Papers in Australian Maritime Affairs
No.11

Protecting Maritime Resources

Boundary delimitation, resource conflicts and constabulary responsibilities

Edited by
Rachael Heath & Barry Snushall
Sea Power Centre Australia

University of Wollongong

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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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Foreword

One of the fundamental responsibilities of a State is to protect its territorial sovereignty at all relevant levels of the conflict spectrum. As Australian foreign policy is based on balance of power considerations, and defence policy is primarily concerned with the maintenance of territorial integrity, the *Australian Defence Force* (ADF) is structured for defeating attacks on Australia and operating at the higher levels of the conflict spectrum. However, the *Royal Australian Navy* (RAN) also operates at the lower end of the conflict spectrum when it is undertaking constabulary operations in the *exclusive economic zone* (EEZ).

Environmental issues within the EEZ of the coastal state became a factor in national security planning in the 1990s, particularly with the implementation of the 1982 *United Nations Convention on the Law of the Sea* (UNCLOS). Activities that might impact on the environment are increasingly perceived as a possible threat to a nation's well being and thus to its national security. As an example, a state's poor environmental behaviour may lead to resource depletion, while the subsequent decline in important ocean based resources may lead to possible conflict as countries compete for, or seek to protect, their access to these resources. The military could, therefore, be engaged in defensive or pre-emptive actions to gain or maintain control over these scarce resources.

The aim of this *Maritime Studies Period* (MSP) was to highlight some of the *Emerging Maritime Issues for Australia*, their relevance to the protection of Australia's resources and their implications for Defence and the maritime capability development process. During the course of the program a wide range of important topics were discussed which clearly demonstrated the complexity of the resource protection issue. The three main themes that developed were:

- the obvious difficulties in the maritime border delimitation process, such as having accurate information on where legal borders lie, and the resolution of disputed borders;
- conflicts over maritime resources including illegal fishing and international law as it pertains to the pursuit of vessels; and
- the agencies which have, or should have, responsibility for policing our maritime borders and the capabilities required to effectively achieve this.

Additional border protection issues that were highlighted included naval strategy and the effective use of navies, and the future for maritime strategy and maritime law in the new strategic era of transnational terrorism.

Even with rigorous debate and discussion on all of these themes there are still more questions than answers on how resource protection can, and should, be dealt with. The issue of protecting maritime resources is going to become increasingly important in the future for both the RAN and other agencies involved in the effort. The insights obtained during this Maritime Studies Period should therefore be considered as a starting point for future analysis.

Contents

Acknowledgments

The chapters in this book originated at the Royal Australian Navy's Maritime Studies Period held at Williams Hall RAAF Base Fairbairn in November 2002.

The opinions expressed in this book are entirely the views of the individual authors. They do not represent any official policy or position of the Sea Power Centre or the Royal Australian Navy.

Chapters 4 and 10 were presented as formal papers which either preceded or followed the presentations given at the Maritime Studies Period, the remaining chapters are based on transcriptions of the actual presentations.

Glossary

AAT	Australian Antarctic Territory
ADF	Australian Defence Force
ADI	Australian Defence Industries
AFMA	Australian Fisheries Management Authority
AFZ	Australian Fishing Zone
AMBIS	Australian Maritime Boundaries Information System
AMSA	Australian Maritime Safety Authority
ASEAN	Association of South East Asian Nations
ASOP	Australian Antarctic Southern Ocean Profiling Project
AUSLIG	Australian Surveying and Land Information Group
BSR	Bottom Simulating Reflector
CCAMLR	Convention on the Conservation of Antarctic Living Marine Resources
CDS	Catch Documentation Systems
CLCS	Commission on the Limits of the Continental Shelf
CMP	Centre for Maritime Policy
CRAMRA	Convention on the Regulation of Antarctic Mineral Resources Activities
DCP	Defence Capability Plan
DFAT	Department of Foreign Affairs and Trade
DMO	Defence Materiel Organisation
ECS	Extended Continental Shelf
EEZ	Exclusive Economic Zone
EW	Electronic Warfare
FoS	Foot of the Continental Slope
GA	Geoscience Australia
GIS	Geographic Information System
HIMI	Heard Island and McDonald Island

HMAS	Her Majesty's Australian Ship
ICJ	International Court of Justice
IDC	Inter-departmental Committee
IUU	Illegal, unregulated and unreported (fishing)
JDZ	Joint Development Zone
JPDA	Joint Petroleum Development Area
LADS	Laser Airborne Depth Sounding
LAT	Lowest Astronomical Tide
MCS	Monitoring, Control and Surveillance
MSP	Maritime Studies Program
MD	Maritime Development Branch
NATO	North Atlantic Treaty Organisation
RAN	Royal Australian Navy
REA	Rapid Environmental Assessment
RN	Royal Navy
SAS	Special Air Services
SCAR	Scientific Committee on Antarctic Research
SPC	Sea Power Centre
TSB	Territorial Sea Baseline
UK	United Kingdom
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNTAET	United Nations Transitional Administration for East Timor
USMC	United States Marine Corps
WCP	Western and Central Pacific (region)

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Notes on contributors

Keynote Speaker - Dr Norman Friedman Educated as a theoretical physicist, Dr. Norman Friedman is a defence analyst concerned primarily with the interaction between technology and tactical, strategic, and policy issues. He has conducted numerous studies for government and industry, including analyses of likely future conflicts, nuclear proliferation and a variety of scenarios for conflict, both in Europe and in the Third World. Dr Friedman was a staff member and then Deputy Director of National Security Studies of the Hudson Institute from 1973 through 1984. Since that time he has served as a consultant to the Secretary of the Navy and to various defence contractors. He has served as Visiting Professor of Operations Research at University College, London, concerned mainly with the formulation and consequences of ship operational requirements. Dr. Friedman has published 26 books, most recently Seapower as Strategy, an account of modern naval strategy; a history of the Cold War, *The Fifty-Year War: Conflict and Strategy in the Cold War* and *Seapower and Space*, an account of the role that space and information assets now play in naval warfare. He has also published an analysis of the strategy and tactics of the Gulf War, *Desert Victory: The War for Kuwait*. Currently in press is an account of the war in Afghanistan. Projects underway include a fifth edition of the naval weapons compendium, a history of British destroyers and frigates of the Second World War and postwar periods, and a history of navies during the Cold War.

Captain Richard Menhinick, CSC, RAN joined the Royal Australian Naval College at Jervis Bay, NSW 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's course. He then served on exchange at sea in the Royal Navy for two years. This posting to the UK included a deployment to the Persian Gulf in the Iran/Iraq war. 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. After this he spent two years as Fleet Direction Officer at Maritime Headquarters in Sydney, prior to being appointed as Executive Officer of the destroyer HMAS *Hobart* from 1993-1995. On promotion to Commander he was posted firstly as head of the Operational Design Group at the Navy Combat Data

System Centre. Whilst in that position he established the *Australian Defence Force* (ADF) Tactical Data Link Authority to co-ordinate tactical data link issues across the ADF. After that he was Deputy Director Surface Warfare Development at Australian Defence Headquarters for which he was conferred the Conspicuous Service Cross. Commander Menhinick assumed Command of the new ANZAC frigate HMAS *Warramunga* on 24 January 2000. Following promotion to Captain he became Director of the RAN's Sea Power Centre in February 2002. He has been appointed as the Commanding Officer of HMAS *Anzac* with effect from December 2003.

Professor Martin Tsamenyi holds a Bachelor of Law degree from the University of Ghana and Master of International Law and Ph.D degrees from the Australian National University. He is at present Professor of Law and Director of the Centre for Maritime Policy at the University of Wollongong. Professor Tsamenyi has had several years of experience in ocean policy making and in developing legal frameworks to implement the *United Nations Convention on the Law of the Sea* (UNCLOS). He was a legal adviser to the South Pacific Forum Fisheries Agency from 1997-1999. Professor Tsamenyi has written extensively on these subjects and has undertaken consultancy for several governments and international organisations. He is very active in the development and implementation of Australia's Oceans Policy and currently serves on the Steering Committee charged with the implementation of Australia's Oceans Policy in the Southeast region.

Mr Bill Campbell is head of the Office of International Law in the Commonwealth Attorney-General's Department. He has practised international law in government for a period of 20 years. In that time, he has attended a range of international negotiations relating to both the drafting and implementation of treaties, provided advice to the Government on matters across the field of international law and represented Australia in international dispute settlement. He is a foundation member and the current Australian Vice-President of ANZSIL.

Dr Gregory French is currently the Director, Sea Law, Environmental Law and Antarctic Policy section in the Legal Branch within the Department of Foreign Affairs and Trade. He has held this position since May 2001. During 1999 held an Executive Officer position also within the Legal Branch and other positions including those which have held him responsible for Australian-Indonesian maritime issues and *Commission for the Conservation of Antarctic Marine Living*

Resources (CCAMLR) and Antarctic issues. Dr French received his Doctorate in International Law in 1989 from the University of Münster Germany, on scholarship from the German Academy Exchange Service. He has written numerous articles on public and private international law in journals including *The International Lawyer, the Australian Mining and Petroleum Law Journal* and *Maritime Studies*.

Mr Bill Hirst (Bsurv (UNSW), MsurvSci (UNSW), MIS Aust., Member AURISA Registered Surveyor (NSW)) has worked in various surveying and land information capacities in NSW before starting work with the Australian Surveying and Land Information Group (AUSLIG) in 1984 as manager of IT and Research and Development. Bill is currently manager of Geoscience Australia's Maritime Boundaries Section.

Professor Stuart Kaye is Dean of the University of Wollongong's Law Faculty. He has studied at the University of Sydney, winning the Law Graduates' Association Medal, and Dalhousie University, where he completed a doctorate in 1999. He has previously worked at James Cook University and the University of Tasmania. He is admitted as a solicitor of the Supreme Court of New South Wales, a barrister of the Supreme Courts of Tasmania and Queensland, and of the High Court of Australia. He is on Editorial Boards of *Ocean Development and International Law and the Antarctic and Southern Ocean Law and Policy Occasional Papers*. He is also a member of the advisory board of the Asia-Pacific Centre for Military Law at the University of Melbourne, and is a legal officer in the Royal Australian Navy Reserve. Stuart has an extensive research interest in the law of the sea and international law generally, and has published extensively in those areas. He has written a number of books, including: *Australia's Maritime Boundaries* (2nd ed., 2001); *The Torres Strait* (1997); and *International Fisheries Management* (2001). With Ryszard Piotrowicz, he was co-author of *Human Rights in International and Australian Law* (2000). In 1995 he was appointed to the International Hydrographic Organisation's Panel of Experts on Maritime Boundary Delimitation. He has undertaken consulting work in the public and private sectors in the context of both living and mineral resource exploitation, navigation and marine environmental protection, as well as acting as junior counsel for the government of Tasmania in *Grain Pool of Western Australia v Commonwealth* before the High Court of Australia in 1999. In 2000, he was appointed by the Australian Government to the List of Arbitrators under the 1991 Madrid Protocol to the Antarctic Treaty.

Lieutenant Commander Anthony Richard Powell, RAN joined the Navy as an apprentice Fitter and Turner in January 1979. In 1982 he was commissioned as a Midshipman at the Royal Australian Naval College where, through the University of New South Wales, he completed a Diploma of Applied Science. His Seaman training was carried out on HMAS *Tobruk* followed immediately with a voyage to Macquarie Island on HMAS *Stalwart*. Postings since have included Officer of the Watch on HMAS *Stuart* (1987-1988), the recommissioning Executive Officer of HMAS *Tarakan* (1988-1990); and Navigation Training Officer on HMAS *Jervis Bay* (1991-1992). He won the Defence Productivity Award in 1991 for his concepts in workforce planning. Lieutenant Powell joined the Australian Headquarters - Mogadishu in Somalia late in 1992 as the Naval Liaison Officer for Operation Restore Hope, coordinating Australian and Coalition naval forces in support of forces ashore. On return from Africa, LCDR Powell assumed command of HMAS *Betano* in October 1993, where he led the crew to win the Fleet Amphibious Efficiency Award in 1994. His experience on *Jervis Bay* teaching navigation led to his taking the Course Implementation Officers position at the Royal Australian Naval College. In addition to coordinating the courses and staff at the college, he became involved in conceptual development of business planning activities, firstly for HMAS *Creswell* and then for Naval Training Command. For this, he received a Training Command Commendation. He undertook the RAN Staff course as a newly promoted Lieutenant Commander in 1997, then moved north to take a three year job as Resident Naval Officer, Thursday Island. During his time on the island, he oversaw the development of a new Joint Defence Facility and completed his Masters in Business Administration. Now serving in the Maritime Development Branch in Canberra, Lieutenant Commander Powell is working on the development of Replacement Patrol Boats, Hydrographic Vessels and Military Geographic Information databases and display systems.

Dr John Reeve is Senior Lecturer and Osborne Fellow in Naval History at the University of New South Wales, Australian Defence Force Academy. A graduate of Melbourne University (MA) and Cambridge (PhD), he has taught at Cambridge, Yale (as a Fulbright Fellow), Hong Kong, and Sydney Universities, held visiting fellowships at Cambridge and London Universities, and is a Fellow of the Royal Historical Society and a Member of the International Institute for Strategic Studies. He began his career as a political historian and for fifteen years has specialised in diplomatic, naval and strategic history, and in contemporary maritime strategic affairs. His recent publications include two books co-edited

with David Stevens: *Southern Trident. Strategy, History and the Rise of Australian Naval Power* (2001) and *The Face of Naval Battle: The Human Experience of Modern War at Sea* (2003), and an essay on Asia-Pacific naval strategy 1500-2000 in Geoffrey Till (ed.), *Seapower at the Millennium* (2001). He is writing a study of early modern diplomacy and strategy and is an Associate Editor of the forthcoming *Oxford Dictionary of National Biography*.

