sea usage',<sup>4</sup> referred to here as the 'Span of Maritime Tasks'. This diagram broadly illustrates the relationship between the military, diplomatic and constabulary roles and subordinate tasks of maritime forces, with specific reference to the RAN.

Single Service doctrine, such as *Australian Maritime Doctrine* (AMD), is subordinate to ADF joint doctrine, in particular to *Foundations of Australian Military Doctrine*. Joint doctrine is aimed at supporting the creation of a seamless, integrated Australian force over time, while AMD explains what the RAN contributes to this joint force. The difference between terms used in single Service doctrine and joint doctrine is necessarily large, and there are a number of different ways of classifying operations. In ADF joint doctrine, a distinction is made between combat operations, military support operations, and shaping operations. The 'Spectrum of Conflict' in ADF doctrine refers to the variety of actions in which a military force may be engaged, ranging from general war to peacetime national tasks. These can be divided into two broad categories, based on the level and types of threat faced. 'Warlike operations' are military activities where the application of force is authorised to pursue specific military objectives, and there is an expectation of casualties. 'Non-warlike operations' are military activities where there is a risk associated with the assigned tasks, where the application of force is limited to self-defence, and where casualties could occur but are not expected.<sup>5</sup>

While these categories are useful in classifying specific ADF operations, a broader classification system based on the distinction between military, diplomatic and constabulary operations has proven useful in the maritime environment. The utility of this system is emphasised by its wide application across Western navies with which the RAN operates; while the RAN's doctrine is not identical to that of our major allies and friends, it has enough similarities to provide a common philosophical frame of reference.

The 'Span of Maritime Tasks' originates from the trinity of naval functions posited by Ken Booth,<sup>6</sup> developed by Eric Grove,<sup>7</sup> and adapted to the Australian environment in AMD. SPC-A's operational research revealed several potential anomalies in the existing

diagram. A simplified diagram, shown below, was then developed in an attempt to clarify the interrelationships between maritime roles and tasks while avoiding the anomalies that can develop in a comprehensive visual representation of all the tasks that the RAN undertakes.



Revised Span of Maritime Tasks, 2004 (RAN)

However, it is important to remember that the diagram is not the doctrine. The diagram illustrates relationships, rather than definitively describing them. Similarly, the diagram does not describe how any of the roles and tasks assist in achieving any of the maritime strategic concepts, such as sea control, or how those concepts will be achieved in any given circumstance.

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. The capability of the RAN to fulfil its diplomatic and constabulary roles is largely a by-product of the resources and core skills developed for warfighting, and the diagram retains the military role as its foundation.

The idea of a constabulary role is particularly valuable because it emphasises the historically close - and continuing - relationship between maritime forces and domestic and international law enforcement. The benign and coercive categories within the diplomatic role are also important because they illustrate the different types of diplomatic operations that the RAN has the capability to undertake, according to the amount of force applied. Both involve exerting influence over a foreign government through the demonstration of military power, but coercive diplomacy involves a more overt threat. This differentiation helps to demonstrate just how flexible navies can be.

This flexibility has been demonstrated by the RAN's activities since 1990 in the Persian Gulf region, pursuing Australia's commitment to enforce long-standing United Nations (UN) sanctions against Iraq, as well as supporting the ADF contribution to the International Coalition against Terror (Operation SLIPPER). During the recent Iraq conflict the RAN initially had a constabulary role in supporting operations as part of the multinational Maritime Interception Force, a role that it has undertaken since the initial deployment to the Persian Gulf in 1990 following the invasion of Kuwait (Operation DAMASK). With the pre-deployment of forces to the Middle East (Operation BASTILLE), the RAN's contribution became a coercive diplomatic operation, supporting pressure on Iraq to disarm. With the shift to combat operations to disarm Iraq (Operation FALCONER) as part of the international coalition of military forces, the RAN's role then became military in nature. Following this, the RAN has supported Australia's contribution to stabilisation and recovery operations in Iraq (Operation CATALYST) - another coercive diplomatic operation. This transition between roles is a prime example of how the RAN's contribution depended on its inherent military capability; that is, the ability to use force, and the ability to escalate or reduce the use of force as necessary for each different operation.

The significant 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. In its constabulary role, the RAN enforces national or international law, in a manner in which minimal force is only used as a last resort when there is some evidence of a breach or intent to defy. The level and type of force that is permitted will frequently be specified in the law, mandate or regime that is being enforced. Maritime barrier operations are listed on the constabulary side of the triangle and aim to prevent unauthorised incursions into maritime areas subject to Australian sovereignty or sovereign control. These operations target illegal immigration, weapon and drug smuggling, illegal fishing, piracy and maritime crime, maritime terrorism, and quarantine infringements.<sup>8</sup> In its constabulary role, the RAN is involved in the maintenance and enforcement of good order. A recent example of this is Operation RELEX II where, since March 2002, the RAN has conducted regular patrols intended to deter unauthorised boat arrivals. The maintenance of good order may thus be considered as a differentiated category in the constabulary role, as is the benign application of maritime power in the diplomatic role. The transition in these roles from benign to coercive and from maintenance to enforcement is demonstrated on the triangle by superimposing an arrow to indicate the gradual escalation of force potentially required.

Governments use naval diplomacy to influence the policies and actions of other states. Benign diplomatic tasks involve the use of naval capabilities not directly associated with combat. Coercive tasks involve the use of force, or the threat of force, to persuade other states to adopt a certain pattern of behaviour. The 'Span of Maritime Tasks' outlines the interrelationship between navies and foreign policy through the use of the sea. There are many examples of the RAN's diplomatic role. These range from benign port visits to show the flag to a more coercive role; such as in 1987 when RAN warships exerted a coercive influence during the Fiji coup (Operation MORRIS DANCE) to ensure the safety of Australian citizens.

The categorisation of a task as either diplomatic or constabulary depends on the international standing of the action. UN sanctioned embargoes are part of an internationally agreed order and are not aimed at supporting foreign domestic governments. They therefore fall within the constabulary role. When the ADF provided support to the United Nations Assistance Mission to Rwanda (Operation TAMAR) the RAN performed a constabulary role, which included providing medical support to the UN force and humanitarian assistance to the Rwandan people. However, unilateral operations fall within the diplomatic role, because they are defined primarily by national interest. Australia's second strategic objective is to help foster the stability, integrity and cohesion of our immediate neighbourhood.<sup>9</sup> The RAN's involvement in the ADF contribution to the Australian-led Regional Assistance Mission to the Solomon Islands (Operation ANODE) was therefore a diplomatic one; helping to restore law and order in the Solomon Islands in accordance with Australia's own national interest.

The experiences and thoughts of military practitioners must shape doctrine. Accordingly, we strongly encourage comment on points discussed in this Semaphore to inform the review of AMD, which is scheduled to begin in 2005. This review will include a more detailed discussion of each task that the RAN undertakes.

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## Notes

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- <sup>1</sup> V. Bendle, 'Naval Operations other than War 1900-2004', in G. P. Gilbert & R. J. Davitt (eds.), *Australian Maritime Issues 2005*, Sea Power Centre - Australia, Canberra, 2005.
- <sup>2</sup> Royal Australian Navy, *Database of RAN Operations, 1990-2005*, Working Paper No. 18, Sea Power Centre - Australia, Canberra, 2005.
- <sup>3</sup> Australian Defence Force, *Foundations of Australian Military Doctrine*, Defence Publishing Service, Canberra, 2002, p. 1-1.
- <sup>4</sup> Royal Australian Navy, *Australian Maritime Doctrine*, Defence Publishing Service, Canberra, 2000, p. 57.
- <sup>5</sup> Australian Defence Force, *Foundations of Australian Military Doctrine*, p. 3-2.
- <sup>6</sup> K. Booth, *Navies and Foreign Policy*, Croom Helm, London, 1977, p. 16.
- <sup>7</sup> E. Grove, *The Future of Sea Power*, United States Naval Institute Press, Annapolis, 1990, pp. 232-236.
- <sup>8</sup> Bendle, 'Naval Operations other than War', in *Australian Maritime Issues 2005*.
- <sup>9</sup> Department of Defence, *Defence 2000: Our Future Defence Force*, Defence Publishing Service, Canberra, 2000, p. 30.

# Disaster Relief - Cyclone Tracy and Tasman Bridge

Mr Brett Mitchell

During the early hours of Christmas Day, 1974, Cyclone Tracy devastated the city of Darwin with winds in excess of 160 knots, killing 49 people ashore and a further 16 at sea. During the following month, the Royal Australian Navy (RAN) would embark upon its largest peacetime disaster relief operation, involving 13 ships, 11 aircraft and some 3000 personnel.

The 351 naval personnel then based in Darwin possessed only a limited capability to render immediate assistance to the stricken city and its community.<sup>1</sup> Of the four Darwin-based *Attack* class patrol boats, HMAS *Arrow* had sunk under Stokes Hill Wharf with the loss of two lives, HMAS *Attack* was driven ashore at Doctor's Gully by the sheer force of the cyclonic winds, and HMAS *Advance* and HMAS *Assail* were damaged. Darwin Naval Headquarters was destroyed, as was 80 percent of the patrol boat base and 90 percent of the naval married quarters. The oil fuel installation and the naval communications station HMAS *Coonawarra* were extensively damaged. Initial relief was limited to search and rescue operations on the harbour foreshore and in waters out to Melville Island. Communications facilities in Darwin, both military and civil, were crippled, and initial communications were dependant upon Army mobile terminals and the communications systems in *Advance*, *Assail* and the motor vessel *Nyanda*.<sup>2</sup>



*Aerial view of the HMAS Arrow wreck (RAN Historical Section)*



As the gravity of the disaster became apparent, a naval task force, under the command of the Flag Officer Commanding HM Australian Fleet (FOCAF), Rear Admiral D. C. Wells, CBE, RAN, was assembled to render aid to Darwin. A general recall was issued to all personnel. Approximately 50 percent of all Sydney-based ships' companies were on annual leave, with many interstate. Of the 2700 personnel on leave, 2200 were able to return to their ships prior to sailing, and others subsequently managed to join their ships in Townsville. Volunteers from other Sydney-based ships and establishments filled the positions of those who could not return to their ships in time. All manner of stores were embarked in the deploying ships, ranging from combat bridges, vehicles and building materials down to disposable cutlery.

The response of Operation NAVY HELP DARWIN was swift. The first RAN asset to arrive in the disaster stricken city, on 26 December, was a HS748 aircraft from 851 Squadron, carrying blood transfusion equipment and a team of Red Cross workers. A second HS748 aircraft carrying members of Clearance Diving Team One (CDT1) arrived shortly thereafter. On 26 December HMA Ships *Balikapapan* and *Betano* sailed from Brisbane, HMAS *Flinders* sailed from Cairns, and HMAS *Melbourne* (with FOCAF embarked), HMAS *Brisbane* and HMAS *Stuart* sailed from Sydney. Four S2E Tracker aircraft from 816 and 851 Squadrons prepared to fly to Darwin, but were placed on standby and eventually stood down. The following day, HMA Ships *Hobart*, *Stalwart*, *Supply* and *Vendetta* sailed from Sydney, while *Brunei* and *Tarakan* sailed from Brisbane. Nine Wessex helicopters from 817 and 725 Squadrons were embarked in *Melbourne* and *Stalwart*. HMAS *Wewak* subsequently sailed from Brisbane on 2 January 1975. The submarine HMS *Odin* had been nominated to proceed to Darwin to act as a power station, before the authorities determined that appropriate power conversion facilities did not exist in Darwin.<sup>3</sup>

The Director General of the National Disasters Organisation, Major General A. B Stretton, DSO, arrived in Darwin on 26 December with his staff officers to establish an Emergency Services Organisation Committee. Captain E. E. Johnston, OBE, RAN, Naval Officer Commanding the North Australia Area (NOCNA), was appointed to the committee as Port Controller, with responsibility for controlling the port and its approaches, and for drafting an Emergency Plan in the event of a further cyclone.

As preparations were made for the arrival of the naval task group, Captain Johnston relocated the naval headquarters to his residence, Admiralty House. Following an exchange of signal traffic between FOCAF and NOCNA, it was agreed that the RAN relief force would be allocated responsibility for clearing and restoring 4740 houses in the northern suburbs of Nightcliff, Rapid Creek and Casuarina. HS748 aircraft continued to ferry personnel and stores to Darwin and evacuees south. Evacuees were accommodated in HMA Establishments *Kuttabal*, *Penguin* and *Watson* in Sydney; and *Moreton* in Brisbane. CDT1 was surveying damage to the patrol boats and civilian craft, searching for missing vessels, clearing Stokes and Fort Hill Wharves, and assessing how to extract the wreck of *Arrow*.

The first ships, *Flinders* and *Brisbane*, arrived in Darwin on 31 December. *Flinders* surveyed the approaches to Darwin to ensure the safe passage and anchorage of the Task Group, while *Brisbane* landed working parties and established communications with

NOCNA. *Melbourne* and *Stuart* arrived on 1 January; *Stalwart* on 2 January; *Hobart*, *Supply* and *Vendetta* on 3 January; and *Balikpapan* and *Betano* on 4 January. *Brunei*, *Tarakan* and *Wewak* arrived the following week on 13 January. The ships had brought with them some 3000 naval personnel.

The arrival of *Melbourne* precipitated the establishment of a Shore Command Headquarters (SCHQ) at Admiralty House to coordinate the working parties, which were tasked by the Emergency Services Organisation. Working parties were typically composed of 10 or 15 officers and sailors, depending upon the nature of the task.

With the arrival of the task group, the primary focus for CDT1 turned to the extraction of *Arrow* from Stokes Hill Wharf, a task achieved on 13 January after much work. Unfortunately *Arrow* was damaged beyond repair and was subsequently decommissioned and scrapped.

The raw statistics amply illustrate the magnitude of the relief work undertaken by the RAN. Between 1 and 30 January naval personnel spent 17,979 days of effort ashore, with up to 1200 ashore at the peak of the operation. Working parties cleared some 1593 blocks and cleaned up schools, government and commercial buildings and recreational facilities. They installed generators, rewired houses, repaired electrical and air-conditioning systems, re-roofed or weatherproofed buildings, and maintained and repaired vehicles. Some parties worked to save rare plants in the Botanical Gardens. Hygiene parties disposed of spoiled foodstuffs from houses, supermarkets and warehouses. Female personnel from *Coonawarra* supported civil relief organisations and manned communication centres. One enterprising sailor from *Hobart* filled in as a relief disc jockey for the local commercial radio station. The Wessex helicopters transported 7832 passengers, 244,518 lbs (110,912 kg) of freight and made 2505 landings. The HS748 aircraft completed 14 return flights to Darwin and carried 485 passengers and 50,000 lbs (22,680 kg) of freight.

Like its arrival, the departure of the task group was staggered. *Balikpapan* and *Flinders* departed early, on 7 and 9 January respectively; *Stuart*, towing *Attack* to Cairns, sailed in company with *Brunei*, *Tarakan* and *Wewak* on 17 January; *Hobart*, *Melbourne* and CDT1 left on 18 January; *Betano* on 23 January; and *Supply* and *Vendetta* on 24 January. The SCHQ was closed down on 30 January and FOCAF transferred responsibility for the continuation of disaster relief to the Commandant of the Army's 7th Military District. The following day the last ships, *Brisbane* and *Stalwart*, sailed from Darwin.