Mr Paul Ryan has twenty-seven years' experience in the various aspects of fisheries management at the Commonwealth level, with a particular emphasis on compliance. His background has included economic research, management of a range of fisheries, managing the Licensing and Entitlements Section and both foreign and domestic compliance. Since August 1999 he has been Manager, Foreign Compliance Strategy with a major focus on developing arrangements for surveillance, apprehension and detention of Indonesian fishers off northern Australia, the civil surveillance program in Australia's sub-Antarctic territories of Heard Island and McDonald Island, and implementation of the United Nations Fish Stocks Agreement.

Dr Phil Symonds studied geology and geophysics at the University of Tasmania and joined the Marine Sub-section of the then Bureau of Mineral Resource's Geophysics Division in 1971. He is currently Senior Adviser - Law of the Sea in the Petroleum and Marine Division of Geoscience Australia and a Visiting Professorial Fellow in the Centre for Maritime Policy, Faculty of Law, University of Wollongong. He has an extensive thirty-year career in marine geoscience during which he has focussed on the collection and interpretation of geophysical data over most parts of the margins of Australia and its territories. He has widely published on many parts of Australia's margins on aspects ranging from their tectonic, magmatic and stratigraphic evolution, to the definition, resource potential and environmental management of the marine jurisdiction. He has led Australian involvement in several international collaborative research programs, and for many years was involved in the international *Ocean Drilling Program* (ODP) as Chairman of the Australian ODP Scientific Committee and the Australian/Canadian member of the JOIDES Tectonics Panel. Dr Symonds has been involved in the scientific aspects of maritime boundaries since the mid 1970s, when he was a technical adviser to the Australian Government during the Third United Nations Conference on the Law of the Sea. He was a member of United Nations Groups of Technical Experts on Continental Shelf matters

in 1993 and 1995. He was a member of Australian delegations involved in maritime boundary delimitation with France, Indonesia, and currently with New Zealand. Since 1994, he has been the leader of Geoscience Australia's Law of the Sea Project, charged with collecting, processing, interpreting and analysing all necessary geological and geophysical data to support definition of the outer limits of Australia's vast area of extended continental shelf. Phil Symonds was elected to the UN Commission on the Limits of the Continental Shelf for a five-year term in April 2002, and attended his first Commission meeting in June 2002.

Commodore Warwick Gately AM, RAN is currently Director General Navy Strategic Policy and Futures. After three years at the RAN College, he served in many ships as a junior seaman officer. A Principal Warfare Officer and an Advanced Navigation specialist (Dagger N), Commodore Gately has navigated HMA Ships *Orion*, *Swan*, *Adelaide* and *Perth*. In 1987 he undertook the Royal Naval Staff Course at Greenwich, London, before taking up an exchange appointment with the Royal Navy on the staff of Flag Officer Sea Training at Portland. On return to Australia, Commodore Gately undertook postgraduate studies at the Australian Defence Force Academy. After serving in Headquarters Australian Defence Force, Canberra, as the Deputy Director Sea Concepts, Commodore Gately took command of the Destroyer Escort HMAS *Torrens* in December 1993. This was followed by appointment as Commander Sea Training on the staff of Maritime Commander Australia. Promoted to Captain in December 1996, Commodore Gately was appointed as the inaugural Chief of Staff Officer Operations, Headquarters Australian Theatre. During the ensuing two years, Commodore Gately was responsible for the planning, mounting and monitoring of ADF operations including Truce Monitoring in Bougainville, drought relief in Papua New Guinea and Irian Jaya, evacuation of Australian nationals from Combodia and Indonesia and operations in Kuwait in support of United Nations resolutions. Commodore Gately took command of HMAS *Adelaide* in April 1999 and was involved in United Nations operations off East Timor as the multinational force Task Group Commander and - RIMPAC 2000 as the RAN Task Group Commander. He was appointed as a Member (AM) in the Military Division of the Order of Australia in June 1999, for exceptional service to the Australian Defence Force in a number of key operational appointments. On promotion, Commodore Gately returned to Canberra, as DG Joint Operations and Plans, involved in supporting the CDF in Command of ADF operations.

Opening remarks to the Maritime Studies Program

Captain Richard Menhinick, CSC, RAN

Good morning and welcome to the Royal Australian Navy (RAN) Maritime Studies Period (MSP), co-hosted by the Sea Power Centre Australia (SPCA) and the Centre for Maritime Policy (CMP) at the University of Wollongong.

I am never one to miss an opportunity and thought I'd take a small amount of time to tell you a little about the roles of the SPC and some of the work that we do here.

The Sea Power Centre has developed from the Maritime Studies Program. Its role includes:

- Promoting awareness among members of the RAN and wider Defence community of maritime strategy, maritime issues, and the role maritime forces play in the security of national interests.
- Contributing to the development of public awareness of the need for sea power in the defence of Australia and her sovereign interests; and
- Within the higher Defence organisation, contributing to the development of maritime strategic concepts and operational level doctrine, and facilitates informed force structure decisions.

To this end, we publish a series of publications including:

- Papers in Australian Maritime Affairs.
- Working Papers, and
- The new Semaphore newsletter.

We also arrange two significant conferences on maritime affairs. The first being the Sea Power Conference held every two years, the next one on the 3 - 5 February 2004 at Darling Harbour, as part of the maritime congress. Pacific 2004 will focus on the theme of 'Positioning Navies for the Future'. The second is the King Hall History Conference, which is to be held on 24 - 25 July 2003 in Canberra and is focusing on 'The Navy and the Nation'.

Finally, if you wish to be on our distribution list for publications please see my staff during the next two days.

Now lets move on to the real reason that we are all here. The MSP, as we call it, has previously been held at the Royal Australian Naval College at HMAS *Creswell* in Jervis Bay, and was intended for students of the strategic studies courses which are run from there. However, with the maturing of the Navy's Junior Officer training continuum, this year was seen as a good chance to move the MSP towards being more of an informal maritime conference, with the opportunity to focus on issues of interest to people in the various organisations concerned with the different elements of territorial integrity.

The MSP will be run very informally given its origins. Hopefully the next day and a half will initiate exchange of thought and a greater understanding of the emerging maritime issues for Australia, their relevance to the protection of Australia's resources, and their implications for Defence and the maritime capability development process.

Australia has a land area of about 7.7 million square kilometres and a sea area of over 8 million square kilometres, not including the extended continental shelf areas of about 4 million square kilometres. This makes the total area over 20 million square kilometres, of which 60 per cent is sea. Australia adjoins the Pacific Ocean in the East, the Indian Ocean in the West, faces the Southeast Asian Archipelago in the North and faces the Southern Ocean. As an island, Australia obviously has no land borders with any other state and with the exception of the Torres Strait region it is separated from its neighbours by an air-sea gap that is hundreds if not thousands of kilometres wide.

The *United Nations Convention on the Law of the Sea* (UNCLOS) 1982 came into force on 16 November 1994 and governs all aspects of the oceans including delimitation, environmental control, marine scientific research, economic and commercial activities, transfer of technology and the settlement of disputes relating to ocean matters.

The significance of UNCLOS is that it increases the resource base of coastal states, provides a framework for managing ocean space as a multi-purpose development zone, and encourages scientific and technological developments.

In the mid 1980s, Australia's national security interests were defined as:

- The avoidance of global conflict.
- The maintenance of a favourable strategic situation in South East Asia and the South Pacific generally.
- The promotion of a sense of strategic community between Australia and its neighbours.
- The defence of Australian territory and society from threat of military attack.
- The promotion of Australia interest in the surrounding maritime environment, including our overseas territories and sea lines of communication.

These points have been refined over the last fifteen years but they are considered to be fundamental Defence policy issues that might require the use of armed force.

This is reflected in Australia's Defence policy, which states that:

> 'The exercise of authority over our continent and offshore territories, our territorial sea and resource zones, and airspace, and the ability to protect our maritime and sea approaches, is fundamental to our sovereignty and security'.

Given the size and harshness of Australia's territory, the extensive coastlines, size of fishing and resource zones, the distance from the mainland of offshore territories, the great expanses of ocean surrounding Australia and the small size of the Australian population, this is a large task for the Australian Defence Force.

Throughout today and tomorrow, the implications of the delimitation of Australia's maritime boundaries, some of the rights and responsibilities of Australia as a coastal state, and Australia's enforcement obligations, will be discussed. There will be ample opportunity throughout the program to ask questions of our speakers and Dr John Reeve will chair an open forum tomorrow to place the presentations in context. This is a vital study period, as Australians in general are not focused on maritime or sea issues to any great extent. Rather, they remain continental in their outlook, with the many challenges of our nearer maritime region effectively marginalised and ignored. Our challenge over the next two days is to raise awareness of maritime issues and to attempt to stimulate greater debate and interest.

This studies period would not be complete without a look at how the Navy is attempting to respond to regional maritime issues. Therefore the MSP will conclude with a brief overview of the planning going on in Navy to ensure our capability is sufficient to meet our obligation to protect our national interests.

I would also like to acknowledge and thank the Centre for Maritime Policy at the University of Wollongong for assisting the Sea Power Centre in arranging this MSP.

The keynote address for the MSP will be given, as I am sure you are all aware, by Dr Norman Friedman who is eminently qualified to address us today.

The Australia/New Zealand maritime boundary 1

Mr Bill Campbell

There are many places in which Australia's claimed maritime areas overlap with claims made by other countries. For the most part, the overlaps only occur between the Exclusive Economic Zones (EEZ) and the continental shelves, due to the extensive distances between Australia and other countries. However, in the Torres Strait, and in relation to the Australian Antarctic territories, there are overlaps between our contiguous zone and territorial sea and those claimed by the adjacent countries.

Australia has already negotiated a number of maritime delimitation agreements with other countries, specifically Indonesia, Papua New Guinea, the Solomon Islands and France - France in relation to New Caledonia and Kurguelen Island. Additionally, with the separation of East Timor from Indonesia, it was necessary to negotiate a new agreement with East Timor. The Timor Sea Treaty, which was signed earlier this year, relates to the exploration and exploitation of the resources of the Timor Gap. This treaty provides a temporary settlement, pending the negotiation of a permanent maritime boundary. The other major outstanding delimitation that Australia has is with New Zealand. This boundary will be the focus of this discussion.

Negotiations on the maritime boundary between Australia and New Zealand are ongoing. The Australian delegation involved in these negotiations is led by the Department of Foreign Affairs and Trade (DFAT) and comprises representatives from the Attorney-General's Department, Geoscience Australia (GA) and the Australian Surveying and Land Information Group (AUSLIG), together with representatives from the relevant States and Territories. For example, the last negotiation included representatives from Tasmania and Norfolk Island. Negotiations with New Zealand have been undertaken on three occasions so far, the last occasion being in Wellington in July 2002. As the negotiations are ongoing, the normal principle of confidentiality of bilateral negotiations apply.

The various positions of the countries in the negotiation will not be discussed during this presentation. However, this paper will discuss some of the general principles that could well be applied in these areas, as well as some of the other matters that might be relevant to the negotiations.

Fundamentally there are four areas for negotiation with New Zealand as follows:

- The first is the area of extended continental shelf along the Lord Howe Rise. The area under negotiation is that part of the extended continental shelf between the EEZs of Australia and New Zealand.
- The next area for negotiation is the Norfolk Island/Three Kings Islands delimitation. In this case there is a very small overlap between the EEZs of the two countries. There are also areas of extended continental shelf, one being the Three Kings Ridge and the other is the West Norfolk Ridge, which will be the subject of negotiation.
- Another area is to the south, involving the EEZ around Macquarie Island and that around Campbell Island and the Auckland Island on the New Zealand side. Macquarie Island forms part of Tasmania, hence the Tasmanian participation in the negotiations. There is also an additional small area of extended continental shelf, which will also be the subject of negotiations.
- Even further to the south are the maritime areas adjacent to the Australian Antarctic Territory and the Ross Dependency.

Before dealing with those particular areas in more detail, there are some relevant principles that may well be applied to this negotiation, which should be covered.

The first is that Australia is under an obligation under the United Nations Convention on the Law of the Sea (UNCLOS), also known simply as the Law of the Sea Convention, to settle its maritime boundaries. The primary recognised means of reaching settlement is by agreement. In the absence of agreement, the alternative is to take the delimitation to some form of international dispute settlement.

As you are aware, there have been a number of cases before the International Court of Justice (ICJ) concerning maritime delimitation. In the case of Australia's maritime boundaries, it is no longer possible for another country to actually take Australia to the ICJ, or to dispute settlement under UNCLOS, to settle maritime boundaries. That is because earlier this year Australia changed its acceptance of the jurisdiction of the ICJ to preclude maritime boundary delimitation

from its jurisdiction over Australia. It also took similar action in relation to the dispute settlement provisions under UNCLOS. Irrespective of this action, all of Australia's maritime boundaries settlements to date, have done by agreement.

The legal principles that apply to maritime delimitation have been discussed by international courts and tribunals. They are also reflected in the practice of other international agreements. One principle that has been applied frequently in maritime delimitation is that relating to equidistance-that is, the use of point of equidistance between the coastlines of the two countries that generate the overlapping claims as a reference point for a boundary. In fact, the ICJ has developed a test under which the starting point for a delimitation is the point of equidistance. This line is then adjusted for special circumstances. Those special circumstances include matters such as proportionality between the length of the facing coastlines and the area to be attributed to each country, historical considerations, equitable sharing of resources, encroachment (where the maritime area claimed by one country unduly encroaches on the maritime area claimed by another) and the presence of islands. Other factors that are not legally relevant but which may nevertheless be relied upon in a negotiation include population size, political status and size of landmass. In a negotiation, as opposed to third party dispute settlement, it is open to both countries to take account of any factors they like.

In relation to the continental shelf, the extent of the natural prolongation of the land territory of a State under the sea has been put forward as a relevant factor by Australia in the past. For example, in the Timor Sea, Australia claims a continental shelf that goes well past the point of equidistance to a point much closer to the coastline of East Timor. This is because the natural prolongation of Australia extends to a deep trench known as the Timor Trough.

I should refer to one other factor that, in part, determines why maritime delimitation seems to take so long. Generally speaking, in a maritime delimitation the area subject to negotiation will be that which is subject to credible claims by both countries. If one country makes an extensive claim but the second country makes a less extensive claim, then the latter country is on the back foot at the very start of negotiations because the area of overlapping claim will favour the first country. Therefore, if one country makes an extensive claim, it is almost inevitable that the other country will also make an extensive claim so as not to

prejudice the ultimate outcome of the delimitation. The most difficult step in any maritime boundary delimitation is the movement from making maximum claims to the point of making concessions.

Moving to the current negotiations between Australia and New Zealand, the first area of negotiation is the so-called Lord Howe Rise. It is only a delimitation of the extended continental shelf. As mentioned previously, the first step is to decide the area that each country wants to claim. One possible delimitation line would be the line of equidistance. Another possible delimitation line might be some natural break in the Lord Howe Rise/Challenger Plateau features referred to as the Bellona Trough. It could be argued that this represents a natural break in the extended continental shelf and that should be a natural boundary. These types of issues may form part of the negotiating position of one or both countries.

At this point, let me mention another issue. For areas of extended continental shelf beyond 200 nautical miles from a State, the extent of the continental shelf claimed has to be submitted to the Commission on the Limits of the Continental Shelf (CLCS) for approval. Where two countries reach an agreement by negotiation on the delimitation of an extended continental shelf, the CLCS also must be advised. The question is, which country should make the submission to the CLCS? Should Australia and New Zealand make individual submissions or should a combined submission be made? This has not yet been decided. There are difficult issues for both countries concerning the inter-relation between the process of negotiating a bilateral delimitation agreement covering areas of extended continental shelf and the multi-lateral CLCS approval process. This is because neither country would want to see its position prejudiced in one process by something that has occurred in the other process.

The next area for negotiation with New Zealand is the small area of the two EEZs between Norfolk Island and the Three Kings Islands. This region also has two extended areas of continental shelf; one is the West Norfolk Ridge, and the other, the Three Kings Ridge. Examination of the geomorphology shows a connection between Norfolk Island and the West Norfolk Ridge and between Norfolk Island and the Three Kings Ridge. Therefore, each of these three areas is subject to negotiation. One further complication is that in relation to the Three Kings Ridge, there is a possibility that France may also make a claim for the extended

continental shelf. This may mean that a tri-lateral negotiation between France, New Zealand and Australia may be required.

Then there is the area between Macquarie Island and the Auckland and Campbell Islands. Macquarie Island forms part of Tasmania, and Auckland and Campbell Islands to the South, form part of New Zealand. The areas for delimitation are the overlap of the 200 nautical mile EEZ and the pocket of extended continental shelf that tucks in near the boundaries of the two EEZs. This area is part of the Macquarie Ridge. Australia's claim would be based on the connection of the Macquarie Ridge with Macquarie Island which is an Australian island. Both are part of the same continental structure. New Zealand's claim would be based on the connection of the Macquarie Ridge with the New Zealand mainland, although in Australia's view there is some discontinuity in the geology between the New Zealand mainland and the Macquarie Ridge.

Australia also has a claim on the extended continental shelf below Macquarie Island. This area is not subject to delimitation with any other country.

Australia would also like to include the maritime areas adjacent to the Australian Antarctic Territory and the Ross Dependency (NZ) in the negotiations and final negotiated package.

While the negotiations are ongoing, provisional EEZ boundaries are in place and resource jurisdiction has not been a source of great contention between the two countries. However, both countries have an obligation to negotiate the maritime boundaries. This delimitation will clearly establish the areas subject to the resource jurisdiction of each country, so that the important potential resources can be properly explored and their exploitation properly managed.

Antarctica 2

Dr Gregory French

Today I will discuss the very broad topic of Antarctica in the context of maritime issues. Antarctica has many remarkable features. The Mid Atlantic Ridge which has some features like Iceland popping above the sea floor, makes the Himalaya's look insignificant by comparison. Or the Marianas Trench off the Philippines and the Hjort Trench off Macquarie Island would make the Grand Canyon look like a gully by comparison and it is primarily ice covered and approximately twice the size of Australia. Antarctica contains most of the world's fresh water in the form of ice and is the highest continent in the world, primarily because of the massive layer of ice overlaying the land area, and in fact would be mostly sea bed apart from the fact that it is covered by ice. Even if the ice were removed it would remain below water level. Without the ice the land area would be basically an archipelago. It is then, evident that Antarctica contains extraordinary amounts of ice kilometres thick in many places, and has had a very important role to play in the world climate. The extraction of core samples of ice gives scientists very important information in terms of climate change and how the climate has evolved over the millennia.

Figure 1: Mount Erebus, Antarctica

To put Antarctica in the context of maritime boundaries and maritime jurisdiction, Australia claims jurisdiction in a number of areas of the continent. There are generated maritime zones off the Australian Antarctic Territory (AAT). The Exclusive Economic Zone (EEZ) and beyond have not been fully defined, or defined to quite the same degree of detail as with regard to Australia itself. There are potential extended continental shelf claim areas and an overlap between Australian jurisdiction with regard to Heard

Island and the Cagalan Plateau area of extended continental shelf overlapping with extended continental shelf of the Antarctic continent.

Australia's claim to the Australian Antarctic Territory

Australia and Australian's have been involved in the very earliest phases of Antarctic exploration from the dawn of the 20th century. Sir Douglas Mawson of course, the most famous Australian Antarctic explorer, was involved in a number of early expeditions. During a 1912-1913 expedition, he came within a millimetre of losing his life in an expedition where both of his two colleagues died. The sole survivor, he at one point was completely out of food, had lost his tent and was hanging by his rope down a major crevasse and just managed to drag himself out of it by the skin of his teeth. There are exceprional stories of courage in those early eras.

A major point in terms of Australia's claim was the British Australia and New Zealand Antarctic Research Expedition of 1929-31. This covered virtually the whole area we now claim, using both ship and aircraft for exploration in Antarctica. This was one of the first examples of using aircraft for Antarctic exploration. Douglas Mawson, along with Byrd of the US, was the pioneer of this aerial exploration in Antarctica. The result of that expedition was that it formed the basis for the claim by the British Empire and later Australia of two significant areas of Antarctica. The claim was made formally by a British ordering counsel in 1933, which covered all territory six degrees South as well as between 45 degrees East and 160 degrees East, with the exception of Terra Ade'lie, which was claimed by the French. There was a provision in that, ordering counsel claim for the areas to be accepted by Australia, and this occurred in August 1936.

Figure 2: Early Antarctic Exploration

Australia takes its claim to Antarctica seriously. It claims rights, which pertain to sovereignty and sovereign rights and jurisdiction. It also takes seriously the obligations pertaining to the maritime areas and the protection and preservation of the marine environment, including the conservation and management of resources. These are the major goals of Australia's Antarctic program, maintaining the Antarctic treaty system and enhancing Australia's position in that system. However, there is clearly a tension between Australia's sovereign claim to the AAT and the view of the majority of the international community. This tension is dealt with through the Antarctic treaty and then the Antarctic treaty system. Another major goal is to protect the Antarctic environment, understand the role of Antarctica in the global climate system and undertake a whole range of scientific work in Antarctica. The Antarctic Treaty was a watershed in international law in general and particularly with regard to the Southern regions of the world. It developed in the cold war era when tensions between the US and the Soviet Union were at a peak.

The capacity to project power into the Southern Ocean region and into Antarctica had evolved for the first time when a military presence, in the form of naval vessels from the superpowers (USSR and the US) began to patrol the area. It was in the time preceding the Cuban Missile Crisis, and there were worries about the possibility of nuclear weapons, or other nuclear installations, being located on the Antarctic land mass or on the continental shelf of Antarctica. There was a fear of militarisation of Antarctica and certainly Australia very much wanted to prevent that. To put it bluntly, the concept of a Soviet dagger pointing at the soft under belly of Australia was one potential scenario, which was considered at the time and was something that Australia wanted to avoid at all costs. In 1957 and 1958, during the so-called International Geophysical Year, there was combined international effort to engage in scientific research in the Southern region of Antarctica. A Scientific Committee on Antarctic research (SCAR) was developed that helped raise momentum towards reaching some kind of international compromise on how to deal with Antarctica. The result was the Antarctic Treaty, which was adopted and defined in December 1959. The first meeting of Antarctic Treaty parties occurred in Australia in 1961.

The treaty is aimed at providing a constructive base for cooperation in Antarctica despite the fact that there were differences with respect to sovereignty claims. So the treaty applies to the region 60 degrees South and stipulates that Antarctica

should always be used for peaceful purposes only, and very importantly, prohibits military activities. The other key elements of the Antarctic Treaty are the guarantee of freedom of scientific research throughout Antarctica, providing for inspections of any nation's activities and the banning of nuclear testing and radioactive waste disposal. As mentioned previously, at the heart of the Antarctic Treaty is a compromise with regard to sovereignty; the majority of the international community does not recognise sovereign claims to Antarctica. There are seven States which do claim areas of Antarctica: Australia, Norway, New Zealand, the United Kingdom, France, Argentina and Chile. The rest of the world does not recognise these claims and there are some overlaps between those claims, although there are no overlaps with Australia's claims.

In Article 4 and particularly in Article 4.2 of the Treaty there is, in effect, an agreement to disagree. The heart of that is that Australia has its sovereign claim. For example, Australia is not recognised by non-claimant states, but what the Treaty says is that there shall be no new claims or enlargements of existing claims with regard to the territorial sovereignty. This raises an immediate issue and a rather complicated issue regarding maritime zones. What is the status of maritime zones off Antarctica, particularly bearing in mind that much of the development in terms of our maritime zones is referring to territorial sea to 12 nautical miles? The contiguous zone, the EEZ and the continental shelf and extended continental shelf, (particularly with regard to the EEZ and the continental shelf as is now defined), but also with regard to the breadth of the territorial sea and the concept of contiguous zone, are all effectively products of the Third United Nations Convention On the Law Of The Sea (UNCLOS) which went from 1973 to 1982 after the Antarctic Treaty was established. In fact, this was long after the original territorial claims by the claimant States. So we're seeing a development of international law saying States have been granted broader rights with regard to the maritime zones off their coastlines.

How does that gel with the requirement within Article 4.2 of the Antarctic Treaty to make no new claims, or enlarge existing claims? There are varying views on how those two things can be reconciled. Certainly with regard to Australian legislation, Australia has clearly proclaimed a territorial sea zone, EEZ and continental shelf consistent with our rights under UNCLOS, and these apply to all external territories implicitly (though not explicitly) including the Australian Antarctic territory. Now this is an interesting situation when it is considered under

the Antarctic Treaty and also with regard to the Convention on the Conservation of Antarctic Living Marine Resources (CCAMLR). Multilateral systems have been set up for managing various aspects of Antarctica, the Antarctic environment and the Antarctic marine environment. One example within CCAMLR is that fishing licenses are granted through conservation measures adopted by CCAMLR multilaterally, by multilateral decisions, so that the effective management of fish stocks off Antarctica is done multilaterally and Australia does not actually exercise practical jurisdiction. The *Australian Fisheries Act 1952* for example, does not apply. It was imaginatively proclaimed including the Australian Antarctic Territory, but then the application of Australia's jurisdiction with regard to the EEZ of Antarctica was removed thereafter. Australia did formally assert a capacity to enforce its legislation for Antarctica, which basically made that particular assertion inoperative with regard to Antarctica. That is consistent with Australia's treaty obligations under the Antarctic Treaty and CCAMLR that management of these resources should be done in a multilateral manner, or through multilateral decisions.

It was briefly mentioned previously that there exists a tension between the development of new maritime zones, or concept for new maritime zones, and the fact that Australia's claim to sovereignty in Antarctica pre-dates the ratification of these zones. Australia asserts that it is entitled to all the zones under contemporary international law by virtue of the fact that they are a corollary of its legitimate claim to territorial sovereignty over Antarctica, and that as international law develops these new rights have simply attached onto the existing right. However, other countries, in particular the United States, are of the view that asserting rights with regard to subsequent developments of international law amounts to a new claim, or an extension of an existing claim and therefore would be prohibited under Article 4.2 of the Antarctic Treaty. This is becoming an increasingly interesting issue with regard to the continental shelf off Antarctica and the extended continental shelf.

So how should this be dealt with? There are three ways of looking at the legal regime for maritime zones of Antarctica. There is the classic model where Australia has legitimate authority over a continental margin: this includes the territorial sea, the contiguous zone and the EEZ with an extended continental shelf. Australia has a claim to sovereignty on the Antarctic continent, therefore the zones generated by the coast exist. This view is shared by other claimant States. Another view, which appears to be supported by UNCLOS, is that all the

Antarctic waters are international waters, that they are either high seas, beyond the limits of national jurisdiction, or that they are the international seabed area. That is, the seabed and subsoil being beyond the limits of national jurisdiction as defined in Article 1 paragraph 1 of UNCLOS. Normally when we look at the international seabed area, Part XI of UNCLOS, we think of the abyssal plain of the deep-sea bed at the edge of continental margins. However, according to one interpretation, the international sea bed area would extend to the low water mark or the grounding zone, or the edge of ice, depending on the definition of where the maritime baseline is in Antarctica (an issue for itself), that the international sea bed area could extend right up to the edge of the waters defined as the end of the land or ice in Antarctica.