The departure of the task group did not, however, signify the end of the RAN's support to the rehabilitation of Darwin. In May and June 1975 the minehunters HMA Ships *Curllew*, *Ibis* and *Snipe* surveyed the approaches to Darwin and the harbour itself, locating trawlers sunk during Cyclone Tracy, and other navigational hazards.

Cyclone Tracy was not the only disaster that befell Australia during the Christmas and New Year period of 1974-75. On the evening of 5 January 1975 the Australian National Line bulk carrier MV *Lake Illawarra*, laden with a cargo of zinc concentrate, collided with the Tasman Bridge, which spanned the Derwent river in Hobart. The ship sank, killing seven of the crew, and collapsing two pylons and 127 metres of bridge decking into water 110 feet deep. Four motor vehicles fell into the river, killing five occupants.

At 0430 on 6 January 1975, a 14-man detachment from Clearance Diving Team 2 (CDT2), commanded by Lieutenant Alexander Donald, DSC, RAN, flew to Hobart for search and recovery operations. Following preliminary dives on 6 January, CDT2 was tasked to locate and assist Hobart Water Police recover the motor vehicles. Two additional divers from CDT1 arrived from Sydney, with a one-person recompression chamber. Two vehicles were identified on 7 January; one was salvaged that day and the second three days later. Another vehicle was found buried under rubble on 8 January. Three team members assisted Tasmanian Police divers comprehensively survey the wreck of the *Lake Illawarra* between 9 and 13 January. Operations ceased on 16 January.



*Navy diving operations in the Derwent river following the Tasman Bridge disaster  
(RAN Historical Section)*

The Navy divers operated in hazardous conditions, with minimal visibility and strong river currents. Divers had to contend with bridge debris consisting of shattered concrete, reinforced steel rods, railings, pipes, lights, wire and power cables. Strong winds on the third day brought down debris from the bridge above, and caused unguarded 'live' power cables to fall into the water, endangering the divers. Understandably, Lieutenant Donald described the conditions as 'appalling'.

The breakage of an important arterial link isolated the residents in Hobart's eastern suburbs - the relatively short drive across the Tasman Bridge to the city suddenly became a 50 kilometre journey around the bay. Although ferries provided a service across the Derwent River, it was not until December 1975 that a single lane combat bridge was opened to traffic, thereby restoring some connectivity. Reconstruction of the Tasman Bridge began in October 1975 and the bridge officially reopened on 8 October 1977. The wreck of the *Lake Illawarra* remains where it sank in 1975.<sup>4</sup>

The reaction to Cyclone Tracy and the Tasman Bridge disasters demonstrated the RAN's ability to aid the civil community whenever directed by the Government, to deploy a multi-skilled and committed workforce at short notice, to accommodate that work force in self supporting assets, and to maintain that support without impacting on a disaster-affected community's limited resources. Moreover, a maritime response force can move large quantities of essential equipment and materials to a disaster affected area to assist in remediation and reconstruction. This is consistent with the RAN's doctrinal principles of *readiness, reach, and mobility in mass*.<sup>5</sup>

Thirty years on, the RAN's warfighting resources and core skills allow it to maintain the capabilities, skills and preparedness levels necessary to also respond to disasters resulting from natural and human initiated events, both within Australia and in the wider Asia-Pacific region.

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## Notes

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- <sup>1</sup> E. Johnston, *Operation Navy Help: Disaster operations by the RAN post-Cyclone Tracy*, Northern Territory Library Service, Darwin, 1987, p. 2.
- <sup>2</sup> G. Odgers, A. G. P. Wright, & M. Austin, *The Defence Force in the Relief of Darwin after Cyclone Tracy*, Department of Defence, 1979.
- <sup>3</sup> HMS *Odin* was attached to the Australian Submarine Squadron pending the delivery of the RAN's final *Oberon* Class submarines.
- <sup>4</sup> Information on the Tasman Bridge disaster was drawn from the official report by the Commanding Officer of CDT2, *Tasman Bridge Operations 6th - 18th January 1975*, February 1975.
- <sup>5</sup> Royal Australian Navy, *Australian Maritime Doctrine*, Defence Publishing Service, Canberra, 2000, pp. 48-50.



# The Pacific Patrol Boat Project

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*Pacific Patrol Boat (RAN Historical Section)*

The 1982 *United Nations Law of the Sea Convention* (LOSC) introduced a 200 nm exclusive economic zone (EEZ) around sovereign coastal states. The sudden expansion of responsibility from a 12 nm territorial sea to a 200 nm EEZ dramatically increased the area of ocean requiring surveillance, monitoring and policing by these nations, increasing the strain on existing maritime patrol resources, and highlighting the need for countries without a maritime patrol force to obtain one. In particular, island nations throughout the South West Pacific were faced with the responsibility of policing an area of ocean that was often far larger than their landmass, with unsuitable or non-existent patrol resources, and limited funding and experience with which to obtain a suitable capability.

In 1979 the Australian and New Zealand governments, at the request of Pacific Island nations, sent defence representatives into the South West Pacific region to assess surveillance and maritime patrol requirements.<sup>1</sup> With the exception of Australia, which had declared a 200 nm Australian Fishing Zone in 1979, the advent of LOSC introduced regulatory, surveillance and patrol requirements far beyond the capacity of any regional nation. The governments of a number of the Pacific Island nations expressed their concern about the need for a suitable maritime patrol force to fulfil their new surveillance requirements. The Australian Government responded by instituting a Defence Cooperation Project (DCP), to provide suitable patrol vessels and associated training and infrastructure to island nations in the region. The Pacific Patrol Boat Systems Program Office was created within the Minor War Vessels Branch of the Royal Australian Navy (RAN) procurement organisation to manage the DCP and to be the Project Authority.<sup>2</sup>

In August 1984 the Australian Government released a request for tender for the construction of patrol craft suitable for Pacific Island nations to use in surveillance and maritime patrol operations.<sup>3</sup> Australian Shipbuilding Industries Pty Ltd (now Tenix Western Australia) was awarded the contract for the design and construction of the patrol boats in September 1985 and the first of ten vessels was scheduled for delivery in early 1987.<sup>4</sup> The resulting Pacific Patrol Boat (PPB) is a light, but robust, vessel designed for surveillance and interdiction patrols, search and rescue, and fisheries protection. With a range of 2500 nm at 12 knots, a sprint capability of 20 plus knots, and light armament, the PPB is well suited for use by Pacific Island nations to monitor and police their EEZs. The first vessel, HMPNGS *Tarangau*, was officially handed over to the Papua New Guinea Defence Force on 16 May 1987. Some initial teething problems were identified and corrected after the first two vessels were completed, with upgrades to propellers, air conditioning, engine cooling systems, and other modifications, becoming standard features in later vessels.<sup>5</sup> Tenix maintains follow on support for the PPBs in Brisbane, Queensland, and in Suva, Fiji, through the provision of spare parts and technical advice.

The number of vessels planned for construction and the number of participating countries increased during the course of the project. The end-state of the construction phase of the project was a total of 22 boats delivered to 12 countries, compared to the original order of 10 boats for 8 countries. Nations currently operating PPBs include Papua New Guinea (4), Fiji (3), Federated States of Micronesia (3), Tonga (3), Solomon Islands (2), Cook Islands (1), Kiribati (1), Marshall Islands (1), Palau (1), Western Samoa (1), Tuvalu (1) and Vanuatu (1)<sup>6</sup>. The final vessel to be constructed was delivered to the Federated States of Micronesia in June 1997. In total, the project cost for 22 vessels and associated support was \$A155.25 million.

In addition to providing the patrol boats, Australia has conducted training for personnel intended to operate the PPBs, giving them the skills to conduct surveillance operations with minimal external input. This training has come from two sources. The Department of Defence has provided training through its International Navigation and Navigator Yeoman courses, as well as more general management, staff and operational courses. The Australian Maritime College (AMC) in Launceston, Tasmania has provided many courses in maritime technical, seamanship, communications and management subjects in support of the PPB Project. Since 1998, the AMC has conducted 32 courses per year for the PPB Project at an annual cost to the Australian Government of approximately \$A15m.<sup>7</sup>

Although Australia does not operate the PPB, the project has provided a number of RAN posting opportunities. Positions have been established for one officer and one or two senior sailors, as operational and technical advisers, in each island nation operating the PPB. The RAN advisory teams aim to assist in the development of sustainable maritime surveillance capabilities,<sup>8</sup> whilst also providing assistance and support for personnel operating PPBs, and ongoing training for their effective operation. The advisers concentrate on factors including command and control, surveillance and maintenance and repair of the vessels. Additionally, the RAN has provided infrastructure and support for the PPBs through wharf and support facility construction and the progressive establishment of 17 Maritime Surveillance Communications Network Centres throughout the region.<sup>9</sup>

Australia's continued support of the PPB has contributed to closer relations with neighbouring countries.<sup>10</sup> Strengthened relations through the South West Pacific aligned well with Defence aims through the late 1980s and early 1990s, when the strategic focus shifted from a 'Defence of Australia' posture to a shared understanding of strategic priorities and cooperation. This incorporated the development of strategic capabilities and the fostering of a 'self reliance' attitude in Australia's neighbours - an aspect well provided for by the PPB project. A potential long-term benefit of investing in capabilities of other nations is the refinement or redirection of Defence support spending in the future, as those nations grow in experience of maritime surveillance and response operations.

Additionally, the introduction of self-reliant patrol forces throughout the region has eased the strain on Australia's own maritime patrol force. Cooperation between Australia and its Pacific neighbours has allowed for a greater allocation of RAN patrol boats to protecting Australia's maritime resources, patrolling the Sea Lines of Communication (SLOC), and conducting border protection operations. Australia currently conducts bilateral and multilateral exercises with countries participating in the PPB project to develop and maintain high standards of surveillance and patrol capabilities in the region.

Recently, PPBs from all nations involved in the project have undergone a half-life refit and are undertaking a life extension program. The life extension program provides a refit for the vessels at the 15 year mark, in addition to the previously conducted 7-8 year refit, and also provides for further training and logistic support from Australia. The life extension refit involves the refurbishment of the hull and structure, and the refurbishment or replacement of ship systems. The life extension program commenced in 2003 and is expected to be completed in 2012. As a result, the service life expectancy of the vessels has been doubled from 15 years to 30 years. This will see the PPB potentially operating in the region until at least 2027.

Because the PPB project has been such a success in providing an effective surveillance and response capability, countries that have developed expertise in the operation of the PPB may in the future see a need to enhance this capability by incorporating a more sophisticated vessel, with greater endurance, improved seakeeping, and better boarding capacity, into their maritime patrol forces. The driving factors behind such a policy decision would most likely be linked to increasing pressure on local fish stocks from foreign fishing, as oceanic resources are increasingly depleted in traditional fishing grounds outside the South West Pacific, or changes to the coastal state rights and obligations currently detailed in LOSC.

Should this be the case, the design and construction capabilities of Australian industry can meet the requirement. As an example, the *Armidale* class patrol boats currently being constructed by Austal Ships for the RAN may be a suitable design. An alternative might be the Inshore Patrol Vessel to be constructed by Tenix Defence Pty Ltd for the Royal New Zealand Navy. In addition to enhancing the current capabilities of countries operating PPBs, and increasing the interoperability of Australia's maritime patrol capabilities with those of neighbouring nations, these options would support Australia's maritime industry by providing for the construction of additional patrol boats beyond the current project completion dates of 2008 and 2010. However, Australian industry should be well



placed to meet whatever the future aspirations of the PPB user nations are as the boats themselves approach their life of type.

The Pacific Patrol Boat Project has been beneficial for the ADF in general, and the RAN in particular. The development of self-reliant regional maritime patrol forces is significantly improving the response to resource violations in South West Pacific EEZs. Strengthened regional relations and increased maritime patrol capabilities help maintain Australia's sovereignty and SLOC, as well as contributing positively to regional stability and maritime security cooperation.

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## Notes

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- <sup>1</sup> Department of Defence, *Defence Cooperation: Program Evaluation*, Director Publishing, Defence Centre, Canberra, January 1995, pp. 2-3.
- <sup>2</sup> Defence Material Organisation, *SEA 1363 - Pacific Patrol Boat Project*, Internet <intranet.defence.gov.au/dmoweb/sites/SEA1363> (7 February 2005).
- <sup>3</sup> Royal Australian Navy, *Chief of Naval Staff Newsletter April 1985*, Department of Defence (Navy Office), Canberra, 1985, p. 16.
- <sup>4</sup> Royal Australian Navy, *Chief of Naval Staff Newsletter November 1985*, Department of Defence (Navy Office), Canberra, 1985, p. 12.
- <sup>5</sup> Tenix Defence Pty. Ltd., *31.5m Pacific Patrol Boat*, Tenix Marine Division Brochure, Internet <tenix.com/PDFLibrary/27.pdf> (7 February 2005).
- <sup>6</sup> Department of Defence, *Review of the Defence Annual Report 2002-03*, Defence Publishing Service, Canberra, 2003, pp. 64-65, para. 6.5.
- <sup>7</sup> Defence Material Organisation, *SEA 1363 - Pacific Patrol Boat Project*, Internet <intranet.defence.gov.au/dmoweb/sites/SEA1363> (7 February 2005).
- <sup>8</sup> Department of Defence, *Defence Report 2002-03*, Australian Government Publishing Service, Canberra, 2003, p. 171.
- <sup>9</sup> Department of Defence, *Defence Report 1993-94*, Australian Government Publishing Service, Canberra, 1994, p. 172.
- <sup>10</sup> Department of Defence, *Defence Report 1998-99*, Australian Government Publishing Service, Canberra, 1999, p. 7.

# The RAN in the Gulf - Two Years On

Dr David Stevens and Mr John Perryman

On 17 March 2003 some 40 cargo dhows sailed from the Khawr Abd Allah (KAA) and entered the Northern Arabian Gulf (NAG). Here awaited the pre-positioned ships of the Maritime Interception Force (MIF); a multi-national flotilla tasked with preventing both the entry of prohibited goods into Iraq and the conduct of any illegal export trade. The MIF had dealt with many similar incidents over previous months. Upwards of 300 vessels of all types were bottled up in the KAA, most of which carried high-value but illicit cargoes. In an attempt to overwhelm the waiting patrols, the latest smuggler tactic was to orchestrate a mass break-out during darkness. On this occasion, though, the dhows were leaving in the early afternoon. Many were displaying white flags and their crews even offered to dump their cargoes should this be ordered. Reacting to media reports on the imminent start of hostilities, they had decided that the possible profit no longer justified the risk. To the surprise of the smugglers, however, the MIF seemed no longer concerned with commercial contraband. After a thorough inspection to ensure they posed no threat to Coalition forces, each dhow was ordered to clear the area.

The exodus marked a watershed in nearly thirteen years of maritime interception operations. Since August 1990, when the United Nations (UN) first imposed economic sanctions following the Iraqi invasion of Kuwait, a multi-national naval force had conducted one of the longest maritime enforcement operations in history. By itself the embargo could not force Iraq to comply with the directions of the UN Security Council but, in addition to hampering Iraq's efforts to reacquire a credible military capability, it also served as a continuing demonstration of international resolve and a highly visible deterrent to any Iraqi response. Moreover, by using surface warships the operation allowed individual nations to make a finely tuned contribution; one which could be matched exactly to their changing objectives and interests. With the move towards conflict in March 2003 the mission was about to change yet again.