Another interpretation was developed in negotiation of the Convention on the Regulation of Antarctic Mineral Resources Activities (CRAMRA), which is a treaty (basically now defunct) to develop both the land and the maritime mineral resources of Antarctica. CRAMRA was eventually supplanted by the Madrid protocol on environmental protection of Antarctica which put in place the moratorium on any mining activity within Antarctica. In the 1980s the Antarctic treaty parties had been negotiating the CRAMRA agreement, which included the concept of the possibility of collective national jurisdiction among the claimant states. The non-claimant states continued to maintain that the Antarctic seabed is an international seabed area which is beyond national jurisdiction. Australia may have differing views as to whether individual States may exercise national jurisdiction over the maritime zones off Antarctica, but as a member of a multinational, multilateral group and as an international treaty body, it is entitled to exercise jurisdiction collectively on behalf of the international community. Therefore, the view of the Antarctic treaty parties was that this was not an international seabed area under the jurisdiction of the International Seabed Authority, but rather that the mineral resources would be exploited on the basis of their collective national jurisdiction. This principle also underlies the Madrid protocol to the extent that states, particularly the Antarctic Treaty parties, are obliged to protect and preserve the marine environment. There are a range of requirements in terms of environmental impact statements, which go through the Antarctic treaty system before any activities which may have environmental consequences, can occur in Antarctica. This perhaps demonstrates that the maritime areas are managed under the concept of collective national jurisdiction rather than under the jurisdiction of the International Seabed Authority.

The Australian Continental Shelf

The Australian Antarctic Southern Ocean Profiling Project (ASOP) is a major project, developed separately from the project to map and gain information on the continental shelf of Australia as a whole. ASOP has collected much tracking data through the area of the Antarctic continental shelf. This raises some very interesting issue for Australia of the submission of the data to the Commission on Limits of the Continental Shelf (CLCS). Australia is required to submit data on the limits of its extended continental shelf, that is, the areas beyond the EEZ, to claim rights over this extended continental shelf. The submission is due to the Commission by 16 November 2004, being ten years after the entry into the force of UNCLOS for Australia. There was a decision by the States parties to UNCLOS to extend this deadline to 2009, but this was a political decision, not a legal decision. According to the letter of the law, Australia would still be required to submit by November 2004, although the government is yet to make a final decision whether to meet this timerable. As the data required for the submission is being collected, it is highly likely that Australia will make its submission in accordance with the formal requirements, and so would be consistent with international legal order for the oceans as represented in UNCLOS. The issue of whether the Antarctic continental shelf should be included in this submission is however, not clear. There has already been much dialogue between the various claimant States and non-claimant States with key interesrs in Antarctica as to whether this inclusion should be made.

From Australia's point of view, it has well founded rights extending back many years for exercising sovereign jurisdiction with regard to Antarcrica and maritime zones. Australia therefore considered it appropriate to submit data with regard to the conrinenral shelf of Antarctica just the same as the rest of Australia. However, this view was not shared and that is very clear. The US for example, and others, have argued many times that such a submission may not be consistent with the basic obligation to make no new territorial claims, or to extend existing claims. As mentioned, Australia's view is that this would not be a new claim or an extension of an existing claim, but a natural corollary of the development of international law. There are a number of options available. Australia can submit all of the data including that for Antarctica and await the judgement of the CLCS. Alrernatively, the Commission submission guidelines allow for a number of separate submissions where there are very complex areas of extended continental shelf.

Australia may choose to make separate submissions for the Australian extended continental shelf and the ATT continental shelf. There is a possibility that on receipt of the data the commission might decide to delay making a judgement. There is also the fact that the conventions itself, and the commission guidelines, avert to areas subject to delimitation or subject to dispute.

There are two possible outcomes. One submission for the whole of the extended continental shelf may lead to the decision that the whole claim is under dispute due to the inclusion of Antarctica, as other States do not recognise this claim. This could delay the acceptance of Australia's claim to sovereignty of its extended continental margins.

There are some technical aspects of making a claim for the AAT maritime zones and extended continental shelf that are not clear. The maritime boundary between Australia and Norway, for example, could be a continuation of the longitudinal line. Another interpretation could be to apply the general principles of maritime delimitation along areas of adjacent coastline. If Australia was to take this approach, and create lines of equidistance along the coastline, the line of delimitation could be quite different. This delimitation would result in a much larger area falling under Australia's jurisdiction compared with that generated by the longitudinal line. Similarly, the delimitation with New Zealand could be interpreted in a number of ways.

Delimitation of these boundaries is not currently subject to any formal dispute between Australia and Norway, or Australia and New Zealand. However, the maritime boundaries will be subject to delimitation and the Commission may delay its judgement until the delimitation is negotiated. These possibilities provide an argument for the deferral of a submission for the continental shelf off Antarctica for the time being and the submission of two separate claims.

Management of the living marine resources

Management of the living marine resources falls under the auspices of CCAMLR. CCAMLR has its seat in Hobart and meets annually to deal with the conservation and management of living marine resources in Antarctic waters, and the geographic scope of the CCAMLR treaty includes the waters of Heard Island and McDonald Island (HIMI). The most important of these resources is the Patagonian tooth fish. It is fairly clear that Australia is facing

major challenges from the well organised and well-funded Mafia type organised crime organisations, which are illegally fishing the Patagonian tooth fish in HIMI. France, South Africa, and to some degree New Zealand, are facing very similar challenges. Estimates indicate that these illegal activities will destroy the fishery as a commercial resource within two to five years. In response to these estimates, the government is pursuing a number of alternatives. Firstly, although it has not been publicly announced, Australia has signed off on a treaty with France on maritime cooperation, particularly with regard to cooperative surveillance and monitoring in the area of Heard and McDonald Island and the French Island of Kerguelen. There is also momentum and impetus in that agreement to extend the cooperation to include enforcement operations in the future. Also, Australia is looking at ways it can shift the balance in power between the pirates and the coastal States, particularly by the use of modern technology, and a key element there is the whole concept of hot pursuit.

Australia and France are cooperating to evolve the concept of hot dispute into the 21st century. Under UNCLOS visual contact with a vessel that is suspected of engaging in illegal activities must be established while that vessel is within an area under jurisdiction. This contact may be maintained either visually or by radar. Australia's view is that this concept should be expanded to enable the utilisation of modern remote sensing technology, such as satellite technology and unpilored aerial vehicles. Such changes are necessary for adequate surveillance in areas as remote as the Southern Ocean where it is so difficult and so expensive to send enforcement assets. Additionally, Australia will be looking at a concept whereby the Commanding Officer of one Her Majesty's Australian Ships could be berthed in Fremantle, gain a positive fix on a vessel suspected of acting illegally and commence hot pursuit while still alongside. The technology to undertake such a hot pursuit is currently available by using either commercial radar satellite imagery or high resolution optical imagery in the future.

Once a fix on a vessel that has been fishing in Australia's zone is established, identification could be made through Inmarsat Telephone or Facsimile. This process is not too difficult with the technology now available. An order to stop could then be sent to the vessel. The message would be worded something like:

> 'We have identified you fishing illegally in contravention of the *Fisheries Management Act 1952* of Australia and we have commenced hot pursuit'.

Despite the fact that the ship is four or five thousand miles away from the vessel, a breach of Australian law has been identified and the crucial criteria to commence hot pursuit have been satisfied. As long as a continual chain of evidence can be maintained it could be argued that hot pursuit has been commenced and continued. The vessel could then be apprehended at a place of our choosing with the minimum expenditure of our resources, but getting the result by the apprehension and prevention of illegal fishing. The technical issues aside, the development of international law must keep pace with the development of technology if the application and the intent of the laws are to be maintained. Such development will tip the balance of power to mange and protect resources back in favour of the coastal states.

Australia is negotiating with other states with interests in the region. South Africa and New Zealand are considering the development of the capability for enforcement activities in these distant areas in the Southern Ocean. Also, such capability would be of great value to CCAMLR. Perhaps initially setting up a regional international legal regime similar to that of Latin American States in the 1960s and 70s to develop the concept of the EEZ could similarly lead to the concept being expanded from a regional cooperative regime to become global international law. This evolution could start with interlocking bilateral agreements and then possibly multilateral through CCAMLR. Such a regime would enable enforcement actions to be undertaken at far lower costs than is currently possible under the 19th or 20th century definition of hot pursuit. This would greatly enhance the likelihood of sustainable management of the living resources of the southern oceans and the tasks of international legal practitioners and surveillance and enforcement agencies more readily achievable and more successful in future.

Keynote address - sea power as strategy

Dr. Norman Friedman

What I want to talk to you about is a view of national strategy, which has to be something more than simply saying that seapower is very useful. If you're on an island, very obviously you start talking about what effect the sea has on whatever you do. A sea power view starts with the fact that it's very easy to move things by sea, easier than any other way. Let me give you an example. I was at a discussion of fishery protection and there was apparently a recently celebrated case in which a poacher operating off your Southern coast was intercepted, not near your Southern coast, but eventually all the way across the Southern Indian Ocean off South Africa. 'Well' you say, 'that's a pretty remarkable thing', but that's an illustration of the fact that in effect at sea distances shrink very dramatically. They don't shrink in the sense that you just snap your fingers and you're five thousand miles away instantaneously, but there's a sense in which things get a whole lot closer. It's an odd sort of sense. I'm not sure how to express it properly, but another way of saying that is that what floats can be remarkably mobile.

From the point of view of defending yourself, that means that anyone else using the sea as a highway can show up anywhere around your island. Talking about protecting a limited area of your coast becomes self-defeating. People find other places that are easier to approach or attack. That seems to mean that the defence has a terrible peripheral problem. By the way, that is not unique to Australia. The United States faced much the same problem. Is coast defence the right way to protect the country? In (I was going to say the last century), but it was actually the one before, we did a study. The argument was that movement by sea was really quite easy. The conclusion was that it might be a lot less expensive for us to discourage attack by threatening to move our own concentrated force into an enemy's waters, to threaten his coast and present him with the intractable coast defence problem we faced. That seemed much better than waiting for enemies to come to us. That is certainly part of a sea power approach to national defence, an approach which takes into account the full defensive-and offensive-effect of seaborne mobility.

Another part of a sea power approach (and I'll give you some historical examples) is always to ask what the point of any particular war actually is. Sea power offers alternatives, which land powers generally lack. The sea power decides when and where to attack. Matters are very different from a land power's point of view, because if it borders a country bent on invasion, the war is fought simply to stop the invader from overrunning his victim. France in 1914 is a case in point. If it is not so easy to be overrun, then a government can ask how to get to the desired outcome. It can take a wider view. The wider view may very well be that attacking some particular place will offer valuable leverage. Your troops participated in exactly that kind of war. Look at Gallipoli, and forget for a moment that it was badly carried out and horribly tragic. In a strategic sense, it was an attempt to face the central issue in World War I. From the point of view of the British Empire-including Australia-it was not simply to defend France. Rather, it was to Germany. Once Germany lost, it would have to disgorge whatever it seized in Europe, including whatever part of France it got. But simply ejecting the Germans from France would not have defeated them, and they would always have been able to strike again (by the way, that is one way to see the outcome of World War I and the ultimate second round of World War II). The British Empire was seaborne. It could not be defeated as long as the Germans could not gain control of the sea. It could, at least in theory, decide when and where to strike at the Germans. Had Gallipoli succeeded, then in theory the British might have knocked the Turks and then the Austrians out of the war. Probably more importantly, they would have strengthened a Russian army, which would have subjected the Germans to a far more desperate two-front war. It was that Maritime component that gave the British Empire the freedom to entertain such possibilities. That they did not work out in practice was tragic, but it does not change the fact that seapower offered alternatives that land power could never have offered. So part of the seapower view is that force should be applied when and where the payoff is greatest. Sea power in effect magnifies the effect of relatively small but extremely mobile land forces.

This point is illustrated by the way the war was actually fought. The Australian Army proved extremely effective in France. But that was only part of a larger story. The reason the Army could go to France as opposed to standing in the Northern Territories trying to defend this island was it could be projected by sea-and the Germans had no way whatever of projecting their own army the same way. We often forget that because it's so easy, transport by sea seems almost automatic. It

isn't. It was terribly important that the Royal Navy (RN) and the other Empire Navies-including the Royal Australian Navy (RAN)-dominated the seas, at least in a positive sense (they could not always keep the Germans from sinking some ships, but they and not the Germans could move masses of men relatively freely).

Figure 3: HMAS Warramunga

Sea power is not just about navies. It is about the way all of a country's military power is used. Sea power affects the way a government views a war. The government may well want to limit its participation. The war may turn out badly; going somewhere may turn out to have been something other than a really good idea. I realise that although my crystal ball doesn't work, government's do much better, but you know, occasionally they get it wrong. The fact that the force was moved there by sea and that there is a lot of capacity means it can leave by sea. If the force shows up in ships, projecting air power from moving platforms, then it can leave quietly. If troops ashore like say, the Marines, then it's a little less quiet, but they can still move away somewhere else when it pays to do so. Otherwise they need permission, both to come and to go, and that presents both far more problems and far more loss of prestige on withdrawal. Fear of that loss of prestige can lock a government into disaster.

Sea based forces don't have to have permission to go places. Most of the time your government isn't interested in burning down someone else's country. However, it may be very interested in giving them the idea that they could get burnt down in future. After all, most of our business isn't the actual violence, it's letting them get the idea. If you have to have permission to be there, they can really throw you out and they don't suffer any unpleasant consequences. The ability to go in by yourself is extremely valuable.

Now in a lot of cases it may be that you do much better with coalition partners. However, the ability to go it alone tends to make coalition partners decide their national interest and go along with you. If they get vetoes, then there are always a lot of good reasons to veto whatever you want. You hear a lot about the United States being very unilateral (and here I'm speaking for myself, I'm not a US Government spokesman) we can go burn down Iraq by ourselves, we don't care. Clearly part of that is, 'You can't stop us'. Another part of that is, however, that many governments know they may want to join in but also know that local critics will say: 'Well, bad things will happen if you hurt this poor Saddam, a nice man you know, don't hurt him'. Our ability to go it alone gives those governments freedom of choice, because they can tell their local critics that nothing they do will stop us, they might as well follow their interests. During the Gulf War I think the Saudis were extremely nervous about allowing Americans in to protect Saudi Arabia, and you know that the Iraqis tried very hard to make them a lot more nervous. We showed up with three carriers, which provided the air defence of Saudi Arabia for a while. Once we could do it whether they wanted to or not, suddenly they realised they rather wanted us to. That made a big difference to us.

Is it always a good thing to be able to do it alone? Well, I must admit that every once in a while a government may try to do something by itself that isn't very clever. I know that many of our critics feel that we're about to do that. What can I tell you? We work for our governments, and while we do we have to assume they know what they're doing.