The United States Navy (USN) ran the overall maritime campaign, but throughout the embargo's evolution the Royal Australian Navy (RAN) played far more than a token role. Under the codename Operation DAMASK the RAN provided a three-ship task group in September 1990 and, building on a common doctrine and many years of combined exercises, found it relatively easy to operate within an *ad hoc* coalition. RAN units later provided escort and logistic support during the combat operations to liberate Kuwait and then maintained a regular single-ship presence with the MIF in either the Arabian Gulf or the Red Sea. Over the years the manner in which the MIF conducted interceptions and boardings changed markedly, but Australian sailors proved highly adaptable and ever ready to innovate. HMAS *Anzac*, for example, began the tenth and last DAMASK deployment in mid-2001 and was instrumental in bringing about a more aggressive approach to interception operations. Her skilled boarding parties demonstrated the advantages of a close and unremitting presence in Iraqi coastal waters. Over the course of *Anzac's* deployment the MIF's success rate against illegal traders increased from just 20 percent to more than 80 percent.<sup>1</sup>



*Handover in the Gulf, Operation CATALYST, 2005 (RAN Historical Section)*

Changes in the international security situation following the dramatic events of 11 September 2001 resulted in Australia increasing its contribution in the Middle East. A three-ship task group, as part of Operation SLIPPER, was formed in November 2001 and fully deployed in the Gulf by early December 2001, and no fewer than two ships were maintained by regular rotation until mid-2003. With USN forces also needing to accommodate new tasks in Afghanistan, command of the MIF passed routinely to the Australian task group commander. It was a unique combined operational responsibility and the successful results did much to enhance Australia's international standing. Despite innovative tactics by the smugglers, including the use of ever more elaborate means to obstruct boardings, the MIF maintained the initiative and kept the illegal trade unprofitable. Taking place at a distance and out of sight, these activities seldom made the news, but were nonetheless essential to the military campaign which followed. By preserving a sustained presence within Iraqi territorial waters, successive RAN commanders built up not only valuable skills within the force, but also a detailed picture of local military and civil activities. Effective exploitation of this knowledge advantage was the significant feature of the RAN's contribution throughout these years.

On 18 March 2003 the RAN task group transitioned to Operation FALCONER, and the conduct of combat operations against the regime of Saddam Hussein. Also under Australian tactical command were ships from the USN, US Coast Guard, Royal Navy and Poland. The primary naval task in the NAG was to reopen the Iraqi port of Umm Qasr to allow the entry of humanitarian aid as quickly as possible. This task also meant supporting the British Royal Marines in their land assault and ensuring that the KAA remained clear of Iraqi forces. Each Australian ship in the force had an essential and

multi-faceted part to play: the amphibious transport HMAS *Kanimbla* acted as a command platform and mother ship for coalition patrol craft and boarding parties; *Anzac* provided highly responsive naval gunfire support; while HMAS *Darwin* first acted as scene of action commander during the dhow exodus from the KAA, then offered surface and anti-air protection to high value Coalition units. The capture of three Iraqi minelaying tugs, a suicide boat and a variety of hidden weapons caches illustrated the potential threat, but their rapid discovery and neutralisation also demonstrated how completely the Coalition had established sea control. Just ten days into the campaign, the first humanitarian assistance cargo arrived at Umm Qasr, a testament to the quality of the pre-combat planning and the professionalism of the forces involved.

Despite their rapid and unquestioned success, Coalition naval operations in the Gulf were far from over. Operation CATALYST - Australia's commitment to multi-national efforts to develop a secure and stable environment in post-Saddam Iraq - began on 16 July 2003. Since then the RAN has separately deployed the frigates HMA Ships *Newcastle*, *Melbourne*, *Stuart*, *Adelaide* and *Darwin* to the region for periods of up to six months. Still heavily involved in interception operations, the crews of these ships have conducted hundreds of boardings, resulting in several discoveries of cash, hidden tanks of oil and other smuggled goods.

In addition to the boarding of selected vessels to ensure that contraband and weapons are not smuggled into Iraq, there is a more general requirement to keep watch on all maritime traffic entering and leaving the country, and also to provide protection for Iraq's primary oil terminals and shipping lanes. These tasks require a ship's company to remain at a high state of alert, maintaining constant visual and electronic surveillance in conditions which range from extreme heat in summer through to extreme winter cold.

On the eve of Anzac Day 2004 the ongoing threat was re-emphasised when insurgents carried out a well organised attack against the Iraqi oil terminals of Al Bakr and Khawr Abd Amaya. Hundreds of fishermen use the surrounding area and Coalition forces routinely warn off dhows at risk of entering the established security zone. In closing to intercept and interrogate the latest incursion, three members of a US patrol boat's boarding party were killed when the dhow's occupants detonated an explosive charge. The on-scene maritime security operations commander, HMAS *Stuart*, immediately closed to render assistance and began to coordinate the rescue effort. Within minutes, two further attacks against the terminals were thwarted by Iraqi security detachments and it became clear that the initial incursion was part of a coordinated action. Under *Stuart's* direction Coalition forces rapidly secured the area, and Coalition plans were adjusted to counter any further threat.



*A RHIB departs HMAS Stuart during maritime interception operations  
(RAN History Section)*

In addition to the deployment of major fleet units, RAN personnel have contributed to the redevelopment of Iraq in many other ways. Clearance Diving Team Three was instrumental in securing Iraqi port facilities during the hostilities in March 2003, and then performed a variety of ordnance disposal tasks in the surrounding region. In late 2004 the RAN members of the Iraqi Coastal Defence Training Team returned to Australia following a lengthy deployment during which they helped set up the new Iraqi Navy. Other personnel have fulfilled administrative and command roles within the wider ADF presence. Most recently, Commodore Steve Gilmore, RAN, has been appointed to command all coalition maritime operations in the northern part of the Gulf, as well as providing maritime security for Iraqi oil platforms and shipping connections in and out of Kuwait, from late April 2005.

The operational environment in the Arabian Gulf is constantly changing, and many of the operational activities that were foreign to the RAN a little over a decade ago are now common practice. Nevertheless, the Gulf remains a dangerous and unpredictable area. International boundaries are often disputed and there is an ever-present requirement for diplomacy and good judgement. Critical to the RAN's success and confidence has been the possession of effective self-protective measures, both at sea and during brief visits to

select foreign ports.

The lessons arising from fifteen years of Arabian Gulf operations are many and varied. But perhaps the most important for Australian planners is the utility, flexibility and responsiveness of maritime forces, especially the surface combatant force. Although acquired essentially for the defence of Australia these ships have consistently demonstrated their ability to rapidly self-deploy and then project national power and influence many thousands of miles from home. And they have done so without requiring a significant personnel presence on foreign soil. A warship is a mobile community of highly trained specialists, one which offers exceptional versatility across a broad spectrum of operations. In the Arabian Gulf, RAN units have performed tasks ranging from peacetime surveillance, patrol and boarding operations through to high intensity combat involving air, surface, mine and asymmetric threats.

In assessing the need for transformation in the conduct of Australian security, the requirement to maintain a balance in our force structure must receive at least equal attention. We live, as we have always done, with an uncertain future. In August 1990, no one in Australia expected an operational deployment to free Kuwait. Similarly, in September 2001, few would have predicted the path which led to combat operations in Afghanistan and Iraq. The outstanding performance of RAN warships in recent years has come not through accurate forecasts of Australia's strategic future, but because they possessed the materiel and human flexibility to constantly adapt their roles and tactics to reflect changing and unexpected circumstances and missions.

*Published as Issue 3, March 2005*

## Notes

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<sup>1</sup> Captain N. S. Coates, RAN presentation to SPC-A Seminar, *The RAN in the Gulf 1990-2003*, November 2003.



# Gallipoli as a Joint Maritime Campaign

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Dr David Stevens

The 1915 Gallipoli campaign holds a unique fascination for Australians. The story of the first Anzacs and their selfless sacrifice on a distant shore has assumed myth-like status. Ninety years later Gallipoli still provides a well-thumbed guide to our national identity and the supposedly innate qualities of Australian military personnel. In the words of an earlier historian: 'Volunteer forces, largely officered by amateur soldiers...demonstrated the effects of pioneering, of country life, of sport and of democratic freedom'.<sup>1</sup>

Today's Australian Defence Force (ADF) still finds value in the Anzac tradition, but the wider tendency towards uncritical glorification of the people and events of the campaign hides some significant deficiencies. More considered studies, such as those by Eric Andrews and Jeffery Grey, have pointed to fundamental weaknesses in a variety of areas including doctrine, training, logistics and strategy.<sup>2</sup> Hence the popular perception of the first Anzacs as inspired amateurs and uniformed larrikins, only serves to detract from the very real, very necessary, and thoroughly professional improvements that were thereafter introduced into the Australian Imperial Force (AIF).

To its credit, the Anzac legend has forged an emotional bond between the Australian military and the public which other nations might envy, but its conceptual limitations mean that the ongoing tendency to link 'Anzac' with a uniquely Australian approach to warfare must be treated with caution. If, as Michael Evans has suggested, a way of warfare should be seen as 'a military operational manifestation of a society's values and deepest beliefs about how it should defend itself',<sup>3</sup> then in terms of future security planning much of the legend has outlived its usefulness. The complexity of modern warfare has long since outpaced the concept of creating a soldier by simply putting a rifle in the hands of a bushman.

An aspect of the Gallipoli campaign that clearly demands better understanding is the part played by maritime forces. The campaign was conducted on both a joint and a combined basis, and at its peak directly involved more than 250 French and British warships. In addition to the troops of the AIF Australia had a naval presence, with the submarine *AE2* taking an active and important role at the outset of the campaign, and the later commitment of the RAN Bridging Train in support of engineering operations on the Gallipoli Peninsula.

The campaign was first planned as a purely naval effort, but the failure by the combined fleet to force a passage through Turkey's Dardanelles defences in March 1915 required a reassessment of this strategy. The Allies still considered that their warships would have to penetrate into the Sea of Marmara and bombard Constantinople in order to compel Turkey to surrender. To enable this to be accomplished, their next plan was to secure the Gallipoli peninsula through amphibious assault. Success ashore would then allow the minefields to be cleared without interference from Turkish shore emplacements and field artillery, and permit the passage of the fleet to Constantinople.





*Troops landing at Anzac Cove, covered by the light cruiser  
HMS Bacchante (AWM G00905)*

Only because of Allied naval supremacy could this expedition be contemplated, and after the landings the navies focused on the direct support of troops ashore and ensuring that the flow of reinforcements and stores exceeded that of the enemy. Sea-based forces mounted a complex and continuing series of operations which involved not only the obvious tasks of fire support and the ferrying of troops and supplies, but also interdiction at sea and ashore, naval air support, and blockade enforcement.

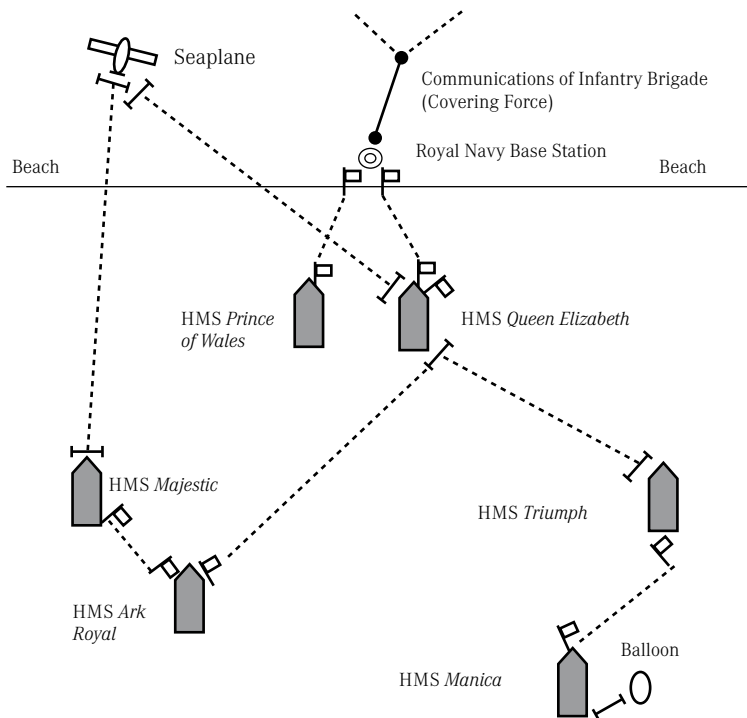
While seldom recalled today, the level of Army and Navy cooperation eventually attained at Gallipoli was far ahead of anything contemplated before the war. Continuously tailored to meet developing circumstances, the inherent flexibility of the fleet ensured that support for the troops never faltered during the eight months of the campaign.

Like many aspects of military operations during World War I the combatants at Gallipoli encountered a novel situation. New and unproven technologies proliferated. Planning for the close integration of land, sea and air assets in the littoral had not been undertaken before, and original solutions even included the first steps towards force networking, as illustrated in the fire support plan for the landings at Gaba Tepe (shown opposite).

Due to the slow production of guns, spares and particularly shells, and with troops on the Western Front receiving priority for equipment, the Dardanelles expedition was always seriously lacking in artillery, placing greater reliance on the guns of battleships and cruisers. Practical experience led to improved methods and greatly increased the power of ships to find and target the enemy ashore. Even when naval gunfire could not penetrate Turkish trenches, it suppressed their fire, lowered their troops' morale, disrupted resupply, and kept their heavy guns engaged. A battleship's 15-inch shrapnel

shell contained 15,000 bullets, and after the devastating fire they received during their early counter-attacks, the Turks made no further attempts to attack by daylight over ground that was in direct view of the covering naval force. The battleships were also instrumental in preventing the Turkish Navy from supporting their own troops. Using aerial spotting to fire over the peninsula, just one or two salvos were generally all that was necessary to induce enemy warships to withdraw.

Without common and well-understood doctrine, however, such innovations meant that allied forces had to not only learn new techniques, but also overcome unexpected problems. For example, the use of gunnery spotters in naval balloons and aircraft promised highly accurate and responsive fire to commanders ashore. However, the geography of the peninsula posed difficulties. Often only the outer edges of a Turkish position were exposed to direct fire, and as the campaign wore on, ever deeper and more elaborate fortifications made the low angle fire of naval guns less effective. Communications between the different elements were also poor with the problems compounded by lack of joint training, equipment shortages, unreliable aircraft, and the delicate nature of existing wireless sets.



*Fire support plan for the initial ANZAC landings at Gaba Tepe on 25 April 1915 (AWM 2S 367/26)*

As in every amphibious operation, control of the sea remained critical throughout the campaign, allowing the Allied force to use the sea for its own purposes, while preventing the Turkish force doing the same. Everything came and went by sea; the men, mules, guns and ammunition, the wire and timber supports for the construction of fortifications and trenches and of course the water and provisions. Most importantly, because it could rely on sea control the allied command always retained the option of evacuating the force.

Simultaneously, Allied sea power acted to disrupt Turkish communications and hamstringing their efforts to dislodge the Allies. There was no railway to Gallipoli and the nearest station was 50 miles from the northern end of the isthmus. Allied battleships and monitors shelled the main road and single access bridge to disrupt Turkish transport arrangements, while naval aircraft demonstrated their reach by attacking the enemy's railhead. Meanwhile the exploits of Allied submarines - a classic case of sea denial and one of the few undisputed successes of the campaign - practically stopped sea communications between Constantinople and Gallipoli. By July 1915 the Turks had abandoned the sea route for the transport of troops, while by the end of December only one large steamer was left operating in the Sea of Marmara. The lack of alternative routes forced the Turks to bring almost everything into Gallipoli by land at night; troops on foot and supplies by camels and ox carts. Farther afield allied destroyers maintained patrols to prevent contraband reaching Turkey through Greek or Bulgarian ports. Other warships escorted friendly transports, hunted for enemy submarines in the lower Aegean and blocked the passage into the Sea of Crete. Rather than taking place on a small Turkish peninsula, from the joint perspective the campaign is better understood by looking at the entire Eastern Mediterranean.

The lasting legacy of Gallipoli should not be seen in terms of the slaughter in the trenches. Though ultimately a failure, the campaign provided a wealth of shared experience. Joint operations techniques and procedures, ranging from improved command and control, through to common terminology, were learned the hard way in 1915. But the campaign paved the way for the succession of amphibious assaults that brought victory in 1945. The lessons of both success and failure in the campaign informed the development of amphibious tactics and equipment between the wars. The fundamentals of modern maritime power projection were established. 'We are far from being beaten', wrote the naval commander, Admiral John de Roebeck, after the evacuation, '...in fact we have learned a great deal and will know what to do in the future'.<sup>4</sup>

*Published as Issue 4, March 2005*

## Notes

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- <sup>1</sup> A. Grenfell Price, *Australia Comes of Age*, Georgian House, Melbourne, 1945, p. 76.
- <sup>2</sup> See E. Andrews, *The Anzac Illusion*, Cambridge University Press, Melbourne, 1993, and J. Grey, *The Australian Army*, Oxford University Press, Melbourne, 2001.
- <sup>3</sup> M. Evans, 'Strategic Culture and the Australian way of warfare: Perspectives', in D. Stevens and J. Reeve (eds), *Southern Trident: Strategy, History, and the rise of Australian Naval Power*, Allen and Unwin, Sydney, 2001, p. 90.
- <sup>4</sup> Letter, de Roebeck to General Birdwood, 3 February 1916, AWM 3DRL 3376, Item 8 A.

# Air Warfare Destroyers and Combat Operations from the Sea

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Captain Richard McMillan, RAN

Several *Semaphore* newsletters in 2003 discussed Australia's needs for major surface combatants and an area air warfare capability.<sup>1</sup> A further review of the Australian Defence Force's (ADF's) rationale for and expectations of the planned Air Warfare Destroyer (AWD) is warranted given the planned selection of a preferred design in mid-2005 and recent public debate for and against this planned combination of capabilities. This newsletter will review the AWD's employment in combat operations from the sea, and particularly in amphibious operations, support to operations on land, and land strike.<sup>2</sup>

Recent Defence policy statements have focused on the uncertain and unstable global strategic environment and the likelihood that Australia's national interests could be affected by events far from our homeland, which has led to a renewed emphasis on meeting trouble before it reaches our shores. Forces that are not prepared for the most difficult of circumstances cannot defend against modern high technology weapons, and the ADF must therefore be able to prevail in complex, high intensity operations. The most recent capability decisions for the Royal Australian Navy (RAN) have primarily focused on the acquisition of medium sized aviation capable amphibious ships and very highly capable AWDs. The Australian Government has decided firmly in favour of these amphibious and combatant capabilities, which will allow the ADF to use the sea as the highway that it properly is, rather than the moat that some would perhaps prefer.

These capabilities implement the doctrinal concept of sea control, or the ability to gain and use freedom of action in an area of the sea for one's own purposes, and, if required, to deny the use of that area to an adversary.<sup>3</sup> In today's environment, this requires one to control activities on the sea surface, in the water mass and on the sea bed, in the airspace above the sea, across the electro-magnetic spectrum, and over and on nearby coastal land.

The ability to exert sea control was critical to the ADF's success in leading the multinational force in East Timor. As the then Major General Peter Cosgrove said shortly after the operation:

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.<sup>4</sup>

Lessons learned in recent joint amphibious operations such as in East Timor and the Solomon Islands, together with a comprehensive experimentation and analysis program, have allowed the ADF to develop a very clear picture of future circumstances that will require the exercise of sea control to enable combat operations from the sea. At its

maximum, Australia will require the ability to lift, to lodge, to sustain and to withdraw a combined arms battle group consisting of an embarked force of about 2000 personnel, and their vehicles and equipment, wherever the Government determines. The initial lodgement of this force requires a company-strength component to be lifted and landed simultaneously from helicopters, in addition to personnel and equipment landed from amphibious watercraft.



*Artistic concept of a future Air Warfare Destroyer  
(RAN NAVSYS Computer Modelling Group)*

These requirements demand what will be, in global terms, medium-sized but very sophisticated amphibious ships, and an ability independently to protect the substantial embarked force both in transit and in theatre. While it is disembarked, the RAN must also provide fire support, facilities and logistics support to reduce the size of the land force's footprint ashore.

The Defence Capability Plan<sup>5</sup> will provide a balanced ADF force structure of complementary capabilities designed to operate seamlessly as a single force. In combat operations from the sea the AWDs will thus work closely with the RAN's amphibious, hydrographic and mine warfare forces, Army land and aviation forces, and with Airborne Early Warning and Control (AEW&C) aircraft, Over the Horizon Radar, tactical and wide-area uninhabited aerial surveillance vehicles, ground-based air defence systems, the planned Joint Strike Fighters, and air to air refuelling aircraft. A combination of these capabilities will provide a continuous, comprehensive and layered air, surface, subsurface and missile defence umbrella around a deployed force.

Last year, the Minister for Defence announced that the AWDs would be fitted with a variant of the US Aegis air warfare system.<sup>6</sup> Not only will this system increase interoperability with our closest ally, but it will also provide the ADF with a sophisticated air defence system able to deal with all projected threats. The Aegis system, and its associated

weapons and sensors, will allow the AWDs to remain well beyond the range of most anti-ship missiles, yet be able to detect and destroy hostile aircraft with no advanced warning to those aircraft that they are being engaged. This makes the AWDs the ideal platform to maintain the continuous sea control necessary to protect the planned amphibious forces and to permit the land forces to achieve their tasks, be they in the approaches to our continent, in our immediate neighbourhood, or in contributions to alliance operations further afield.

Recent criticism of the AWDs has emphasised the role of fighter aircraft in providing maritime air defence. These comments fail to recognise the complexity of area air defence, and the broad range of environmental, geographic and threat circumstances which make it difficult, if not foolish, to rely on any single defensive solution.

There is no doubt that fighter aircraft play a fundamental role in air defence; for example, they are extremely valuable as the outer defensive layer of a maritime force. However, they have relatively short endurance and, depending on where the ADF is called to combat, fighter aircraft may not be available when needed, or if air bases are denied in the forward operating area. The inherent characteristics of maritime forces permit sustained operations at considerable distances from home. In the absence of the necessary land-based infrastructure to support fighters, the AWDs must be able to provide high-level autonomous air defence for protracted periods through their own long-range air surveillance radars, multi-channel fire control radars and air interceptors, and their closer-range self-defence weapons and counter measures systems.

Where fighter aircraft are available to participate in a joint force, the challenge of countering multiple attacks reinforces the folly of relying on a single solution. Aircraft may not be optimised to defend against particular threats - such as long-range cruise missiles launched from ashore, from ships, submarines and aircraft - and their weapons capacity is limited in comparison to that of ships. Even where both these limitations can be overcome, there is no guarantee that sufficient aircraft would be available to provide the required level of protection - they may well be needed for other tasks, or assigned aircraft may be off-station refuelling or defending against one part of a multiple attack. In these cases, the AWDs must provide an autonomous defensive capability. Where range considerations permit surveillance aircraft such as the AEW&C to operate with the maritime force, they will be an integral part of that force with or without fighter cover. This is because the AEW&C can operate inside the AWDs' area air defence umbrella whenever a threat to that aircraft is detected.

The other main criticism of the AWDs is that they are bigger and more powerful than the ships they are to replace - the guided missile destroyers (DDGs) and frigates. Bigger they indeed will be, but this is also a positive which goes beyond the unworthy imputation of Service pomp and pride implied in some criticism. The larger AWDs offer significant advantages over their predecessors: greater range, flexibility, endurance, sea keeping qualities, survivability, and adaptability through modification or upgrade in response to new technology and threats.

The last DDG was decommissioned in 2001. And, while the RAN's frigates have given great service over many years, ships of this size and capability simply cannot provide the sustained area air defence that the ADF now requires. The Anzac class frigates fitted with the Evolved Sea Sparrow missile are capable of self defence against most missile threats, and can defend other ships in very close proximity. However, they do not provide an adequate area air defence umbrella that can protect other high value assets such as amphibious ships, their aircraft and deployed forces, or AEW&C. Four of our *Adelaide* class guided missile frigates (FFGs) are being upgraded with the SM-2 missile to provide an interim solution to the existing air warfare capability gap. However, even with this enhanced capability, the FFGs are only able to engage two air targets simultaneously, whereas the capability to mount simultaneous multiple aircraft and missile attacks and overwhelm currently available defences has been widely developed. In any case, these ships are aging - the first of the class, HMAS *Adelaide*, was commissioned in 1980, and they must be replaced over time.

The AWDs will serve Australia for at least three decades, and they will be big and adaptable enough to be modified or upgraded during their service. While an anti-ballistic missile capability is not a current requirement, recent discussion of the AWD's potential in this role is one measure of the adaptability of the overall ship design.

The ubiquity of the AWD's planned capabilities is apparent from this review of its employment in combat operations from the sea. A review of combat operations at sea - such as intelligence collection and surveillance, cover, interdiction of commercial shipping and sealift, maritime strike and interdiction of adversary forces<sup>7</sup> - would demonstrate similarly extensive capabilities essential to a balanced ADF force structure.

Despite the combat power offered by the AWDs, their utility would not be limited exclusively to warfighting. Maintaining a military capability edge also enables the ADF to conduct the more frequent constabulary and diplomatic tasks of potentially lower intensity.<sup>8</sup> Unlike some non-maritime defence systems, naval vessels are also fundamentally flexible in their employment of force, and are able to change roles rapidly across the conflict spectrum, as the operational situation requires. From naval diplomacy to peacetime constabulary duties, to high intensity operations and power projection, the AWD will offer further improvement to the already extensive mission versatility of the current RAN fleet.

*This paper is based on elements of the Creswell Oration given on the 104th Anniversary of the foundation of the Australian Navy, 1 March 2005, by the Chief of Navy, Vice Admiral C. A. Ritchie, AO, RAN.*

*Published as Issue 5, April 2005*

## Notes

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- <sup>1</sup> R. Menhinick, 'Sea Control and Surface Combatants', in G. Kerr (ed.), *Australian Maritime Issues 2004, SPC-A Annual*, Sea Power Centre - Australia, Canberra, 2004, pp. 5-7; R. Menhinick, A. du Toit, and G. Kerr, 'Why the ADF needs Major Surface Combatants', in G. Kerr (ed.), *Australian Maritime Issues 2004, SPC-A Annual*, Sea Power Centre - Australia, Canberra, 2004, pp. 35-39; and P. Leavy and G. Kerr, 'Australia's needs for Maritime Area Air Defence', in G. Kerr (ed.), *Australian Maritime Issues 2004, SPC-A Annual*, Sea Power Centre - Australia, Canberra, 2004, pp. 65-68.
- <sup>2</sup> Royal Australian Navy, *Australian Maritime Doctrine*, Defence Publishing Service, Canberra, 2000, pp. 61-64.
- <sup>3</sup> Royal Australian Navy, *Australian Maritime Doctrine*, p. 39.
- <sup>4</sup> P. J. Cosgrove, 'The ANZAC lecture at Georgetown University, Tuesday 4 April 2000, *Journal of the Australian Naval Institute*, Vol. 26, No. 2, April/June 2000, p. 9.
- <sup>5</sup> Department of Defence, *Defence Capability Plan 2004-2014*, Defence Publishing Service, Canberra, November 2003.
- <sup>6</sup> Minister of Defence, *Aegis Combat System for Air Warfare Destroyers*, Media Release 158/04, 11 August 2004, Internet <[minister.defence.gov.au/Hilltpl.cfm?CurrentId=4111](http://minister.defence.gov.au/Hilltpl.cfm?CurrentId=4111)> (24 March 2005).
- <sup>7</sup> Royal Australian Navy, *Australian Maritime Doctrine*, pp. 56-61.
- <sup>8</sup> For example, see P. J. Cosgrove, 'The ANZAC lecture,' *Journal of the Australian Naval Institute*, Vol. 26, No. 2, p. 9.





# Indonesian Archipelagic Sea Lanes

Lieutenant Commander Penny Campbell, RAN

Indonesia is, both geographically and legally, an archipelagic nation. The concept that the nation is a single entity comprised of the entirety of the archipelagoes, their individual islands and surrounding waters, is a core Indonesian belief, known as *Wawasan Nusantara* (archipelagic outlook).<sup>1</sup> With this fundamental belief rooted in its national psyche, Indonesia was one of several states that successfully advocated special recognition for archipelagic states during a series of international negotiations, which culminated in the *1982 United Nations Law of the Sea Convention* (LOSC). Indonesia was the first archipelagic nation to take advantage of the archipelagic regime provided by LOSC. Accordingly, Indonesia's initial proposal to designate *archipelagic sea lanes* (ASL) compelled the international community to consider how the theoretically derived legal provisions of the Convention were to be implemented.

LOSC represents a compromise between the growing jurisdiction of coastal states over their adjoining waters and the desire of other states to retain their historical freedom of the seas. This compromise is neatly illustrated in Part IV of LOSC, which deals with archipelagic states. It recognises the archipelagic state's sovereignty over its archipelagic waters, but requires that this sovereignty be subject to the regime of *archipelagic sea lanes* passage. For an archipelagic state to benefit from the regime in Part IV, it must meet two criteria. Firstly, it must satisfy the definition of an archipelagic state, and secondly it must draw its baselines in accordance with the LOSC provisions.

Article 46 of LOSC defines an archipelagic state as one that is 'constituted wholly by one or more archipelagos' and which may include other islands. An archipelago means a group of islands and other natural features which 'are so closely interrelated that such islands, waters and other natural features form an intrinsic geographical, economic and political entity, or which historically have been regarded as such.' In many respects, this definition embodies the *Wawasan Nusantara* concept.

An archipelagic state may draw straight baselines joining the outermost points of the outermost islands and drying reefs. The baselines must enclose the main islands of the archipelago, and the enclosed water to land ratio must be between 1:1 and 9:1. This requirement prevents island countries such as New Zealand or the United Kingdom, which are made up of a few dominant islands, from claiming archipelagic status. It also ensures that states with widely dispersed archipelagoes such as Kiribati and Tuvalu cannot draw baselines around small distant islands.<sup>2</sup> The waters within the straight baselines are called *archipelagic waters*. Each straight baseline must be less than 100 nm in length but up to 3 percent of the total number of baselines can be up to a maximum length of 125 nm. This rather complex formula was designed with Indonesia's circumstances in mind, as Indonesia's longest straight baseline is 124 nm.