So the first thing about the sea as a venue for moving is that it's possible to move heavy masses and concentrated weight. Another example: When we were in Kosovo the question came up of whether we could deploy attack helicopters. It may be that the real story is the Army didn't want to use them, so they showed how difficult it was to deploy. But I would point out that the Marines had large amphibious ships, which were in effect moveable bases, and they could have deployed attack helicopters or any other sort of helicopters essentially instantly. Now whether that's desirable or not is a Government issue but the ability to go somewhere without preparation seems to me worth the effort. By the way, the other side of that is the talk that you're getting now about the danger of Al Qaeda putting things in containers and God knows how many shipping containers there are. Most of what travels around the world goes by sea and if someone subverts that traffic of course there are problems.

But the important thing is that there isn't a lot of geography at sea, and that makes a big difference. It also means that if ships cannot easily be detected in the open ocean and they can't by the way, if you're not stupid. That means that anyone facing a descent from the sea has to deal with a much larger number of different alternatives and that's a virtual reduction in his forces, that's leverage. If you have a numerically small but extremely competent land force, that is terribly valuable. The United States Marine Corps (USMC) is a good case in point. You may have others that you would think of. In any case, seaborne mobility gives such an organisation a lot of advantages, which it doesn't have if it has to land with permission, if it has to deploy in a more conventional manner. Those advantages come with a price. That nice naval package or sea based package is quite finite. The unit can't carry as much with it as a large army. On the other hand, if it's a lot more effective than whatever they're up against, that's perfectly enough.

Now, these arguments are not new. If you go back to the beginning of the 20th century, Mahan, who was a US Navy Captain, was extremely popular because he said that navies eliminate distance. Most trade is maritime, if you can cut maritime trade you starve people. He was a product of the American civil war. The Union Navy in the civil war imposed a very tough blockade on the South. Naval officers of his generation believed the blockage was decisive, therefore in navies they had the ultimate strategic weapon. Much the same as Curtis Le May would later say with bombers with H bombs. Now it turns out that no, it's not quite as decisive as all that. People faced with embargoes usually find work around, but when that's done in conjunction with something else it's terrifying. For example, the South did manage to break through the blockade, but at a horrible cost. The cost shredded their society, which probably had effects on whether they'd keep fighting. When they were fighting a hot war on land and they were denied a lot of stuff by sea, that made life a lot rougher. If you look at World War I with the Germans, it's clear that blockage alone couldn't stop them from operating, but if you look at the way they were say in 1917-18 the combination of the drain of fighting a war and being blockaded was a very interesting one. What does that say about sea power? It says it's very effective, but if you're going for ultimate objectives, by itself it's unlikely to be decisive. If the objectives aren't ultimate, the threats you can make from the sea are likely to be very effective ones. The business about being more independent of distance than land power I think is well worth thinking about. Mahan hoped for decisive action. As I say, it didn't quite work as he'd hoped.

These are the arguments against him. The main argument was that one of the elements of a sea power strategy is the descent of land forces on someone else's coast. That's what I've been saying. I'm not pushing your navy at the expense of everything else. I'm talking about a way of using national forces. In Mahan's day land armies were growing very rapidly and there were a lot of railroads. There was a fair chance that wherever you descended from the sea an army could build up very fast to face you down. That is certainly a part of the story of Gallipoli. I would add however, that Gallipoli was a much closer run thing than people realise, that despite an unbelievable catalogue of mistakes, which I'm sure you blame on the British, most wouldn't guess at that. It very nearly worked. The pay-off for working would have been that the Germans would have had a much tougher time in the East. If the French had held out at all, which they probably would have, the effect would have been absolutely devastating. That's the strategic view that I'm advancing. Otherwise you say, 'well why Gallipoli?' I mean, it is a strange, remote place. Well, because you get something out of that place.

Well what happens to mass armies? In World War II we learned that we can move enough mechanised materiel by sea that whatever force comes out of the sea can be fairly powerful. What's happened since is the cost of armies has goes up quite sharply. You find that the cost per man goes way up, therefore the number of people goes down. The number of organised units goes down. The best piece of news of all is that a lot of the people who probably would oppose you (and us also) aren't very wealthy. They're unlikely to be able to pay to replace or repair what they have. It used to be that they could get it free from the Russians or the Chinese. The Chinese seem much less interested in giveaways and the Russians have gone out of that business altogether. That suggests that the future of mass armies isn't good, that most armies will get smaller if they want to remain mechanised. But if they don't mechanise they'll probably be easier to destroy. From the point of view of a mobile high tech organisation, that's excellent news. Also you know that international trade is increasing, that people tend to specialise for economic reasons. That may mean that if access to the sea is broken, it's actually more important now than it would have been in Mahan's time. That may be one of the messages of globalisation. Again from the point of view of imposing national will by the sea, that is interesting.

Now I must tell you that if I'd been giving this talk say five years ago, I would have mentioned an American analysis that really there was very little in the world that

was more than a couple of hundred miles inland. Therefore, we could live with shorter-range naval aircraft. We could get rid of the tankers that allow us to project inland, because after all when would we ever really care about anything more than 100 miles from the sea, 150 miles from the sea. Then we discovered that there's a country without a coastline that we were recently involved in and there are two ironies. One, we got it wrong. Two, a lot of what we did in Afghanistan was maritime, which was interesting.

Figure 4: HMAS Brunei

Australia has a relatively small population, which is extremely well educated. You are very good at high technology, those are your strengths. As an outsider I apologise for talking about what you should do, but it would seem to me that you should get very interested in technological leverage, because if you can take a consolidated force and hit someone with it effectively, that's probably the best pressure you can make. If you need numbers, then even if you get the 50 million (as recently proposed, but apparently not terribly popular) that's still not a billion and a half right? Too, if you look at the new forms of commercial surveillance what you find is that photo satellites are really not very good at finding moving objects. They're very good at finding large concentrated objects. A client can certainly ask to look at his border and see if anyone is getting ready to attack. That almost means that large land armies setting up in advance where it takes them weeks or months to bulk up large concentrations are going to be detected-which by the way says that what the coalition army did in the Gulf War won't work. To do that massive flanking attack we had to build up a large force. If you're moving around, or your forces are relatively small and camouflagable—not a good word, but you get the idea. It would seem to me that your chances of effectiveness get better compared to larger more or less fixed forces. Land forces can't move that fast, because although the vehicles are quite fast they don't carry much with them,

so that they have to stop to fuel every so often. They also need lots of spares and maintenance. Even if the vehicles make 50 miles an hour on a road they can't keep that up for long. We're not as fast, 30 knots isn't 50 miles an hour and certainly not 500, but because we carry a lot with us at sea, we go a lot further.

A very good British Naval historian once said it this way. If you look at a convoy battle in World War II and the distance say from London to Warsaw, which in land terms is an unimaginable distance, the whole thing takes a couple of weeks. To cover the same distance on land you're talking about months or years. But the force is very thin. The number of troops would maybe be a battalion, maybe a couple of squadrons of aircraft. So when you're looking at what happens at sea, you're looking at things that are spread out. Things like reconnaissance and deception tend to count more at sea than they do on land. A phrase I once saw in a novel about land warfare was 'on land, geography is destiny.' If you're smart and you look at a map you can figure out what'll happen. Helicopters make life more interesting, but if mass has to go by road, there are only so many roads. It's not like that offshore. If I'm projecting land power from offshore, at least when I start, I can start from an unpredictable place. I can also reduce what has to go ashore by putting more of the firepower if you like, offshore. If it's all unified of course, I can then call on that firepower from offshore. Of course, you have to buy the right stuff to do that. In addition I may be able to keep more of the logistics base offshore, longer. That means I land less, I land a greater proportion of teeth. That can make it easier to move around. There are obviously limits to what I can land and obviously if most of the support is from aircraft, or missiles or guns offshore, there'll be times when things go wrong so that whoever goes ashore wants some organic backing. Right now for us is a major issue as to how much organic materiel the Marines have to carry ashore.

If you buy yourself a finite Navy, or finite sea based force, it has to do a very wide variety of things. Because you can remain in an area whether your liked or not, you can gather intelligence for an indeterminate amount of time. Very often your government wants that more than anything else. There's some crisis brewing, you would like to know what's happening and you'd prefer people not to figure out that you're finding that out. Even with satellites, which will eliminate your national treasury very rapidly, people know when they're around. You can't move them around very easily. You can to some extent, but that raises the price. With aircraft, most people who like aeroplanes can buy books showing all the

specialised aircraft in the world and they can easily guess exactly what they do. Submarines are different. Most people in this region can't find submarines to save their lives. So they are a way of gathering things covertly. The covert part includes not effecting an ongoing crisis until you decide to do it. That is valuable because it maximises your government's range of choices.

Once a decision has been made the same navy shows up for coercion. In that cases it is definitely worth while for people to see it. The fact that they can't throw it out by denying it a base of some kind makes a big difference. That says that larger more survivable surface ships buy a great deal. Since I work for a Navy that really likes big ones you might have guessed that I would say that, but that does not make it any less true. Then there's this. A lot of governments like to impose embargo's as a way of imposing pressure and your Navy has been very prominent in the embargo in the Northern Arabian Sea against Iraq. Well as I said before, embargo's don't often cripple, but they're a way of applying pressure. Flexible ships offer the widest possible choice, which means that the government, which pays for them, gets the most for its money. I apologise if what I say is obvious.

Then there's strike. I would distinguish strike from a protracted campaign because very often you want to show someone that you can come back and hurt them later if they stay out of line. For example, in 1986 we thought that the Libyans had ordered the bombing of that disco in Berlin and killed some Americans. We decided to give them a hard time. We went in and there was a mixture of carrier and land based very long-range air. I think the land base was to force the British to agree that they were in with us, they came from British bases. We were very big on making our allies be shown to be part of what we were doing. Again my guess, this is not official. The main point of this to me wasn't that we achieved enormous destructive effect in Libya, we didn't, everyone knew that. Later there was some talk that a couple of Tomahawks would have done the same job. What we did in Libya was we basically waltzed through with the air defence system and didn't get hurt. Then we'll come back later and do what we like. Well that seems to have impressed them, they didn't come back and do a lot more terrorism. We were pretty happy about that.

Then there were protracted ground campaigns and you may be about to see one. There I would say the pay off on projecting by sea is that we pick where we go. That means that it's much harder for someone else to mount a serious defence. Number two: if things don't do that well, we can beat it. Now, if you were a

Maritime power that thinks like that and you have more land oriented coalition partners, they generally don't appreciate this point of view at all. Their objective is to make sure that you stay with them and preferably that a lot of you stay with them more or less permanently. Your government's objective is to gain some kind of end – which isn't to be nice to whoever you're partnered with. Before World War I there was a discussion in Britain of whether they would basically go for maritime or a coalition land oriented view. It seemed to me, reading the discussion at the time, that the proponents of total co-ordination with the French on land were saying: 'well this naval stuff which is a sea power view, is sort of cold blooded, even reptilian. Well they lost a lot of people including a lot of your people showing how warm hearted they were towards their coalition partner. The last I looked you signed up to be Australians rather than citizens of some wider assembly of countries like, say, the Association of South East Asian Nations (ASEAN). Alliances are not the same as nationhood. Coalitions are often a very nice thing to have, but at some point your national interests may differ. The ability to choose I think is worth a lot. These are questions that come up. If you buy a sea power range of strategy, it costs. So how much leverage do you get out of sea power alone?

The answer is a lot, but not everything. This one is important. It matters what your objectives are. If you're a satisfied country (you qualify, we qualify) there isn't much territory that you really want all that badly. For example, we went in and overran Afghanistan. To Afghans presumably, Afghanistan is a very valuable place. I don't think that very many Americans would regard it as a terrific place to run. They may claim it's a strategic place between central Asia and Pakistan, but from my point of view we'd prefer not to be in a strategic place at all, it's a miserable place, you know that. Our interest was in destroying a safe rear area for Al Qaeda. That's a transitory interest. You go in and do something very unpleasant and then you find something else to do. Because we have forces that are very easy to redeploy, that's possible. Once you land somewhere and you garrison it, it suddenly becomes terribly important. That's a very distorting thing. You've had a little experience of that and we've had a whole lot more. How much did you really care about the merits of Vietnam? Well it was part of a larger war. How important was Vietnam itself? Once we'd invested enough bodies, we couldn't figure that one out. If you look at different places that people describe as strategic, usually they're strategic as part of some bigger war. When the bigger war goes away, our national strategy is going to change, or at least the details

will change. The less that you're forced to buy permanent presence in places the happier you're going to be. So you want the benefits of being there without the bad part about having to be there permanently.

If I get a lot out of the fact that my enemies can't figure out where I am, then how long does that last? All I can tell you is that I spent a lot of time studying how we tracked the Soviet Fleet. It's hard to track moving ships at sea especially if they don't co-operate. The methods we used, passive satellites, some radar satellites, don't really correspond to commercial satellite applications. That says to me, that probably the future of the sea sanctuary is better than the future of a lot of others. When you buy ships, and now I'll get to specific naval things, there's a tendency to specify exactly what you're supposed to do. The trouble is they last a long time and your crystal ball tends not to be all that hot. So actually a bit bigger pays off. The reason a bit bigger doesn't really cost that much is that what supports a ship at sea is buoyancy, you don't have to pay a lot just to sit there. If you buy yourself a much bigger aeroplane you have to spend a lot more on propulsion. If you buy yourself ten million more tanks, you've bought yourself ten million tanks. So for me as an American it has to be easier to modify, and by the way, also a lot harder to sink if you design it right. All of these things they don't automatically work, if you're a dummy you do it wrong, and bad things happen to you, you've been in this business long enough to know that.