An archipelagic state enjoys sovereignty over its archipelagic waters, and two passage regimes apply in all archipelagic waters: those of *innocent passage* and *archipelagic sea lanes passage*.

All vessels, including warships, enjoy the right of *innocent passage* through archipelagic waters, but the archipelagic state may temporarily suspend innocent passage, on a non-discriminatory basis, through specified areas when the suspension is essential for the protection of the state's security. Innocent passage requires a vessel to conduct continuous and expeditious transit in a manner that is not prejudicial to the peace, good order or security of the archipelagic state.

An archipelagic state may designate ASL, and corresponding air routes, which are suitable for continuous and expeditious passage through the archipelago. Article 53(9) of LOSC requires a cooperative approach between the archipelagic state and the international community before ASLs can be formally promulgated. If it wishes to designate ASLs, the archipelagic state must refer the proposal to the 'competent international organisation' with a view to their adoption. That organisation may only adopt such ASLs as may be agreed with the archipelagic state, after which the archipelagic state may designate them.

The phrase 'competent international organisation' is not explained in the text of LOSC but in 1994 the UN Division of Ocean Affairs and Law of the Sea published a list of UN bodies expert in particular subject areas. The International Maritime Organisation (IMO) was acknowledged as the relevant competent organisation for the purposes of LOSC Article 53. The IMO was created by international convention to assist states in adopting 'the highest practicable standards in matters concerning maritime safety, efficiency of navigation and prevention and control of marine pollution from ships'.<sup>3</sup> The IMO provides guidance on ships routing systems, which includes guidance on the adoption, designation and substitution of ASL.

An archipelagic state does not have to designate ASL, but if it does, LOSC Article 53(4) requires that the designation include all normal passage routes used for international navigation. It is this requirement to designate all routes that came under special scrutiny in light of Indonesia's proposal.

The passage regime that applies in ASLs - archipelagic sea lanes passage (ASLP) - permits transiting vessels to operate in their *normal mode*. Normal mode is a more lenient regime than innocent passage. For example, a submarine can transit submerged through an ASL but must transit on the surface while undertaking innocent passage, and a ship may launch and recover aircraft in an ASL but may not do so on innocent passage. Importantly, while an archipelagic state may suspend innocent passage on a temporary basis for security reasons, it cannot suspend ASLP under any circumstances.

Until an archipelagic state has completely designated its ASLs, vessels can exercise ASLP through all routes normally used for international navigation. Once a complete ASL designation has been made, vessels are restricted to exercising the right of ASLP through those lanes, and can only conduct innocent passage through the remaining archipelagic waters.

Indonesia is the first and, to date, only archipelagic state to seek to designate its ASLs. Indonesia formally submitted its ASL proposal to the 67th session of the Maritime Safety Committee (MSC) of the IMO in May 1996. It worked closely with the United States and Australia, representing all user states, in formulating this proposal for three north-south

ASLs through the archipelago.<sup>4</sup> Because key routes such as an east-west passage were not included, Indonesia's approach was not entirely consistent with the requirement of Article 53(4) to propose 'all normal routes used for international navigation.' Nonetheless, the IMO accepted that the proposal would be a partial designation only and that, until such time as Indonesia had designated all normal routes as ASL, the right to ASLP would continue to apply in the remaining non-designated routes. In 1998, the IMO formally adopted this partial system of ASL in Indonesian waters,<sup>5</sup> thus demonstrating its willingness to accommodate individual cases within the apparent confines of the LOSC.



*Map of Indonesian Archipelagic Sea Lanes (green lines) with proposed additional Sea Lanes (thin blue lines) (RAN)*

Indonesia proclaimed the three north-south ASLs in Government Regulation No. 37 of 2002. Article 15 of this Regulation states that foreign ships and aircraft may only exercise the right of ASLP through the routes designated in that Regulation. Article 3 paragraph 2 states 'the right of archipelagic sea lane passage in other parts of Indonesian waters can be conducted after such a sea lane has been designated in those waters for the purpose of this transit.'<sup>6</sup> This implied that ships transiting through other routes would be limited to innocent passage. This view appeared to be supported by the 'elucidation' of Regulation 37 annexed to the IMO's Safety of Navigation Circular, which stated 'foreign ships planning to navigate [through the archipelago] may do so with the exercise of the right of innocent passage in the Indonesian waters equally within the archipelagic sea lanes or beyond the archipelagic sea lanes.'<sup>7</sup>

The implications for maritime states' merchant and military fleets caused some concern and several nations raised the issue through diplomatic channels. During the MSC meeting in June 2003, the Indonesian delegate read from a prepared statement confirming that the nature of the Indonesian designation was a partial one and that Indonesia had confirmed this on repeated occasions in various IMO fora.<sup>8</sup> The delegate noted Indonesia's responsibility for the safety of shipping transiting its waters and stated that much more technical and hydrographic work needed to be done before the designation of all normal routes of passage as ASLs could be completed. However, the delegate did refer to the 'basic problem' of identifying what constitutes a normal route.

In the international arena, Indonesia maintains that its ASL designation is only partial and accepts the right of ASLP is available to transiting vessels that navigate through normal routes used for international navigation. However, documents such as Regulation 37 and notices to mariners<sup>9</sup> take a clearly contrary view: Indonesian law states that the only right of passage outside the three designated ASLs is that of innocent passage. This disparity between Indonesia's international and domestic position poses a difficulty for transiting vessels.

The MSC has stated that the 'IMO shall retain continuing jurisdiction over the process of adopting archipelagic sea lanes until such time that sea lanes including all normal passage routes have been adopted.'<sup>10</sup> Where a partial designation has been adopted, the archipelagic state is obliged to periodically advise on its plans for conducting further surveys and 'is ultimately required to propose for adoption archipelagic sea lanes including all normal passage routes and navigational channels'. No time frame is given for this to occur.

It is in Indonesia's interests to designate all normal routes as ASLs. Once it has fully designated its ASLs, transiting vessels will be restricted to exercising ASLP only in those ASLs, and will be limited to innocent passage through the rest of the archipelago. Until this is completed, Indonesia will have difficulty in enforcing its domestic law against transiting vessels.

Further work on the designation of its ASLs would reassure the user states that Indonesia is moving to resolve the differences between its international obligations and its domestic law.

*Published as Issue 6, April 2005*

## Notes

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- <sup>1</sup> A. D. Supriadi, 'Does the Sea Divide or Unite Indonesians? Ethnicity and Regionalism from a Maritime Perspective', *Resource Management in Asia-Pacific*, Working Paper No. 48, Research School of Pacific and Asian Studies, Australian National University, Canberra, 2003, p. 4.
- <sup>2</sup> R. R. Churchill, and A. V. Lowe, *The Law of the Sea - 3rd edition*, Manchester University Press, Manchester, 1999, p. 123.
- <sup>3</sup> *Convention on the Intergovernmental Maritime Consultative Organisation*, 1948, Article 1(a). The Organisation became the International Maritime Organisation in 1982.
- <sup>4</sup> The first north-south ASL runs from the South China Sea or Singapore Strait through the Natuna Sea, Karimata Strait, the western Java Sea and Sunda Strait; the second, from the Sulawesi and Celebes Seas through the Makassar Strait, Flores Sea and Lombok Strait; the third through the Molucca, Ceram and Banda Seas with spurs to the Savu, Timor and Arafura Seas.
- <sup>5</sup> Resolution MSC 72(69), *Adoption, Designation and Substitution of Archipelagic Sea Lanes*, adopted 19 May 1998.
- <sup>6</sup> *Indonesian Government Regulation No. 37 of 2002*, as annexed to IMO Memo SN/Circ.200/Add.1, 3 July 2003 (emphasis added).
- <sup>7</sup> 'Elucidation of Regulation Number 37', *Official State Gazette of The Republic of Indonesia*, No. 4210, as annexed to IMO SN/Circ.200/Add.1, 3 July 2003.
- <sup>8</sup> *Report of the Maritime Safety Committee on its Seventy-seventh Session*, MSC 77/26 dated 10 June 2003, para. 28.40, p. 128, and Annex 27.
- <sup>9</sup> For example, paragraph 2 of Indonesian Notice to Mariners No 08/2003 states 'Foreign ships and airplanes which pass through Indonesian waters must utilize the Archipelagic Sea Lanes as established.'
- <sup>10</sup> Resolution MSC 71(69), *Adoption of Amendments to the General Provisions on Ships' Routing*, adopted 19 May 1998.



# The Naval Contribution to Joint Operations

Dr David Stevens

*There are three kinds of lies: lies, damned lies and statistics - Benjamin Disraeli*

The Australian Defence Force (ADF) strives to be a seamless joint force, one in which the integration of individual Service capabilities is recognised as a key warfare concept.<sup>1</sup> Within this context it has seldom been more important to ensure that those making or influencing Australian defence policy understand the contribution these Service capabilities bring to the joint ADF effort. Unfortunately, some lobbyists all too often view events through a single Service lens. The distortion inherent in such perspectives usually results in arguments that are misleading, if not fundamentally flawed. To take but one example, a review of the 2000 Defence White Paper assured readers that ‘...20 of the 22 operations that the ADF has taken part in over the last decade have overwhelmingly involved land forces’.<sup>2</sup> The author’s contention, based on the experience of East Timor, Cambodia, Bougainville, Somalia and Vietnam, was that land forces - including certain undefined air and naval elements - represented almost the entire requirement for such operations.

The source for the 20/22 statistic was seemingly a map and table in the 2000 White Paper labelled ‘ADF Involvement in Overseas Humanitarian Relief, Evacuations, Peacekeeping and Peace-Enforcement Operations 1990-present’, which listed the 22 operations reproduced in Table 1.<sup>3</sup> The map made no claim to be comprehensive, and included no reference to relative levels of Service participation, but it has nonetheless been regarded as authoritative. Certainly, the ‘20/22’ interpretation has become widely accepted, and has since appeared regularly in officially sponsored publications.<sup>4</sup> The usual aim is to illustrate a perceived paradox between peacetime strategic theory and actual operational practice. Land forces, it is argued, have traditionally ‘predominated’ in Australia’s offshore operations, yet a persistently larger proportion of the ADF’s equipment vote and strategic intellectual capital has gone to its naval and air capabilities. The clear, and sometimes stated, implication is that these high technology assets have fallen far short of the land force contribution to making ‘Australian policy both credible and effective’.<sup>5</sup>

The resources allocated under Australia’s defence policy are beyond the scope of this newsletter, but it behoves those offering advice and analysis to use the best possible data. To anyone familiar with the tempo and scope of joint maritime operations over the last 15 years, the 20/22 statistic and similarly themed statements of relative usefulness make little sense. Not because the ADF’s land forces have been under-engaged, but rather because Australia’s maritime forces have proven at least equally effective as diplomatic and military tools and, at the unit level, have generally offered more flexible options during crisis planning and decision making.

There is no official list of all ADF operations, offshore or otherwise, but by comparing Table 1 with the SPC-A’s database several features become clear.<sup>6</sup>



<b>ADF Involvement in multinational peace operations</b>	
<b>Operation</b>	<b>Naval Contribution</b>
1. UNTSO - Lebanon/Syria, 1956-	None known
2. MFO - Sinai, 1993-	None known
3. UNIIMOG - Iran/Iraq, 1988-90	None known
4. UNTAG - Namibia, 1989-90	None known
5. MIF - Persian Gulf, 1990-2000	13 x MFU & personnel
6. DESERT STORM/POLLARD - Kuwait, 1991, 1999	4 x MFU & personnel
7. MINURSO - W. Sahara, 1991-94	None known
8. UNAMIC/UNTAC - Cambodia, 1991-93	Personnel
9. UNOSOM (I&II) / UNITAF - Somalia, 1992-94	2 x MFU & personnel
10. UNAMIR - Rwanda, 1994-95	Personnel
11. SPPKF - Bougainville, 1994	3 x MFU & personnel
12. TMG/PMG - Bougainville, 1997-	Various units & personnel
13. INTERFET/ UNTAET - East Timor, 1999-	Various units & personnel
14. IPMT - Solomons, 2000-	Various units & personnel
<b>Humanitarian relief and evacuation of civilians</b>	
15. UNMCTT - Afghanistan/Pakistan, 1983-93	None known
16. CMAC - Cambodia, 1992-99	None known
17. MCO - Mozambique, 1992-2002	None known
18. Drought/Tsunami relief - PNG, 1997-98	3 x LCH & personnel
19. Drought relief - Irian Jaya, 1998	Various units & personnel
20. Evacuation of civilians - Cambodia, 1997	1 x MFU
21. Evacuation of civilians - Solomons, 2000	1 X MFU
22. Periodic disaster relief and other assistance in the South Pacific	Various units & personnel

Table 1: Selected ADF Operations 1990-2000

First is the crucial nature of each naval component deployed, given that only eight of the operations listed in Table 1 did not include a naval contribution, either in the form of specialist staff or ships. This contribution was often of significant size and in the case of seagoing units invariably critical to operational success. In East Timor, for example, the first ADF assets in theatre in strength were from the Royal Australian Navy (RAN). At its peak the INTERFET naval component included 20 warships and 5000 personnel, briefly outnumbering even the land forces.<sup>7</sup> As well as ensuring a secure environment for the insertion phase, the naval component provided continuing protection, surveillance

and logistic sustainment for follow-on forces. In sum, more than 90 percent of the cargo entering the theatre moved by sea, while all personnel and equipment movement within the theatre ultimately depended either on amphibious vessels or the ground and aviation fuel provided by naval tankers. To suggest, as one narrative history has done, that other Service support to the land forces was 'fairly minimal', has little in common with operational reality.<sup>8</sup>

Similar assessments may be made about the naval and air contributions to peace missions in Somalia, Bougainville and the Solomons. RAAF aircraft and RAN ships first brought the joint force to the theatre then, in addition to patrol and response tasks, deployed ships offered a tailored combination of local mobility, afloat command & control, and communications, intelligence, aviation, medical, catering and even recreational support. By projecting power into remote and otherwise inaccessible locations naval units ensured presence over a far larger area than could otherwise have been achieved. The ADF's disaster relief operations, as the events following the Indian Ocean tsunamis have highlighted, likewise included a large maritime component; simply because mobility in mass can be achieved no other way, and only ships possess the unique capabilities needed when infrastructure either does not exist or has been rendered inoperable. Just as vital, by minimising or removing the need for a footprint ashore naval capabilities place minimal stress on scarce local resources. In view of all these factors, the relevance of emotionally loaded terms such as 'overwhelmingly' and 'predominated' to the joint operational environment is questionable.



*HMAS Tobruk unloading at Mogadishu harbour, Somalia 1993  
(RAN Historical Section)*

The second noteworthy feature is that the listed operations vary markedly in scope, complexity and significance. The land force contributions to the various United Nations (UN) missions in the Middle East involved contingents ranging from to 8-15 military observers in UNIIMOG, to 13 in Lebanon, and a 45-strong force communications unit in the Western Sahara. The teams deployed for mine clearance were still smaller, with just two military members serving on rotation in Mozambique and six to nine in Pakistan/Afghanistan.<sup>9</sup> These activities were undoubtedly important, but they were also operationally constrained and, as peacekeeping missions, cannot be considered force structure determinants. It further stretches credibility to equate each with the naval contribution made to the Maritime Interception Force in the Persian Gulf. To 2000, this commitment had involved 13 Major Fleet Unit (MFU) deployments and several thousand naval personnel, and has since seen another 22 MFU deployments and two major conflicts. Important in assessing the inherent versatility of naval forces is an understanding that the tasks undertaken in the Gulf regularly changed and ranged right across the spectrum of operations between the diplomatic, constabulary and military dimensions.<sup>10</sup>



*RAN members of INTERFET HQ, East Timor 1999 (RAN Historical Section)*

A third feature is that Table 1 reflects only a selection of the ADF's recent offshore operations. Among those missing are: UNSCOM in Iraq (1991-2000); the Cambodian Maritime Assistance Project (1993-97); the Stabilisation Force in Bosnia-Herzegovina (1997-2004); and at least one disaster relief mission in South East Asia (1991). The first three included specialist naval personnel, while the last involved the crews of two MFUs providing aid after a volcanic eruption in the Philippines. Also absent are at least four operations planned to evacuate Australian nationals during regional civil disturbances, including Bougainville (1990) and Indonesia (1998). Although not always executed, the maritime option was available if needed, and Australia placed up to four major surface combatants and supporting units on high alert for each contingency. Australia has also undertaken a range of long-term maritime surveillance operations in the region, notably GATEWAY (1981-) and SOLANIA (1988-), that are widely recognised as contributing to the security of our immediate neighbourhood. Although these operations are largely dependent on maritime patrol aircraft, they have made regular use of sophisticated

naval capabilities. While their absence from the original listing is understandable, this reinforces the White Paper table's limitations as an authoritative reference.

Finally, in assessing the wider dimensions of Australia's security the role of warships in shaping our strategic environment should not be underestimated. Even ignoring the argument that every naval deployment is an 'offshore operation', there has been a long-standing Government policy to use the RAN to maintain and enhance regional engagement. Thus major surface combatants, amphibious and logistic units, submarines, patrol boats and hydrographic vessels have kept up a series of rolling deployments in East Asia and the South Pacific. In addition to preserving an almost continuous high-profile presence and providing a practical demonstration of Australian interest in the region, there have been many secondary benefits. The late Admiral Michael Hudson, when Chief of Naval Staff, put it well when he wrote:

The skills our sailors take with them are highly regarded...and the Navy has been able to provide a great deal of assistance to local communities throughout the region. This aid scheme, often provided by the voluntary efforts of people in the Fleet, is a source of pride and fosters goodwill which could never be achieved through any amount of diplomacy or aid dollars.<sup>11</sup>

Implementation of Australia's joint strategic vision deserves better than flawed statistics and divisive debate. An assessment of our responses to recent crises might accurately remark: 'Over the past 15 years the ADF has used its diverse and highly versatile naval assets as either the lead units or essential enablers in every major and most smaller offshore operations.' The ADF's professional credibility demands that this contribution is both understood and publicly acknowledged.

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## Notes

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- <sup>1</sup> Australian Defence Force, *The Australian Approach to Warfare*, ADDP-D.1, Defence Publishing Service, Canberra, 2003, p. 6-1.
- <sup>2</sup> J. Hartley, 'A Review of the White Paper', *Asia-Pacific Defence Reporter*, February 2001, p. 29.
- <sup>3</sup> Department of Defence, *Defence 2000: Our Future Defence Force*, Defence Publishing Service, Canberra, 2000, p. 11.
- <sup>4</sup> See M. Evans, *From Deakin to Dobb: The Army and the making of Australian Strategy in the 20th Century*, Land Warfare Studies Centre (LWSC) Working Paper No. 113, Canberra, 2001, p. 41; and *The Tyranny of Dissonance: Australia's Strategic Culture and Way of War 1901-2005*, LWSC Study Paper No. 306, Canberra, 2005, p. 75: 'Between 1989 and 1999, of twenty-two offshore operations that the ADF undertook, the Army—the Cinderella Service since the end of the Vietnam War—predominated in twenty of them'.
- <sup>5</sup> J. Grey, *The Australian Army*, Oxford University Press, Melbourne, 2001, pp. 257-258.
- <sup>6</sup> Sea Power Centre - Australia, *Database of Royal Australian Navy Operations, 1990-2005*, SPC-A Working Paper 18, Defence Publishing Service, Canberra, 2005.
- <sup>7</sup> P. Kinghorne, 'Operation STABILISE - Naval Participation in East Timor', *Naval Supply Newsletter*, June 2000, pp. 25-26.
- <sup>8</sup> Grey, *The Australian Army*, p. 256.
- <sup>9</sup> N. F. James, 'A Brief History of Australian Peacekeeping', *Australian Defence Force Journal*, No. 104, January/February 1994, pp. 3-18.
- <sup>10</sup> See D. Stevens and J. Perryman, 'The RAN in the Gulf - two years on', printed elsewhere in this volume, pp. 99-103.
- <sup>11</sup> Royal Australian Navy, *Chief of Naval Staff Newsletter June 1987*, Department of Defence (Navy Office), Canberra, 1987, p. 21.

# The RAN Fleet Air Arm - Ashore in Vietnam

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Mr John Perryman

On 30 April 1975, a Soviet supplied North Vietnamese T-54 tank smashed through the gates of the presidential palace in South Vietnam's capital, Saigon. This act symbolically brought 25 years of civil war and the existence of the Republic of Vietnam to an end.<sup>1</sup> Two years previously on 11 January 1973 the Governor-General of Australia had formally declared Australia's ten year participation in the war over, following the withdrawal of the bulk of our military forces.<sup>2</sup>

The ubiquitous Bell UH1 Iroquois helicopter is still arguably the most instantly recognisable symbol of the Vietnam War. Images of the 'helicopter war' feature prominently in books, films and documentaries; indeed, a granite etched image of an Iroquois extracting troops forms the centrepiece of Australia's national Vietnam Memorial located on Anzac Parade in Canberra.<sup>3</sup>

Not so widely known though is the role that was played by personnel of the Royal Australian Navy's (RAN's) Fleet Air Arm (FAA), in a war that depended heavily on tactical air movement of combat troops, supplies and equipment, in what were eventually called air-mobile operations.

On 14 July 1967, the Minister for Defence, Mr Allen Fairhall announced that eight RAN helicopter pilots and supporting staff would join a United States (US) Army helicopter unit in South Vietnam to provide support for allied forces, including the 1st Australian Task Force in Phuoc Tuy province.<sup>4</sup> The new flight, designated the Royal Australian Navy Helicopter Flight Vietnam (RANHfV), was to be integrated with the US Army 135th Assault Helicopter Company (AHC) flying Iroquois helicopters in both the utility and gun-ship configurations. It was also announced that RAN FAA crews would supplement the Royal Australian Air Force's (RAAF's) 9 Squadron based at Vung Tau.

The first contingent of pilots, observers, naval aircrewmen and support staff was assigned to 723 Squadron at Naval Air Station Nowra in July 1967, under the command of Lieutenant Commander N. A. Ralph, RAN. The flight consisted of eight pilots, four observers, four aircrewmen, twenty-four technical sailors and six support staff (drawn variously from cooks, stewards, writers, medical staff and storemen).



*RAN technical and support staff played a critical part in keeping the aircraft operational in difficult conditions (RAN Historical Section)*

Following an eight-week period of training the first contingent arrived in Vietnam on 16 October 1967 and was quickly integrated with the 330 personnel of the 135th AHC. The RAN members took their place in the 135th according to rank and seniority, with Ralph as second-in-command as well as officer-in-charge of the RANHFV. As a result of this unique relationship between the RAN and the US Army, the unit was officially designated 'EMU', for Experimental Military Unit. This was fitting, given that the EMU is a native Australian bird, yet amusing at the same time because of the Emu's inability to fly. The unit later adopted the unofficial motto 'get the bloody job done', which was to personify their attitude to air-mobile operations.

The 135th AHC was based at Vung Tau and comprised two troop lift platoons, each with eleven UH-1Ds, a gunship platoon with eight UH-1Cs, a maintenance platoon with a single UH-1D and a headquarters platoon. Six of the gunships were equipped with mini guns, rockets and machine guns. The remaining two were fitted with the XM-5 40mm grenade-launcher system, rockets and machine guns.



*Helicopters approaching the landing zone (RAN Historical Section)*

The role of 135th AHC was to provide tactical air movement of combat troops, supplies and equipment, in air-mobile operations. This included augmentation of army medical services, search and rescue and the provision of a command and control aircraft capability. A typical day's flying would involve one UH1-H command and control helicopter, four UH1-C gunships and ten troop lift aircraft (the latter being known as 'slicks').

The mission would normally be advised the previous day along with the details of the ground element (usually a battalion) that the EMU would be supporting. The air mission commander would attend a joint briefing and provide advice relating to air movement of troops, use of gunships and fuel requirements, and at the same time receive information from the ground force commander on when and where troops were to be inserted.

The mission would begin early the following day with the launch of the command and control aircraft at least half an hour before the rest of the flight. The aircraft would proceed to the location of the battalion commander (usually a field location), where last minute details would be checked, and pick-up zones (PZ) and landing zones (LZ) identified. Once identified, an artillery preparation would be fired into the perimeters of the LZ for a 15-minute period before the arrival of the main force.

The command and control aircraft would then direct the insertion from above the scene of action. The gunships were usually the first directed into the area to place further 'fire' around the LZ, and once the area was declared clear, the slicks would be ordered into a landing point marked by the command and control helicopter with smoke.



As the slicks entered the LZ they too added their own suppression fire using M60 machine guns on final approach. On landing, the suppression fire ceased and the troops would quickly disembark before the slicks took off and returned to the PZ for their next load. It would normally take about five lifts to move an entire battalion with each of the ten slicks carrying six South Vietnamese, US or Australian soldiers. On completion of the insertion of troops into their objective, the slicks would then return to a reaction site where they awaited further instructions. It was not long before EMU became fully operational, flying its first mission of this type on 3 November 1967. By the end of November the company had flown 3182 hours in support of the US Army 9th Infantry Division and the 1st Australian Task Force based at Nui Dat, Phuoc Tuy Province.

Several major operations followed in support of a combined allied sweep against the 5th Viet Cong Division, and it was during one of these operations, that EMU helicopters were first hit by enemy fire. The first aircraft to be shot down was a gunship piloted by Lieutenant A. A. Casadio, RAN, on 19 November 1967. After being forced down during an attack on Viet Cong positions in the Rung Sat Special Zone near Saigon, the enemy immediately attacked the helicopter's crew. Despite their relative inexperience, control of the situation was maintained by setting up a defensive perimeter using the helicopter's door-mounted M60 machine guns. The crew was later rescued by another EMU helicopter, but not before they had successfully driven off an unknown number of Viet Cong, killing two of them. This was a far cry from the carrier-borne flight operations for which the naval aviators had initially been trained.

In December 1967, the 135th AHC was relocated to Camp Blackhorse five miles south of Xuan Loc, in Long Khanh Province. In February 1968, the North Vietnamese launched the Tet offensive and Camp Blackhorse came under enemy attack by mortar. Skirmishes on the boundaries became frequent, and the enemy mining of the road from Long Binh to Baria, via Xuan Loc, disrupted supply convoys causing shortages of aircraft spare parts.

In response to the Tet offensive, operations intensified with EMU aircraft frequently coming under enemy fire and being forced down. The RANHFV suffered its first casualty during a mission to lift out troops of the 18th Army of the Republic of Vietnam near Xuan Loc when Lieutenant Commander P. J. Vickers, RAN, was fatally wounded while piloting the lead aircraft. He was to be the first of five naval aviators killed in action during the flight's four-year deployment to Vietnam.<sup>5</sup>

At the same time, the eight RAN pilots attached to 9 Squadron RAAF were also providing troop-lift capacity for the 1st Australian Task Force, and re-supplying troops in the field with food, ammunition, clean clothing and stores.

An equally important role was aerial fire support, and to give 9 Squadron a greater capacity for direct support of Army ground operations, specially modified UH-1H helicopters were introduced early in 1969. Dubbed 'Bushrangers', these heavily armed aircraft operated as a light fire team of two, escorting slicks in combat assaults, providing suppression fire on enemy bunkers, and protecting medical evacuation aircraft. They also supported slicks that inserted and extracted Australian Special Air Service patrols in enemy occupied jungle areas. The RAN detachment to 9 Squadron played a significant part in enabling it

to meet its army support role in Phuoc Tuy Province during 1968 and into 1969, until the last of its pilots, returned home in May that year.

The RANHFV ceased operations on 8 June 1971. During its four-year deployment to Vietnam, over 200 RAN FAA personnel had rotated though the RANHFV in four contingents. Over this period they were continuously engaged in offensive operations, earning not only the pilots but also the maintenance and support staff of the flight, a reputation second to none.

The gallantry and distinguished service of RANHFV members was recognised by the award of three Member of the British Empire medals, eight Distinguished Service Crosses, five Distinguished Flying Crosses (DFCs), one British Empire Medal, twenty-four Mentions-in-Dispatches and numerous Vietnamese and US decorations. The 723 Squadron, RANHFV's parent unit, was awarded the battle honour 'Vietnam 1967-71' on 22 December 1972. The eight-man detachment to 9 Squadron RAAF was also recognised with the award of a DFC and three Mentions-in-Dispatches.

The flexibility demonstrated by FAA personnel in Vietnam, in adapting to offensive helicopter operations in the field in both a joint and coalition force environment, is unique in RAN history. This is best summarised by Captain Andy Craig, RAN (Rtd.), who flew with both the EMU and the RAN detachment to 9 Squadron RAAF during his time in Vietnam:

The 135th seriously practiced the business of 'getting the bloody job done' - risks were certainly taken but... I don't think the 135th ever missed a task in my time with it. The flying was hard and challenging and, without question, the most exciting of my career.<sup>6</sup>

The personnel of the FAA who flew with 9 Squadron and the 135th AHC in Vietnam remain a close knit group. In April 2002 the then Chief of the Defence Force, Admiral C. A. Barrie, AC, RAN, unveiled a plaque in Bomaderry, NSW commemorating the service of the RANHFV and the 135th AHC. Reunion and remembrance ceremonies also took place in the US at Biloxi, Mississippi, on 25-26 May 2005 and at Fort Rucker, Alabama on 27 May 2005.<sup>7</sup>

*Published as Issue 8, May 2005*



*Cockpit view of 135th AHC slicks in formation (RAN Historical Section)*

## Notes

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- <sup>1</sup> C. T. Kamps, Jr. *The History of the Vietnam War*, The Military Press, New York, 1988, p. 26.
- <sup>2</sup> The only Australian combat troops remaining in Vietnam after the general withdrawal was a platoon guarding the Australian embassy in Saigon. This platoon finally departed in June 1973.
- <sup>3</sup> For example, see *War Memorials in Australia*, Southwell-Keeley Partners, 'War Memorials in Australia', Internet <skp.com.au/memorials/pages/00005.htm> (16 May 2005).
- <sup>4</sup> D. Fairfax, *Royal Australian Navy in Vietnam*, Australian Government Publishing Service, Canberra, 1980, p.129.
- <sup>5</sup> The others were Lieutenant A. A. Casadio, RAN, Petty Officer O. C. Phillips, Leading Seaman N. E. Shipp, and Sub Lieutenant. A. J. Huelin, RAN.
- <sup>6</sup> S. Eather, *Get The Bloody Job Done*, Allen and Unwin, Sydney, NSW, 1998, p.118.
- <sup>7</sup> See Naval Reunions, 'Fleet Air Arm Association of Australia', Internet <faaaa.asn.au/news/reunions> (16 May 2005).