There's a lot of interest in netting and remote sensing. Navies probably do more of that right now than other services, because ambiguity and reconnaissance play a larger role in naval warfare, because they're more spread out. One thing you will see, that is if the Army is going more towards what we call digitised battlefield, where netting allows a small Army unit to attack beyond its own horizon. You'll see them split into smaller units and their thinking will be more like what we associate with naval thinking. The great problem is they'll have to solve logistics problems, which don't occur at sea. By the way, also if you get a lot more lethality out of a numerically small but very sophisticated army unit, that becomes a very natural thing to project by sea and if it's very lethal, it's really a nasty thing to project. You know there's a lot of interest in stealth. This is not the right talk for it, but I think stealth probably will not last that long, because computers get better all the time. That says 'don't worry so much about stealth, be survivable'. The weapons don't get much better. It's not that easy to sink something if you make it a bit bigger right.

Let's look at some historical cases. The point I want to make is that there are really different ways of looking at wars. Look at the two World Wars. I was a Defence analyst for years during the Cold War. You know that we always talked about the central front. Now the central front was called central because it was the middle of the West German border. But obviously many people thought the central front was central to what would happen. So the question always was, what if the Russian Army was any good? I question now whether it was. If they were good, they would overrun all of Germany and France and they get to the channel. Well would that win World War III? Our answer in Maritime strategy was—NO. World war three would really be about whether Russians would dominate the world. We wouldn't like it if they reached the channel. I mean, we would prefer the Europeans still to be intact. On the other hand we also had this sneaky feeling that some of them might decide to avoid having their countries completely trashed by surrendering. Our answer was 'Guess what? The war doesn't end when you give up, so you may as well fight'. This was not always popular for some reason. I can't imagine why, but that's really a difference in outlook.

Figure 5: Troops disembarking at Balikpapan

The other thing was this if you look at the central front in the Cold War and you imagine a war actually occurring, it becomes a horrible meat grinder like the Western front in World War I. So if you're an analyst and you think that you're earning your pay. The question that comes up is 'was there some way to fight World War I in which a whole generation of Westerners didn't get killed?' Well, I was involved in maritime strategy in the United States and in effect we were saying 'yes there is', because if you look at the seaward flanks of any advance into Europe, those flanks become terribly interesting. If you present a real threat to those flanks, then whoever is advancing has to take account of it and probably

has to pull back until he secures it. That means that if you're willing to take real risks at sea, because flanking attacks are going to be expensive and tricky, then there is a way of slowing down a Soviet advance. Now why would you care about that? Because a lot of the North Atlantic Treaty Organisation's (NATO) strength was mobilisation strength, they were a lot of reservists. They couldn't maintain standing forces the size of the Russians, but if you could make sure that any war in central Europe was in slow motion, there was a fair chance that the odds would even up. Another example of maritime was in the Far East. We got very friendly with the Chinese. The Russians had a feeling that one day the Chinese would like to have Siberia back. The Chinese have maps that show that the Tsarists stole Siberia and that it was very unfair—and it was only a mere three or four hundred years ago (as you know that's moments) and the Russians would never quite forget that possibility. So that would tie down fairly large Russian forces. They really couldn't redeploy them because of poor communications, but we were interested also in tying down mobile forces. For example, anti ship bombers, subs things like that. What we got out of having a strong Pacific Fleet was they couldn't bet that we didn't have a secret deal with the Chinese to overrun Siberia when the good times came. I would imagine the Chinese didn't want any part of it. But you can do attacks that look as though you're preparing for them to go in and then let them explain in Moscow later. That's the kind of thing you get out of mobility. Would it have been decisive? We think it would have been kind of useful. We thought that having minor amphibious forces we'd make them worry a lot about places like Saint Petersburg. That's a very sobering business. Just the idea that we could march them in places that were asymmetric for them probably sobered them up a lot, and we think we got a lot of mileage out of it.

Now look at a World War I example. If you were British and you didn't feel culturally close to the French, you might ask yourself what the biggest threat was. You might say something like, 'OK, if the Germans are most sensitive about say East Prussia where the German military elite came from, pay the people who will give them the hardest time right? Go in the Baltic and threaten to land there'. The Germans tried to laugh that off, but I don't think it would have been very funny, I think it might have worked.

Another example shows how bad things can be: the Crimean war. The Crimean War in its time was called the Russian War. It was really about getting the Russian Empire to stop threatening various places including Turkey. So the question was

'how do you deal with these Russians? They have a big land empire far away, so what do you do?' The first idea the British had was 'we'll make a maritime raid. There's a place—the Crimea—in the Black Sea, and the Russians are threatening the Turks in the Black Sea. We'll grab the Crimea as a demonstration of our power and our will.' Apparently their intelligence was terrible. They didn't realise the Crimea was actually well defended and that they'd get bogged down there. As soon as they bogged down there, suddenly the war was about the Crimea. The British Cabinet developed the idea that if ever they won in the Crimea the war would end in their favour. This was absolute insanity. From the Tsar's point of view, the Crimea was a useless place in the Black Sea far from where everyone cares. He didn't really care about his own troops. It was perfectly acceptable to use up a few more troops and tie down the enemy. There was no way that the loss of the Crimea would shatter the Russian Empire. The British had to find something that mattered.

Well in the Baltic the British figured out there was something that mattered and that was Saint Petersburg. About 1855 the British took a Russian Sea fortress called Sveaborg, that's usually treated by historians as a sort of a cute but irrelevant stunt. Well the Russians felt a little differently. Those defences weren't very different from what was defending Saint Petersburg. Also because security wasn't brilliant, the Russians could watch the British building a specialised force that would have taken Saint Petersburg. That is, you could see the force being built and you had the demonstration it would have worked. The Crimea might not matter, but Saint Petersburg really did matter and probably that threat had a lot to do with the Russians deciding that this was not really a whole lot of fun. There were other things also. The point I'm making is that a sea power way of thinking assumes you can go anywhere along someone else's periphery and that very often there's some place other than where you happen to be that gives you a bigger pay off. It's about leverage. Now if you have an army with ten million people, all of them feel like getting killed for Allah, then presumably leverage and economy are not all that important. I doubt many—if any—such armies exist.

If I look at World War II, look at Churchill after June 1940, the thing that they were so desperate to prevent had just happened. By the way, they don't have an ally in the East giving the Germans a hard time. This is a pretty bad thing. People don't like Churchill says well, he had this mystical vision that there was

some way out, but of course he was crazy and we should have settled. Well no, he was a historian. If you look at their previous wars like the Napoleonic War, what happens is as long as the British stay in business, they can keep forming coalitions, and eventually they form one that busts the French, it takes a while. Things don't always work. You go in, you land troops, you try to do something, something goes wrong, you take them home and land them somewhere else. Now you can see that either as (somebody at Newport once said) a Mrs Mcawber type of strategy: 'Something will turn up'. Or you can see it as a very reasonable way of using sea power. By the way, part of the sea power story was that they had access to world resources, including incidentally, yours. That made a tremendous difference. Now I would guess that at some point Churchill said to himself. It's 1800 again, or 1801 or whatever. The other side runs the continent, but they can't jump the Channel, let's give them a hard time and eventually we'll get friends. His guess was that he'd get us. The Russians were not as satisfactory, because they probably would have enjoyed also seizing all of Europe, which would have meant another unpleasantness later, but you work with what you've got. That's a very different view. If you look at casualties in two World Wars, you'll notice that your chance of survival as a British soldier went up rather dramatically in World War II, even though army people feel that they didn't do that good a job in places like Normandy. They didn't know how to combine arms properly. Still, the peripheral approach really was a very good one. In wars you don't get high grades for showing how tough you are, you get high grades for winning. If someone else wants to bleed as part of your war, that's his business. He has his own government.

If you look at the Pacific War, there's a real question of what the war aim is. For the US Navy, which I regard as correct, the war aim is simply to defeat the Japanese. After they lose they disgorge whatever they've grabbed, that's the end if it. The view taken by the US Army in a lot of its historical work is that war was about how evil it was for the Japanese to seize the Philippines, which we owned. How important was taking back the Philippines? Did it win the war? No. Were we still fighting there on Victory over Japan Day? Yes. Did it eat up a lot of people? Yes.

The last thing I'll tell you is if you look at Afghanistan, the only reason we were able to go into Afghanistan was sea-based power. Now sea based doesn't mean it's just sailors, don't get me wrong. If I look at Afghanistan, problem one is if you're going to make an attack in Afghanistan where does it come from? Well no

one in the region is all that hot to play with us. In many cases they won't try and stop us flying overhead, because we'll bomb them, but other than that they're not interested. Well, we could strike at Afghanistan from carriers. The problem was that we'd gone cheap on carrier based tanking, so we absolutely had to have that amount of co-operation. That is, we absolutely needed to have bases available with tankers. In fact, Australia contributed some tankers. However, the strike at least didn't have to be land based. That made a tremendous difference in how much we had to pay people to let us in. In the ideal world we would have kept the A-6Es and we would have been able to do it off the carriers by themselves. The world is not ideal; our crystal balls are not perfect. The second thing was do you need ground forces? Well you now hear about how these special forces people in Northern Afghanistan would act as the artillery for the Northern alliance and people say 'what do you nee troops there for, look at what you can do from the air?' First, it's what we can do from the air in support of a ground army. No ground army—no fun. Secondly, in Northern Afghanistan there were a lot of people who had good reason to really hate the Taliban, so we said to them 'We'll help', and they said 'Great idea', once we demonstrated that we were serious. And by the way that took a little while, they play. So Northern Afghanistan works pretty well without a lot of American troops.

Now let's ask about the other half. If you look at Southern Afghanistan, actually more South Eastern Afghanistan, which is mostly Pushtuns (the Taliban were Pushtuns) one of the mistakes was that we thought of it as an ideological split; it was more ethnic. You know, we may not like the brand of Islam that they're pushing, but by god they're our creeps not yours, so we'll back them up. That meant that there wasn't going to be any Southern alliance spontaneously forming to kill the Taliban. What do you do? Well I would argue that moving those US Marines that took Camp Rhino near Kandahar was not just a cute stunt, but instead was absolutely decisive. It was decisive because once we had a serious fighting force on the ground in Taliban country, then that convinced a lot of other Afghans that we were serious and that we weren't backing. Second, the Taliban had a choice. They could try to wipe out our Marines, or they could basically admit that they were powerless. They admitted powerlessness. Well that killed their prestige a lot. Now the Marines complained that there weren't enough of them to go out and do offensive action, so they felt weak. No, they were decisive. Now, why did that work? It worked because their logistic and firepower

base was at sea where we could move it around easily and as little as possible had to move inland and it was very effective. That is a sea power kind of application. You get a lot more for your money when you have real national mobility, when everyone can move freely at your government's dictate, when there's enough fire power offshore so that what lands really gets backed up against opposition, and fire power has to include aircraft.

I apologise if I've imposed on national decisions here, but it's a kind of strategy I think is well worth thinking about as an integrated strategy. Thank you and now is your chance to throw tomatoes back at me.

Australia's Maritime boundaries data: strengths and limitations

4

Mr Bill Hirst

A 1988 cabinet decision assigned the National Mapping Division of Geoscience Australia (GA) (then the Australian Surveying and Land Information Group (AUSLIG)) with the responsibility of determining Australia's maritime boundaries and providing related advice to government. This charter was reaffirmed in the 1996 budget.

To facilitate the fulfilment of this charter, GA has developed the Australian Maritime Boundaries Information System (AMBIS). This paper describes AMBIS with emphasis on its unique strengths and its inherent limitations.

The maritime boundaries

In late 1994, Australia ratified the United Nations Convention on the Law of the Sea (UNCLOS) and the convention officially came into force in November 1994. UNCLOS is a very significant agreement providing international conditions and limits concerning the use and exploitation of the earth's oceans. Included in UNCLOS are rules on how member States (countries) define their maritime jurisdictional boundaries.

Under UNCLOS there are a number of maritime zones defined by their distance from the land, or more precisely, the Territorial Sea Baseline (TSB) (Figures 6 & 7). Australia's maritime zones are:

- Territorial Sea (0-12 nautical miles). Australia has almost full rights although must allow innocent passage.
- Contiguous Zone (12-24 nautical miles). Australia may exercise control to prevent or punish infringements of customs, fiscal or sanitary regulations.
- Exclusive Economic Zone (EEZ) (12-200 nautical miles). Australia has the right to explore and exploit sea bed and water column.

- Continental Shelf (12-350 nautical miles). UNCLOS allows for a country to claim seabed rights on continental shelf areas to a limit (usually 350 nautical miles from the TSB) where a physical continental shelf exists beyond 200 nautical miles.

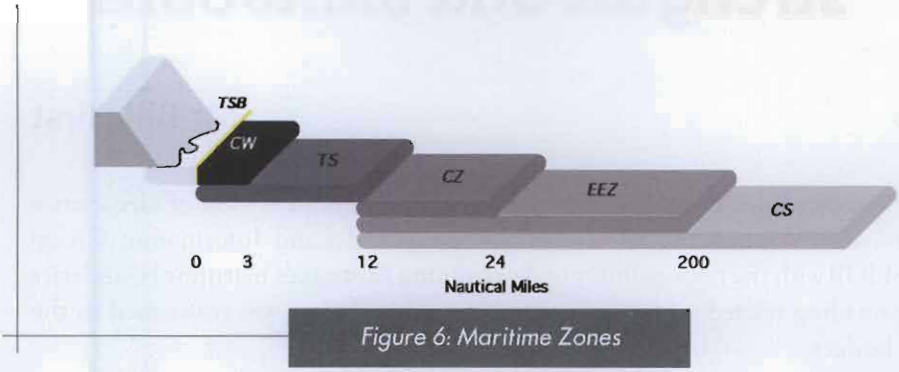

Figure 6: Maritime Zones

Other zones relevant to Australian legislation are:

- Coastal Waters (from the constitutional limits of the States and the Northern Territory to 3 nautical miles from the TSB). States and the Northern Territory have certain jurisdictional rights [This zone was agreed in the 1980 Offshore Constitutional Settlement and is defined in Coastal Waters legislation].
- Australian Fishing Zone (3-200 nautical miles). In most cases, the outer limit of this zone is identical to the EEZ boundary. (Defined by Fisheries Management Act 1991 including the amendments to that Act made by the Maritime Legislation Amendment Act 1994.)