# The Capability of Sea-Based Land Strike Missiles

Commander George McGuire, RAN

From their earliest days, navies have provided transport, logistic support, and fire support to land forces as an ancillary to their primary role of controlling maritime communications. They have also conducted strategic strike, in the form of attacks on enemy ports, facilities and infrastructure. The ability to perform these functions has improved over time as technology offered new solutions to old problems. Mechanical propulsion, gunpowder, breech loading weapons, communications and sensor systems, and sea-based air power have all influenced the quantity, precision and effectiveness of the direct effects navies could deliver against targets on the shore.

Rapid technological development in the mid-twentieth century saw the battleship replaced as the paramount naval weapon system by the aircraft carrier and high performance aircraft. Although originally intended to provide support to fleet operations, aircraft carriers quickly proved their worth in World War II (WWII) as platforms to support land attack aircraft. Indeed, this has proven to be the major combat function of aircraft carrier aviation since 1945, with sea-based air strikes having been conducted in the majority of conflicts by those nations that possessed aircraft carriers. The development of long-range, high performance land and sea-based strike aircraft, allied to nuclear and precision guided weapons, made strategic strike missions more effective and less costly in aircrew than the bomber raids of WWII. But the aircraft carrier and the dedicated strike aircraft, like the battleship, are only available to the richest of nations. In terms of land strike, sea-launched land strike missiles are rapidly supplementing aircraft. These missiles are becoming the preferred weapons against high-risk, high value targets, particularly in the early phases of a campaign when air superiority has yet to be obtained over the target area.

Following the signing of the first Strategic Arms Limitation Treaty in 1972 between the US and USSR, which limited the proliferation of ballistic missiles, interest arose in the navies of both countries for the development of sea-launched precision land strike cruise missiles. The RGM/UGM-109 Tomahawk cruise missile, currently operated by the Royal Navy and the United States Navy, achieved operational status in 1986. The first operational use of the Tomahawk missile was in the 1991 Operation DESERT STORM, when 288 missiles were fired at targets in Iraq. Since this time, a further 1545 Tomahawk missiles have been launched at targets in Iraq, Bosnia, Serbia, and Afghanistan. A contemporary of the Tomahawk, the Russian 3M10/3M54 Granat missile is operated by the Russian and Indian Navies. Other sea-launched land strike cruise missiles currently under development include the American SLAM, the German Taurus, the French SCALP, the Russian 3M51 Biryuza/Alpha, and the Chinese HN-2/HN-3/HN-2000.<sup>1</sup>

A limitation of land-based strike aircraft currently operated by regional nations, such as the F-111s of the Royal Australian Air Force (RAAF), is the need to expose the limited number of available aircrew and airframes to significant threat while attacking targets in an adversary's territory. Given the rising cost of third and fourth generation combat aircraft, multi-role aircraft, which combine fighter, strike and close-air support roles,

are now standard. Additionally, the high unit cost of advanced combat aircraft and limited national defence budgets result in less aircraft being purchased by most regional countries. The lack of task dedication and limited aircraft numbers mean that there will always be a conflict over which role should receive priority at a given point in a conflict, particularly if a higher risk is associated with a land-strike mission. The resources required, and additional lives put at risk, to rescue downed aircrew are also a significant consideration. The political mileage that may be obtained in the international media by parading a captured pilot has been amply demonstrated in conflicts and crises over the last forty years. The primary strength of sea-based land strike missiles is that they can be used to attack well-defended high priority targets with precision and without fear of losing both aircrew and aircraft.



*Tomahawk overflying HMAS Kanimbla during the 2003 Iraq War (RAN)*

When compared with a sea-based missile, a key strength of using crewed aircraft in the land strike role comes from their sortie generation capability. They can return several times in a day to their base, re-arm and embark upon new missions. Moreover, being multi-role platforms, these new missions may involve different functions such as reconnaissance, whereas land strike missiles are a dedicated single-role system. The ability of aircraft to quickly relocate to a new area of operations at short notice is also a great strength. If a ship or a submarine has to transit more than a few miles to bring its missile within range then an on-task aircraft would, in the vast majority of situations, provide the fastest response option. In addition, if the surface ship is protecting an amphibious or afloat support task group, either the task group must approach closer to the target coast, possibly increasing the threat, or the ship must depart the task group, weakening the protection offered to the escorted units.

Land-based aircraft need a secure airfield within striking distance of their targets. Even with air-to-air refuelling an aircraft's range is limited by having to maintain sufficient fuel to divert to the nearest friendly airbase should a technical fault, weather or enemy action prevent refuelling. The assets required to secure, protect and operate an airfield

should not be underestimated, as they present a key target for an enemy, particularly if international politics and geography limit availability. Furthermore, as demonstrated in Bosnia, Afghanistan and Iraq, political sensitivity may preclude the host nation support necessary to bring strike aircraft within range of their targets. This impacts on the ability of nations that do not possess aircraft carriers to conduct land strike, as land-based strike aircraft may not possess sufficient range to operate from that nation's own airbases. By contrast, under the provisions of the *1982 United Nations Law of the Sea Convention* (LOSC) naval forces have assured access to over two thirds of the world's surface and have a level of poise and persistence far exceeding that which land-based aircraft can provide: the reverse of the speed advantage that aircraft enjoy over ships and submarines. Therefore, with a maritime land strike missile, ships and submarines can maintain a firing solution on almost any land target on the earth's surface for prolonged periods without the need to secure an operating base in or near the area of operations.

Weather has the potential to seriously degrade the capability offered by strike aircraft, particularly when missions are conducted over extensive approaches by short-range multi-role aircraft. In these cases, acceptable weather conditions are required in four locations: the airfield from which the strike aircraft departs; the airfield from which the tanker aircraft operates; the target area; and the air-to-air re-fuelling area. Although an extreme example, in Kosovo during 1999 the weather was judged to be favourable for air operations for just 21 days out of the total 78 days of the campaign.<sup>2</sup> Weather conditions are less likely to affect a cruise missile to the same extent as an aircraft. Only cyclonic type conditions would limit their employment, or that of the surface ship firing the missile. A submarine firing a missile could take underwater refuge from these events, further expanding mission availability. Given the infrequency of these extremes of weather a commander could rely on a missile being available to attack a target at almost any time. Many modern systems use dual modes of guidance, such as TV imaging and GPS or radar, in order to provide redundancy in the event that the primary guidance method is degraded by the prevailing weather conditions.

A crewed aircraft strike takes considerably longer to plan and execute if the target was one previously not considered, such as a short-notice target of opportunity. This is because of the need to plan routes to the target and home again, as well as to prepare the aircraft and brief the aircrew. The response time is further lengthened if air-to-air refuelling is required to execute the mission. A transient strategic or tactical target may simply be beyond viability. The rapid planning and execution systems available with today's generation of land strike missiles show a clear advantage against short-notice targets. If tasking an aircraft a strike planner must determine a safe route back from the target, which, for obvious reasons, may be the most dangerous leg of the mission. A missile is a one-way weapon that does not require in-flight refuelling and is less susceptible to hostile ground fire. The nature of a ship's crewing, training and extensive real time communications connectivity also makes it very responsive to short-notice targeting. Therefore, for time-critical targets, a maritime-based missile has the potential to react in less time than any other option apart from an aircraft already tasked, briefed and on-station.

Training and retaining aircrew is an issue for airforces worldwide. Reducing the number of aircrew required to be current in day/night, poor weather, low-level flying reduces the demands on this specialised workforce. In addition it frees more airframes to conduct the fighter's primary role of maintaining air superiority as well other roles such as maritime strike and close air support. Personnel with a less costly skill set can be used for a missile-based system, significantly reducing operator training overheads. Weapon employment training and skills maintenance are all computer based, and without the need to 'fly' the missile training time and expense are reduced.

The most significant weakness of a maritime-based missile is the inability to return and reload the launch platform within a short timeframe. Re-ammunitioning of missiles at sea is not feasible in the vast majority of cases, due to the possibility of damage to the missiles and the tight tolerances of missile magazines. A return to harbour to reload may involve days or weeks off station. The significance of this is magnified many times because surface ships and submarines are multi-purpose platforms. For instance, the loss of a surface warship will reduce a commander's ability to fight the air, surface, and sub-surface maritime battles, as well as reduce the volume of naval gunfire support available to land forces. The operational commander must consider maritime land attack missiles as a more finite resource.

As with other new technologies, such as those from the commercial sector that are driving Network Centric Warfare (NCW), the rapid advances in missile technology provide an opportunity for regional naval forces to enhance their current operational capabilities. There are no treaties or international conventions, such as the Missile Technology Control Regime through to the Wassenaar Arrangement, to which regional nations like Australia are signatory, which would prevent such a capability being obtained.

Long-range maritime land strike missiles have the potential to complement the strategic strike capability delivered by crewed aircraft, but cannot completely replace it. Both delivery methods are almost the mirror image of one another in terms of relative strengths and weaknesses; they complement one another and do not substantially overlap. The rising costs of modern strike aircraft, the proliferation of high performance surface-to-air missiles, and the increasing unacceptability of personnel losses in high-risk strike operations suggest that the options for future operations need to be carefully evaluated. If regional nations like Australia are to maintain a cost effective, flexible, balanced and reliable land strike capability, that provides maximum operational flexibility, then the introduction of a sea-based land strike missile needs to be investigated in a mature and considered way.

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## Notes

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- <sup>1</sup> *Jane's Naval Weapon Systems*, Janes Information Group, Edn. 43, 21 May - 17 December 2004, see Jane's online service (12 May 2005).
- <sup>2</sup> Ministry of Defence (UK), *Kosovo Lessons from the Crisis*, Report presented to the United Kingdom Parliament, June 2000, para. 7.33.

# Borneo 1945 - An Amphibious Success Story

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Dr Nial Wheate and Dr Gregory P. Gilbert

Sixty years ago Australian forces successfully led the Allied liberation of Borneo, the world's third largest island, from Japanese occupation in the OBOE series of operations. These operations culminated in OBOE TWO, the amphibious assault on Balikpapan, which was not only the last large scale Allied operation of World War II (WWII) but remains Australia's largest ever amphibious assault. As the culmination of the RAN's participation in over 20 South West Pacific amphibious landings during WWII, the Balikpapan invasion demonstrated the high level of expertise in amphibious operations that had been achieved, as well as the degree to which joint and combined operations had developed during almost six years of war.

With rich oil resources and functional aerodromes, the strategic worth of Borneo was debated at the highest levels. Borneo's position at the base of the South China Sea meant that it shared coastal waters with Indo-China, Malaya, Sumatra, Java, Celebes and the Philippines. The United States (US) Joint Chiefs of Staff proposed an invasion of Borneo in order to secure oil and rubber supplies, and to interdict Japanese communications with South East Asia. Borneo was also seen as a step towards an advance on Java.

Controversy surrounds the Borneo campaign. For example, the British Chiefs of Staff did not agree with the need for an advanced fleet base in Brunei Bay, and General Thomas A. Blamey, the Australian Commander in Chief, saw no justification for attacking Balikpapan.<sup>1</sup> At the time it was argued that capture of the island from the occupying Japanese forces would provide a venue through which the Allies could control the South East Asia region.<sup>2</sup> It has also been suggested that the capture of Borneo would meet postwar strategic objectives. A close reading of the literature suggests that the Australian government desired to make a significant contribution to defeating Japan during 1945, in order to confirm its place at the table during later peace talks. Separately, there was pressure on the government to reinstate the prestige of the British empire by liberating British and Dutch colonies. Both these factors may have contributed to the decision to invade Borneo.

Initial plans called for six OBOE operations, however, as the Allied offensives progressed closer to Japan, OBOE THREE, FOUR and FIVE were cancelled. The remaining three amphibious landings were codenamed: OBOE ONE, the invasion of Tarakan island; OBOE SIX, the invasion of north Borneo at Labuan and Brunei; and OBOE TWO, the invasion of Balikpapan.<sup>3</sup> The sites were selected for the strategic assets and advantages their capture would offer the Allies. Tarakan had an airfield, docking facilities, protected all weather harbourage and relatively good roads. Even without the fleet base option, the liberation of Labuan and Brunei would secure the area's oil and rubber resources. Balikpapan was selected for its oil reserves, two suitable airfields, and deep sheltered harbour.





*RAAF troops disembarking from LST 703 via pontoons at Balikpapan  
(AWM OG3035)*

In many ways the landings in Borneo were different from those in Europe and the rest of the Pacific. By early 1945 Japanese naval forces were confined to waters east and north of Singapore-Cam Ranh Bay and Japanese air power was greatly reduced, with less than 70 Japanese aircraft operating in the whole Netherlands East Indies.<sup>4</sup> The Allies had effectively achieved sea and air control over much of the South West Pacific and therefore needed to plan only for opposition from smaller independent Japanese air and naval elements. In fact, no effective air or seaborne resistance was offered.

The amphibious assault on Tarakan (OBOE ONE) commenced, as planned, on 1 May 1945, and despite difficult coastal approaches, extensive minefields and strongly fortified defences, the landing was accomplished with marked success. A heavy concentration of naval and air bombardment prior to the landing, as well as effective naval gunfire support (NGS) to ground forces once ashore effectively neutralised most of the Japanese resistance: 'had the Japanese elected to remain in these positions and fight, our casualties would have been extremely heavy'.<sup>5</sup> Hard fighting by 9th Australian Division troops secured the area. Capture of Tarakan ensured that fighter control was achieved past Balikpapan, which would prevent Japanese shipping from entering the area. For the first time, all land and sea areas within the South West Pacific command came under Allied air superiority.

The landings at Labuan and Brunei (OBOE SIX) proceeded to plan on 10 June 1945. After preliminary naval bombardment, hydrographic and mine clearance operations, Australian troops met little Japanese opposition and moved rapidly to their first objectives. NGS helped reduce pockets of resistance on Labuan, while the 9th Australian Division secured much of Brunei and British Borneo. The Australian forces were able to release some Allied prisoners of war as well as provide humanitarian assistance to the Chinese, Malay and indigenous populations of north Borneo.

By July 1945, Balikpapan was defended by some 2000 regular Japanese troops and approximately 3000 locally conscripted residents, with a few Japanese air units capable of launching sporadic raids, but no effective naval support. The OBOE TWO plan required the landing of over 33,000 personnel, their supplies and heavy equipment in the assault, including over 21,000 men of the 7th Australian Division, 2000 Royal Australian Air Force (RAAF) personnel, as well as 2000 men from US and Netherlands East Indies units.

The naval forces allocated to OBOE TWO, under Vice Admiral Daniel E. Barbey, USN, Commander Balikpapan Attack Force, included an Amphibious Task Group, a Cruiser Covering Group, and an Escort Carrier Group. The Amphibious Task Group consisted of over 120 ships, including the Royal Australian Navy (RAN) Infantry Landing Ships (LSIs), *Manoora* (Flagship of the Transport Unit), *Westralia* and *Kanimbla*. Overall there were some 98 landing craft and miscellaneous vessels, with a screen of ten destroyers, five destroyer escorts and the Australian frigate HMAS *Gascoyne*. Another frigate, HMAS *Warrego*, operated in a specialised hydrographic unit within this Amphibious Task Group. The Cruiser Covering Group consisted of ten cruisers and 14 destroyers organised into three separate commands, including HMA Ships *Shropshire* (heavy cruiser), *Hobart*, (light cruiser), *Arunta* (destroyer) and two USN destroyers under Commodore Harold B. Farncomb, RAN. The Escort Carrier Group included three carriers with approximately 90 aircraft in total, and a screen of one destroyer and five destroyer escorts.

Air support for OBOE TWO was supplied by the RAAF, US 13th and 5th Air Forces, and naval air units from the US 3rd and 7th Fleets. The RAAF, under Air Vice Marshal William D. Bostock, acted as coordinating agency for all pre-invasion strikes and close support. The Balikpapan air operations began on 11 June 1945. Altogether, Bostock had 40 squadrons at his disposal for the period just before and during the landing, and of these, 25 were of heavy bombers, totalling 300 aircraft.<sup>6</sup>

The naval bombardment of Balikpapan began on 27 June 1945, with *Shropshire* and *Hobart* firing at Japanese targets along the coast. NGS from all three commands within the Cruiser Covering Group was made available throughout the OBOE TWO operations. Over 46,800 rounds of 4.7-inch to 8-inch munitions were fired by the naval forces in support of the Balikpapan operations, beating all records for ammunition delivered in support of a division size landing - 'and how those Aussies loved it!'<sup>7</sup>

*Warrego* and the hydrographic unit carried out surveys and placed marker buoys off the landing beaches and also surveyed the inner harbour. The mine clearance activities at Balikpapan were some of the most difficult of the war. Sweeping began on 15 June 1945, with 16 minesweepers and a covering force operating in shallow water and uncleared minefields, often under Japanese gunfire. The work took its toll; 3 minesweepers were sunk, 4 were damaged by mines and gunfire, 15 sets of magnetic gear were lost, 7 personnel were killed and 43 were wounded. In total, 50 mines were swept. Underwater demolition teams of US Army engineers cleared two gaps through the beach obstacles while under fire. The hydrographic, mine clearance and underwater demolition activities were most successful.<sup>8</sup>

On 1 July 1945, the first two amphibious waves hit the beaches in 91 amphibious vehicles and despite a choppy sea the ship to shore transfer had the troops landing five minutes early at 8.55 a.m. The Australian LSIs provided parts of the 3rd and subsequent waves. The last of the organised waves, the 17th, landed at 10.55 a.m. The beaches of Balikpapan were taken with little opposition, and by noon that day 10,500 troops, 700 vehicles and 1950 tons of stores had been landed.

*Gascoyne* escorted a convoy that arrived at Balikpapan on 5 July 1945 with supplies essential for the maintenance of land and air forces ashore. The Australian LSIs, having departed as soon as they had unloaded the assault troops, returned with reinforcements from Morotai on 7 July 1945. As the Australian 7th Division advanced inland they encountered strong pockets of Japanese resistance. A total of 229 Australians died and 634 were wounded in the Balikpapan operations.<sup>9</sup>



*HMAS Brunei offloading vehicles on a beach, East Timor (Defence Image Gallery)*

The RAN currently operates six Heavy Landing Craft (LCH). Although they were commissioned during 1973-74, the LCHs still contribute to the Australian Defence Force's amphibious capability, and four of the six - *Balikpapan*, *Brunei*, *Labuan*, and *Tarakan* - commemorate the amphibious campaign in Borneo during 1945.

The amphibious landings in Borneo were professionally planned and executed operations that achieved their strategic objectives. They demonstrated Australia's ability to successfully project power ashore in our region, through efficient use of joint and combined forces. Today we should look back at Borneo 1945 with pride, as it remains a classic example of how Australian strategic interests have been successfully pursued through maritime power projection.

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## Notes

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- <sup>1</sup> G. Long, *The Final Campaigns*, Australian War Memorial, Canberra, 1963, pp. 388-389 and 502.
- <sup>2</sup> S. W. Roskill, *The War at Sea 1939-1945*, Vol. 3, Part 2, HMSO, London, 1961, pp. 358-359; and D. Day, *The Politics of War*, Harper Collins, Sydney, 2003, p. 672.
- <sup>3</sup> D. Stevens, (ed.), *The Royal Australian Navy*, Oxford University Press, Melbourne, 2003, pp. 127-154.
- <sup>4</sup> G. Odgers, *Air War Against Japan 1943-1945*, Australian War Memorial, Canberra, 1957, p. 452.
- <sup>5</sup> G. H. Gill, *Royal Australian Navy 1942-1945*, Australian War Memorial, Melbourne, 1985, pp. 616-624.
- <sup>6</sup> Odgers, *Air War Against Japan 1943-1945*, p. 482.
- <sup>7</sup> S. E. Morison, *The Liberation of the Philippines: Luzon, Mindanao, the Visayas 1944-1945*, Little, Brown and Company, Boston, 1989, p. 276.
- <sup>8</sup> Gill, *Royal Australian Navy 1942-1945*, pp. 646-58.
- <sup>9</sup> Long, *The Final Campaigns*, p. 545.



# Rethinking Australia's Maritime Strategy

Dr Gregory P. Gilbert

The Commonwealth of Australia's, Joint Standing Committee on Foreign Affairs, Defence and Trade has released a report on Australia's Maritime Strategy.<sup>1</sup> The inquiry was aimed at developing a comprehensive understanding of maritime strategy and its place within Australia's broader military strategy and defence policy. Australia's maritime strategy includes more than an examination of our naval or maritime forces, and more than an assessment of the maritime contribution to the defence of Australia. Maritime strategy impacts upon the security of our immediate neighbourhood; the effectiveness of international coalitions beyond our immediate neighbourhood; as well as upon Australia's peacetime tasks.

## Terms of Reference

The Joint Committee inquired into:

- defence capability to apply the maritime strategy outlined in *Defence 2000* in the current strategic environment;<sup>2</sup>
- primary roles in Australia's maritime strategy of the key components of Defence, including the three Services, the Defence Intelligence Organisation and the Australian Defence Force (ADF) command and control structure;
- impact of Australia's maritime strategy on ADF capacity to participate in combined, multinational regional and global coalition military operations;
- integration of maritime strategy with the other elements of Australian national power to achieve specified national strategic interests and objectives;
- impact of the evolving strategic environment on Australia's maritime strategy; and
- integration of Australian defence industry into capability development to support a maritime strategy.

## Maritime strategy - a definition

A modern maritime strategy involves air, sea and land forces operating jointly to influence events in the littoral together with traditional blue water maritime concepts of sea denial and sea control. A maritime strategy is not just about naval forces or naval strategy. The key elements of a maritime strategy include sea denial, sea control and power projection:

- **Sea Denial** has the aim of prevention of the use of the sea by another force. This is defined as the condition that exists when an adversary is denied the ability to use an area of sea for its own purposes, for a period of time. Sea Denial implies a more passive posture where the emphasis is on defence (although this does not preclude the employment of offensive capabilities), and where the initiative is likely to remain with the attacking power.

- **Sea Control** is defined as that condition which exists when one has freedom of action to use an area for one's own purposes for a period of time and, if required, to deny its use to an opponent.

- **Power Projection** while not exclusively a maritime strategic concept, recognises that maritime forces, through Sea Control, can shape, influence and control the strategic environment, and can deliver combat forces ashore if necessary.

Critics of the current defence strategy have suggested that, in recent years, there has been an over-emphasis on the key strategic objective of ensuring the defence of Australia and its direct approaches. They have suggested that the 'defence of Australian territory' results in a disconnect between strategy and practice. That is, the ADF is, in practice, engaged in a variety of tasks which require it to be engaged regionally and globally. Therefore, Australia's defence strategy needs to be revised to ensure that it reflects what the ADF does in practice. The majority of evidence, including that from senior defence analysts, claims that in recent practice Australia has not had a fully developed maritime strategy. Maritime strategies are significant in military planning because they provide the means to apply power flexibly over a range of contingencies and areas. Evidence to the inquiry suggested that Australia currently has given priority to one element only of maritime strategy namely a 'sea denial' capability.

A maritime strategy provides nations with the ability to influence events in the littoral together with traditional blue water maritime concepts of sea denial and sea control. The littoral is defined as 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 from the sea. The classic elements of a maritime strategy, include: sea denial, sea control and power projection. Where reference is made to a 'modern maritime strategy', the meaning is meant to convey a maritime strategy involving air, sea and land forces operating jointly to influence events in the littoral together with traditional blue water maritime concepts of sea denial and sea control. Defence operations in the littoral require the need for effective joint operations.

Even though many aspects of the world international, socio-political and economic framework have changed significantly over the last 20 years, the classic concepts of sea denial, sea control and power projection still remain important for Australia's maritime strategy during the 21st century. The type of capabilities needed here include: underwater, surface, and air warfare. A new strategic priority of defence of Australia and its direct approaches together with greater focus on, and acquisition of, capabilities to operate in the region and globally in defence of our non-territorial interests would have implications for defence expenditure. The Committee supported the continuation of the *Collins* class submarines, the acquisition of airborne early warning and control aircraft, air-to-air refuellers, air warfare destroyers and the replacement aircraft for the F/A-18 and F-111; however, more capability was needed to support Army, heavy lift and amphibious operations.

The Committee recognised that Australia's strategic interests are driven, in part, by the need to protect, monitor and control our 200 nm economic exclusion [sic] zone (EEZ). In

addition, Australia is reliant on shipping for a large proportion of its international trade. The maintenance of sea lines of communication (SLOCs) are essential to this trade. Whereas Australia's current Oceans Policy refers to the role of Defence in protecting Australia's national interests and sovereign rights, it identified that South Pacific countries may also benefit if there was a regional oceans policy.<sup>3</sup> Concern was also raised that port security and merchant shipping is vulnerable to terrorist attack, and that terrorism becomes more of a risk with the increasing use of foreign flagged vessels.

Land forces are an essential part of a modern maritime strategy. They require combat weight, flexibility, lift capacity and a sustainable personnel base which will achieve capability objectives. The Committee was concerned that under-strength units undermine Army capability and present a significant challenge for the Army. This personnel challenge and the effectiveness of the Army sustainment model are critical. In addition, the Government recently announced that it would purchase 59 Abrams main battle tanks (MBT) for the Army. The Navy will be provided with replacement amphibious vessels which would have the capacity to transport the new MBTs, however, until the first of these replacements is commissioned in 2010, existing heavy lift ships will have to transport the new MBTs.

Air combat and strike capability are a critical part of a modern maritime strategy. In relation to air combat, Australia's objective is to maintain air superiority in the region.

## Recommendations

The first recommendation by the Committee was for the development of a national security strategy (NSS) addressing Australia's key interests including: economic; business; leisure/tourism; diplomatic and trade; social and cultural; transnational crime; illegal migration; population policy; the protection of critical infrastructure such as water, power, transport and information communications; environmental; and defence and security.

The committee's view was that, at present, there is no formal statement of how a NSS is to be enacted or what are the key features of Australia's national security. With the increasing risk of terrorism and the asymmetric nature of future conflict, for example, this level of detail is considered to be required. The types of issues that a NSS would address are more than just defence issues. The proponents of a NSS are interested in developing a holistic approach to Australia's security needs for the 21st century which encompass business, leisure, diplomatic, economic, social and environmental interests. Australia's interests are not just limited to our territory but stretch throughout the region and globally. These types of interests and challenges should form the essence of a national grand strategy.

The Committee also recommended the development of a new Defence White Paper for issue during 2005-06, and to be updated every four years thereafter. The proposed new White Paper would emphasise that Australia's defence policy is ultimately defensive. The Committee would envisage that 'power projection ashore' would relate to instances where Australian forces, as part of coalitions, are requested to assist with the affairs in other nations. In addition, there should be a realistic appreciation of the capacity of



Australia's defence forces to operate effectively in high threat environments. Australia should not, for example, undertake large scale operations against a sovereign state without the support of allies.

The committee recommended that the new Defence White Paper should state:

- Australia's strategic objectives including the defence of Australia and its direct approaches together with greater focus on, and acquisition of, capabilities to operate in the region, and globally in defence of our non-territorial interests;
- how Australia's security is interrelated with regional and global security;
- the continuation of the commitment to 'self-reliance' in those situations where Australia has least discretion to act;
- measures that will enhance inter-operability with Australia's allies, such as the United States; and
- a maritime strategy which includes the elements of sea denial, sea control and power projection ashore.

Other major recommendations of the Committee included:

- the need for Defence to explain how adequate air protection will be provided to land and naval forces before delivery of new air warfare destroyers during 2013;
- Defence to outline progress with joint operations and regional cooperation initiatives which seek to enhance the security and protection of vessels SLOCs;
- Defence to ensure that the maritime strategy in a new Defence White Paper includes clear and explicit reference to *Australia's Oceans Policy* and explains its interrelationship with Defence policy, as well as to outline the role of merchant shipping and its support of defence objectives; and
- the Government to outline to the Joint Committee progress with helping to develop a regional Oceans Policy, and to state whether or not it intends to introduce an Australian Shipping policy.

Further recommendations included the need:

- to restate and assess the Army sustainment model;
- to evaluate Army Reserves policy;
- to reassess current plans for air-to-air refuelling aircraft;
- to examine air combat capabilities in the region including details on the range of options to maintain air superiority in the region (for example consideration of F/A-18A upgrade as well as F-35 options);
- to consider purchasing short take off and vertical landing F-35 variants for the provision of organic air cover as part of regional operations; and
- to clarify Australia's strike capability in the light of its decision to retire the F-111.

Overall, the development of a comprehensive maritime strategy for Australia can only benefit all those associated with Australia's defence; from the serving men and women who have recognised for some time our nation's important contribution throughout the world, to those who have to decide on the most effective use of our limited national resources to meet Australia's global defence needs. In addition, a clear restatement of Australia's maritime strategy should result in greater recognition of Australia's ongoing contribution to world maritime affairs, within Australia, our region, and the international community at large.

*This paper was prepared for internal use within the SPC-A as a summary of the Australia's Maritime Strategy report. Any perceived departure from the intent of the complete version of the report is unintentional.*

## Notes

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- <sup>1</sup> Commonwealth of Australia, Joint Standing Committee on Foreign Affairs, Defence and Trade Report, *Australia's Maritime Strategy*, Canberra, June 2004. The full version of this report is available on the internet: Parliament of Australia, Joint Committee, Internet <[aph.gov.au/house/committee/jfadt/maritime/report.htm](http://aph.gov.au/house/committee/jfadt/maritime/report.htm)> (12 July 2004).
- <sup>2</sup> Department of Defence, *Defence 2000: Our Future Defence Force*, Defence Publishing Service, Canberra, 2000.
- <sup>3</sup> Environment Australia, *Australia's Oceans Policy*, Environment Australia, Canberra, 1998.