Extended Continental Shelf (ECS) claim

Australia is entitled to the seabed of the continental shelf where it extends beyond the EEZ. The Law of the Sea Group within Geoscience Australia is responsible for the collection and analysis of the seabed data necessary to assert this right. This data must be submitted to the United Nations Commission on the Limits of the Continental Shelf (CLCS) to establish formal international recognition of the limits of Australia's ECS jurisdiction.

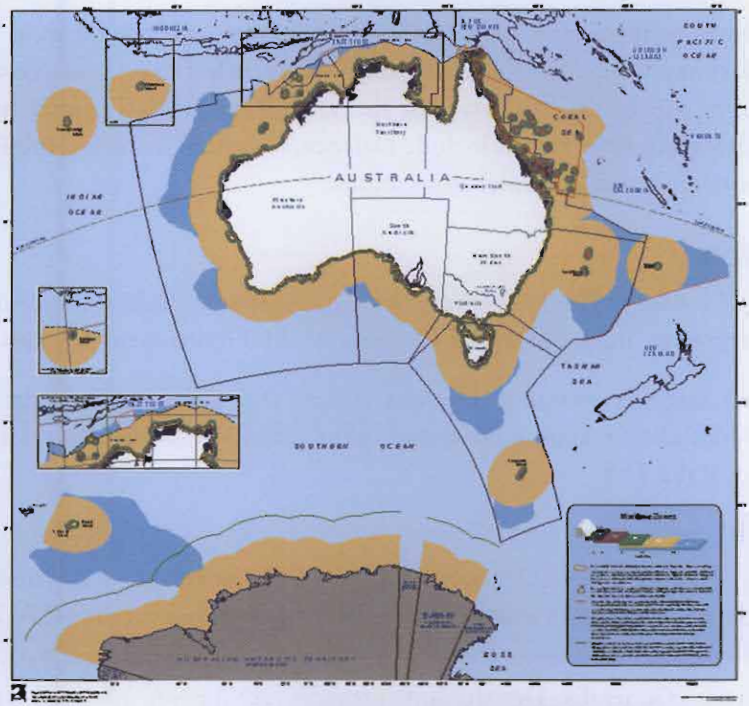

Figure 7: Australia's Maritime Zones

Australia's maritime boundaries data

AMBIS is an ArcInfo[1] Geographical Information System (GIS) containing a digital representation of the TSB and related information including the limits of the maritime zones mentioned above. GIS technology allows areas, lines and points in a database to be linked to descriptive attribute information. AMBIS uses this capacity to store information on the origins and accuracy of the data.

AMBIS data are freely available on the Internet for all of the boundaries of the zones described above. This data have been computed using rigorous algorithms, which allow for the curvature of the earth (spheroid).

The spheroidal calculations are complex and required the development of specialised software. This software, MARZONE, was developed by the Department of Geomatics, University of Melbourne, under contract to GA.

There is a steadily increasing demand for information on the location of Australia's maritime boundaries. In particular, native title claims over coastal areas need to be represented in terms of the impact on State, Territory and Commonwealth areas. Other users include Defence, Customs, Fisheries, mining and exploration, and environmental applications.

Co-operation

The Maritime Boundaries Program relies on the continued support of the State and Territory governments and a number of Commonwealth Government agencies.

The state and territory mapping agencies supply the Maritime Boundaries Program with coastline mapping data, and other information, to assist in the determination of the TSB.

Commonwealth agencies assist as follows:

- Australian Hydrographic Office provides digital charting information, bathymetric surveys of critical areas, Laser Airborne Depth Sounding (LADS) data and charting advice and assistance.
- The Attorney General's Department provides advice on national and international law and assistance with international treaty negotiations.
- The Department of Foreign Affairs and Trade (DFAT) also provides advice on international law and guidance on diplomatic and United Nations issues. DFAT has the lead role in international maritime delimitation treaty negotiations.
- Geoscience Australia's Law of the Sea Group provides information on the determination of Australia's continental shelf.

This high level of co-operation means that AMBIS uses the best possible coastline data. The Commonwealth co-operation ensures that the data are produced in accordance with international and domestic law and represent the best interests of Australia.

Related laws and conventions

UNCLOS provides the framework for the Maritime Boundaries Program work. Also relevant are a number of Australian Acts including the Seas and Submerged Lands Act (1973) and the Petroleum and Submerged Lands Act (1967), and the Offshore Constitutional Settlement Act (1980) is also relevant.

Defining the Territorial Sea Baseline (TSB)

Critical to the determination of all maritime boundaries is the determination of the TSB around Australia and its offshore international territories. Essentially, the TSB is the line of Lowest Astronomical Tide (LAT) however UNCLOS allows for the TSB to jump across bays (bay closing lines) and river mouths (river closing lines) and between islands and along heavily indented areas of coastline (straight baselines) under certain circumstances.

The TSB was originally determined in the early 1970s by AUSLIG's predecessor (Natmap) based on small scale mapping supported by some aerial photography. GA has completely revised this data and added relevant attribute information on data quality, including lineage (history), to create a comprehensive GIS database.

Determining Lowest Astronomical Tide (LAT)

Article 5 of UNCLOS defines the baseline as "the low-water line along the coast as marked on large scale charts officially recognised by the coastal State". "Low-water" is not defined in UNCLOS and Australia has elected to use the LAT), as this is the datum used on hydrographic charts. The use of LAT also maximises the area Australia can claim under UNCLOS.

Hydrographic charts are primarily concerned with navigational hazards and water depth but not specifically the line of LAT. Topographic mapping typically defines the coastline as the line of high tide (usually mean high water). Accurate determination of LAT can, therefore, present some difficulties, particularly in areas of large tide range and gradually sloping foreshores. Such areas are common in the north of Australia and some of these areas are also largely uncharted. Remote sensing data has been used in some of these areas.

Limitations of the data

Data versus legislation

The maritime boundaries provided in AMBIS represent the best available location of the limit of the various jurisdictions. These are not, however, definitive. As quoted in the AMBIS user guide:

> AMBIS 2001 data is a digital representation of the territorial sea baseline and of the outer limits of Australia's maritime zones. The

baseline and zones are established under the Seas and Submerged Lands Act 1973. The data also includes a representation of the limits by which the adjacent areas of each of the States and of the Northern Territory are determined under the Petroleum (Submerged Lands) Act 1967. In the event of an inconsistency between AMBIS 2001 data and the baselines and limits under the legislation, the latter prevails.

Accuracy of the data

The planimetric accuracy attainable in AMBIS data will be the sum of errors from two sources:

1. The positional accuracy of the source material
2. Errors due to the digitising process.

It should also be recognised that the accuracy described relates to the features at the time of survey. Some areas of the coastline, in particular beaches and mud flats near river entrances, may move over time.

The uncertainty stemming from the source and digitising process can be estimated (in appendix) at:

> 0.35mm at map scale or 0.43mm at map scale when digitised from aerial photos superimposed upon topographic maps. This equates to 90% of well defined points being within 90 metres at a source scale of 1:100,000.

These figures are based on points being well defined. In many cases however the coastline cannot be well defined. The uncertainty of the definition of the low tide line is estimated in table 1.

Foreshore type	Estimated Uncertainty
Rock / Reef	5-10
Sand	10-30
Mud flat	50 - 100

Table 1: Low tide estimates

This uncertainty combined with the source and digitising accuracy combine to give an overall figure of uncertainty for the majority of AMBIS data at +/- 150 metres.

Movement of the coastline

The above estimate of the uncertainty of AMBIS data is relevant at any particular point in time. However the coastline changes over time. These changes are generally small and tend to oscillate with storm erosion followed by gradual accretion. In most cases the changes fall within the uncertainty given below.

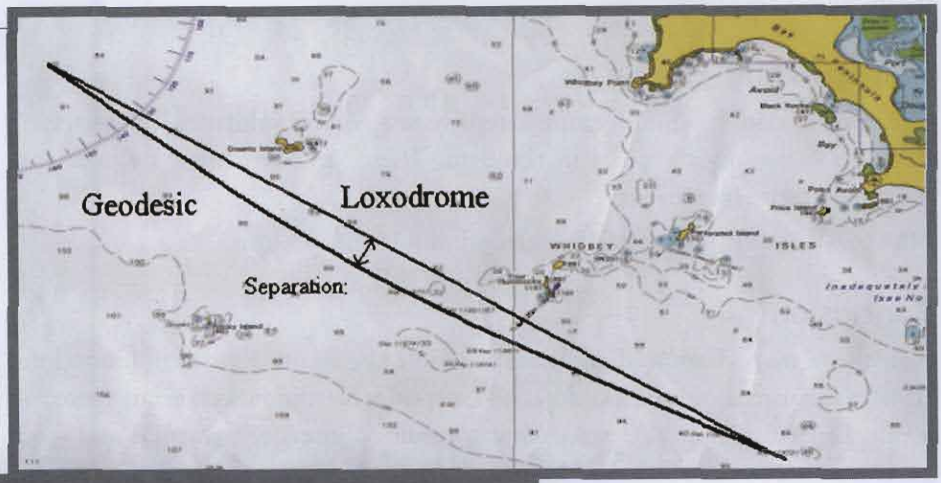

Figure 8: Geodesic and loxodrome separation

Occasionally however the changes can be more significant particularly where small islands appear or disappear. The location of the baseline in such circumstances can be unclear.

The Maritime Boundaries Section in GA will provide advice based on the latest available information.

Loxodromes versus geodesics

Many Treaty boundaries and proclaimed maritime boundaries are defined as being the geodesic (approximately the great circle, or shortest distance) between two coordinated points. However when such lines are shown within a GIS system they will normally plot as a loxodrome (line of constant bearing). This is shown diagrammatically below (figure 3).

The maximum difference between geodesics and loxodromes depends upon the length of the line, the bearing of the line and the latitude of the line. However the difference can be significant. For example, a line of 250kms can have over 200 metres separation between the different line types.

It is proposed that the next version of AMBIS data will contain intermediate points along long treaty lines.

Human error

The AMBIS data have undergone extensive testing and validation. Nevertheless there are some minor errors in the data. These, and any other cautions, are recorded on the Internet at:

http://www.auslig.gov.au/mapping/marbound/updates.htm

Conclusion

As with any map, chart, or digital data users must be aware of inherent limitations. AMBIS maritime boundaries data is no exception. Nevertheless the data represent a valuable national asset developed as a result of inter-departmental and inter-government co-operation. The boundaries have been rigorously computed, are well attributed and represent the best available location of the limits of Australia's maritime jurisdiction.

More information on Australia's Maritime Boundaries can be found through the AUSLIG Web site at http://www.auslig.gov.au/marbound/ambis.htm

References

Seas and Submerged Lands Act (1973), Australian Government Publishing Service.

United Nations (1983) The Law of the Sea, United Nations Convention on the Law of the Sea (UNCLOS).

United Nations Office for Ocean Affairs and the Law of the Sea (1989), Law of the Sea - Baselines - An examination of the Relevant Provisions of UNCLOS.

AMBIS Technical Specifications (1997) AUSLIG, Quality Controlled Document

AMBIS User Guide (2001)
http://www.auslig.gov.au/download/usrguide/ambis_usrguide.pdf

Appendix

Positional accuracy of AMBIS data

The positional accuracy of the source material

This specification cannot prescribe planimetric accuracy for existing source material. Much of this data has been sourced from a variety of Commonwealth and State agencies. There is an *expectation* that the source data complies with the following statement:

Not more than 10% of well-defined points shall be in error by more than 0.5mm measured on the source material.

Statistically, this relates to a standard deviation on the map (Sm) of 0.31mm.

Well Defined Points

While the above criteria are reasonable for small scale maps and charts, the LAT line is far from 'well defined'. This can be significant at scales below 1:250,000.

This level of uncertainty is greatest where the foreshore is flat and tide range large (for example mud flats in northern Australia). Similarly the uncertainty is small where the coastline is comprised of steep rocky cliffs. Sandy beaches lie somewhere between these extremes.

Generally speaking, foreshores are flattest inside bays while headlands are usually steeper. This is convenient for maritime boundary considerations as the critical points for most boundaries lie on the headlands where uncertainty is lower.

The table below is a purely subjective estimate of uncertainty based on staff experience. It is an estimate of normal uncertainty on headlands or long beaches/mud flats as opposed to coastlines within bays where uncertainty would normally be greater.

This fuzziness of the LAT line can be seen to be largely insignificant at scales of 1:300,000 (0.5mm = 150 metres) and smaller however should be considered when estimating the accuracy of large scale maps and charts.

Foreshore type	Estimated Uncertainty
Rock / Reef	5-10
Sand	10-30
Mud flat	50 - 100

Errors due to the digitising process

The errors due to the digitising process depend on the accuracy of the set-up, systematic errors in the equipment, errors due to software and errors specific to the operator. An accepted standard for digitising is that the line accuracy should be within plus or minus half a line width. The majority of features in AMBIS have a line width of 0.2mm to 0.25mm. Not more than 10% of well defined points will be in error by more than 0.25 mm. This equates to a standard deviation of digitised data of 0.16 mm.

In some instances, the baseline was determined using large-scale aerial photography with the resultant lines being transferred manually onto topographic maps prior to digitising. This process results in higher digitising uncertainty. In this instance, based on empirical evidence, the standard deviation of the digitising process is estimated at 0.3mm.

Care has been take to ensure that there has been no bias in the digitising process. In other words there is no consistent offset in the position of the features.

Combined accuracy of spatial data

The combined error resulting from the source data and the digitising process can be calculated as follows:

$$S_{total} = \sqrt{(S_{source})2 + (S_{digitise})2}$$

$$= \sqrt{(0.31^2 + 0.16^2)}$$

$$= 0.35\text{mm at map scale for data digitised from source material.}$$

This equates to 95% of all well defined points being within approximately 70 metres of their true position when based on a 1:100 000 scale map or chart.

or

$$S_{total} = \sqrt{(S_{source})2 + (S_{digitise})2}$$

$$= \sqrt{(0.31^2 + 0.3^2)}$$

$$= 0.43 \text{ mm at map scale for data digitised from aerial photos.}$$

This equates to 95% of all well-defined points being within approximately 90 metres of their true position when based on aerial photography information transferred to a 1:100 000 scale map or chart.

East Timor and maritime boundary delimitation 5

Professor Stuart Kaye

The maritime boundary between the island of Timor and Australia represents one of the longest and most convoluted sagas in maritime boundary delimitation. Beginning in the early 1970s, the latest phase of this epic has only recently been concluded, and yet even that is not the definitive end of the story. The process has involved litigation before the International Court of Justice, the High Court of Australia and before the Federal Court of Australia. The negotiations have involved at least four different countries at different times and so East Timor and its maritime boundary with Australia is certainly one of tremendous interest. This paper will consider the development of the boundary, and the issues faced by the States variously charged with its negotiation.

East Timor was annexed as a colony of Portugal about 400 years ago. In respect of the offshore practice of the Portuguese, at least through the 19th and 20th centuries, the view was taken that the territorial sea should be three nautical miles wide and this was applied to all Portuguese territory including East Timor. As international law developed, Portugal, as did many other States, took advantage of the extensions in maritime jurisdiction. It proclaimed a continental shelf around all its territories, including East Timor, and issued permits for the exploration and exploitation of the seabed in these areas.

Over the 400-year period of the Portuguese presence in East Timor, a number of changes of sovereignty occurred in the region. The Dutch annexed most of what is now modern-day Indonesia in the 17th, 18th, and in case of the western half of New Guinea, 19th Centuries. During the Second World War, the Japanese arrived and displaced not merely the Dutch, but also the Portuguese for a time. The Dutch attempted to return to modern day Indonesia and were forcibly ejected by the local population leading to the creation of the modern State of Indonesia in the latter half of the 1940s. An independent Indonesia sought to assert a continental shelf and ultimately an Exclusive Economic Zone (EEZ) and in this

maritime boundary agreements with a number of States, including Australia, were rendered necessary. The first attempts at negotiation of a boundary with Australia occurred in the early 1970s. At that stage, Australia and Indonesia both claimed only a continental shelf where any overlap was likely, so it was appropriate for the two states to negotiate a continental shelf boundary.

About one third of the relevant boundary between the two countries was settled in 1971, with a delimitation principally based on the equidistance. This is the portion of the boundary running from Torres Strait, or its immediate vicinity, through to a point to the east of the island of Timor. After that, the rest of the boundary was thrown into issue, as Australia was able to present an argument based on the natural prolongation from the continental shelf. In 1969, the International Court of Justice in the *North Sea Continental Shelf Cases* indicated that it favoured the use of submarine features to represent the natural prolongation of land territory to determine continental shelf boundaries. This argument was relevant to Australia in its negotiations with Indonesia because in the vicinity of the island of Timor, there is a feature known as the Timor Trough. The Timor Trough is substantially deeper than the water around it. It drops to a depth of about 3, 500 metres at its deepest point, compared to a depth of about only 200 metres in the other portions of the Timor Sea. It is a substantial feature and arguably represents the boundary of the Asian and Austro-Indian tectonic plates.

The Timor Trough is substantially closer to the island of Timor than it is to Australia, so any boundary using it would naturally favour Australia over the use of a median line. Impressed with the weight of international law, Indonesia accepted a compromise that used the southern side rather than the axis of the Trough, a position that still substantially favoured Australia. The boundary was formalised in a treaty between the two States, and remains in force to the present point in time.

The portion of the hypothetical boundary that faced East Timor was not defined as East Timor was still Portuguese territory at the time of this agreement. In 1972 and 1973, Australia approached the Portuguese Government to seek to delimit a boundary for the 'gap' in the continental shelf boundary, but they were not interested. Shortly after, the Portuguese Government was overthrown, and the post-revolutionary government decided to quit East Timor and the other Portuguese colonies around the world. The part of the boundary between

Australia and the eastern half of Timor remained undefined, and became popularly known as the Timor Gap.

The Timor Gap

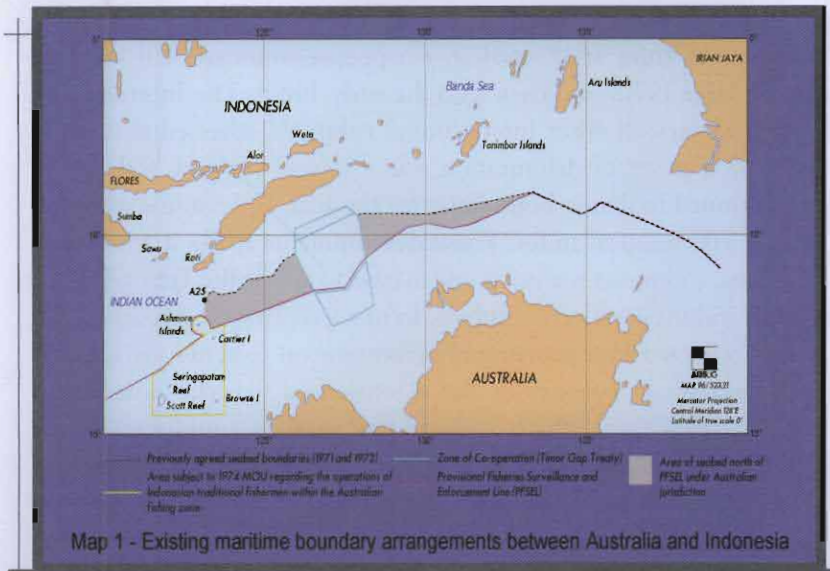

Figure 9: Maritime Boundary Arrangements between Australia and Indonesia

In 1975 things changed drastically for the people of East Timor. Portugal abandoned the territory, and law and order broke down as different local political factors sought control. The civil war which followed ultimately culminated in the Indonesian occupation and subsequent annexation of East Timor in 1976. A United Nations Security Council resolution required Indonesia to withdraw from the territory, but the resolution was not complied with.

At this point Australia was faced with a difficult issue. Australia had initially protested the Indonesian occupation of East Timor. However, continuing to seek negotiations on boundary delimitation with Portugal was fruitless as they had left the region altogether, and the Gap region was likely to contain commercial hydrocarbon deposits. As such, in 1978 Australia began tentative discussions with Indonesia to decide on remainder of the boundary. This amounted to *de facto* recognition that Indonesia had occupied East Timor. In 1979, to further those

discussions Australia formally recognised *de jure*, the Indonesian occupation of, and title to, East Timor. This would allow negotiations to take place between Australia and Indonesia so that the boundary could be delimited.

In the negotiations over the Gap seabed boundary, Australia proposed that the boundary should be continued along the line along the southern side of the Timor Trough. Unfortunately, from an Australian perspective, international law had evolved and in the later 1970s and then into the early 1980s. The International Court of Justice and various other international tribunals, assessed that using a natural feature as a point of delimitation was a flawed concept and that it should not be continued to define boundaries for the EEZ and continental shelf boundaries within 200 nautical miles. These developments made it reasonably plain that in this area, Indonesia was not going to have to accept the Timor Trough as a boundary. The Indonesians were emphatic in not accepting the Trough as the boundary. This is reflected in a provisional agreement on fisheries jurisdiction reached in 1981, rendered necessary by the extension of fisheries jurisdiction by both States. The provisional fisheries boundary uses an equidistance line, substantially closer to Australia than the continental shelf boundary. Such was the level of Indonesian dissatisfaction with the shelf boundary the Indonesian Foreign Minister went on record to say that Indonesia had been "taken to the cleaners" by Australia, and that this would not happen again.

Negotiations continued intermittently through the 1980s, with the solution being reached in 1989 with the conclusion of the famous Timor Gap Treaty. This was an effort to set up a provisional joint development zone (JDZ) in the area of the Timor Gap to allow for hydrocarbon exploitation. The treaty itself is an example of one of the most complicated JDZ arrangements in the world. It provided for joint jurisdiction over much of disputed area in the Timor Sea. The disputed area was divided into three parts with the part closest to Australia being administered by Australia, with a remission of tax revenues back to Indonesia. The part closest to East Timor was to be administered by Indonesia with a portion of any tax revenue generated being remitted to Australia. Returns from these waters were unlikely, as the waters are several thousand metres deep. The middle part which was bounded in the south by the median line (representing the favoured Indonesian position) and in the north by the southern side of the Timor Trough (representing the favoured Australian position). This was to be an area of joint jurisdiction, joint

administration, and all the oil and gas produced would be owned and managed by a Joint Authority. The petroleum products of this area would then be sold to petrochemical companies with revenue being remitted to the Joint Authority to be divided equally between Australia and Indonesia. Complicated arrangements to provide for the employment of equal numbers of Australians and Indonesians and for the distribution of taxes were established. The agreement also provided for petroleum product sharing contracts to be negotiated between the petroleum producers and the Joint Authority. All revenues and responsibilities were divided equally, to an extent that is so extreme, that when the Timor Gap Treaty was signed, it was decided that the place to do it was in an aircraft circling above the Timor Sea. In this way neither country would have the honour of actually having the Treaty signed in their own State. This is possibly the only instance of an international agreement being signed in an aircraft over a portion of the ocean.

In 1997, Australia and Indonesia reached an accommodation with respect to the remainder of the maritime boundary between them, including the Exclusive Economic Zone boundary right through the portions of their territories from Torres Strait all the way through to the end of the Australian EEZ and on out into the Timor Sea. This accommodation included the boundary between Christmas Island and Java. The EEZ boundary initially follows the median line between the two States, which sees it well south of parts of the older continental shelf boundary. These boundaries mean that in some areas, the Indonesian water column overlays Australian continental shelf. Large oil deposits have been found in these areas. The Timor Gap Treaty arrangements were retained and continued. Although the Gap Treaty was intended to be temporary the Joint Authority had started to return a profit to the two States and they were both delighted to allow the arrangements to be continued indefinitely.

The agreement was signed in Perth in March 1997 and has yet to be ratified. Things began to change after the conclusion of the 1997 Treaty in ways that had not been anticipated by diplomats or commentators on the maritime boundary delimitation. The changes started in 1999 when the Indonesians, together with the Portuguese, agreed that a United Nations (UN) sponsored referendum in East Timor to determine if the population wanted independence. The people of East Timor voted by a large majority to become independent. This led to a well-documented disturbance in East Timor, with the UN authorising a peace-keeping

force manned mostly by Australian personnel together with personnel from other States including New Zealand and Britain. This immediately raised concerns about the Timor Gap Treaty. As Indonesia had withdrawn during October and September 1999, and it was clear that Indonesia had no wish to continue sovereignty with respect to East Timor, the Treaty would have no longer have application. Moreover, after the terrible destruction that had taken place in East Timor, revenue from the petroleum products being returned to the Gap Joint Authority was likely to be a major source of income for the new country. Efforts to quickly put interim arrangements in place to retain access to the resources of the Gap and to generate funds were negotiated between Australia and the United Nations Transitional Administration for East Timor (UNTAET). UNTAET was sympathetic to these arrangements as it would generate much needed funds, and as such they consequently agreed to a temporary retention of the original Timor Gap Treaty until East Timor itself became fully independent. The East Timorese made it clear that once they gained independence, the temporary arrangement could not continue and that they would be unwilling to act as a successor state of Indonesia and simply adopt the Gap Treaty.

Accordingly, Australia then began discussions with the individuals who were to become the provisional government of East Timor on independence on May 2002 to reach some form of agreement. These discussions led to the negotiation of a new Timor Sea Treaty. The idea was to create a JDZ that would operate similarly to the existing central portion of the old development zone of co-operation in the Timor Sea. There would be a continuation of sharing of jurisdiction and revenue, but in order to reach agreement quickly, and to give aid the East Timor, Australia agreed to a revenue sharing arrangement of 90:10 in favour of East Timor, rather than the previously accepted 50:50. Other changes included some alteration in internal decision-making processes slightly favoured East Timor.

This was a popular decision for both Australia and East Timor because there was recognition by Australia that the revenue that was going to be channelled to East Timor could either go as foreign aid or it could go under these arrangements where a lot more good will would be created. The area, now called the Joint Petroleum Development Area (JPDA), is administered by a designated authority. It is designed to operate for 30 years unless a permanent boundary is ultimately decided between the parties. The agreement entered into force in April 2003.

The only area that is substantially producing in the JPDA is that comprising the Bayu Undan and Elang fields. There are substantial fields just outside of the JPDA, which are also producing. These include a very large field to the west of the JPDA operated by Woodside Australia called Laminaria, and a very large field to the east of the JPDA known as Greater Sunrise. About 80% of Sunrise is estimated to be on the Australian continental shelf and about 20% extends out into the JPDA. This was the crux of the difficulty facing Australia and East Timor in the Timor Sea Treaty, as it required a unitisation agreement to be entered into, to ensure an appropriate share of revenue took place. When a field spreads between two or more areas of jurisdiction, to ensure that fair access to the resources is allocated, the standard practice is negotiate a unitisation agreement. Rather than both sides setting up wells on either side of the line and pumping as quickly as possible, the resources are allocated proportionally and the shares divided. Calculating the proportional shares is difficult requiring extensive technical information. It was recognised by both Australia and East Timor that a unitisation agreement with respect to greater Sunrise was needed and gathering the technical information was commenced. With ratification of the Timor Sea Treaty also came agreement to a unitisation split of 79.9% of Greater Sunrise to Australia, and 20.1% to the JPDA.

After the agreement of the Timor Sea Treaty, but prior to its ratification, a company known as PetroTimor sought to change the Timorese position. The company had been issued an oil concession by the Portuguese before they left in 1975. This oil concession basically provided that they had the right to exploit any oil in the continental shelf off the southern coast of East Timor. They claim that since East Timor is independent and has indicated that it considers itself a successor state of Portugal, not of Indonesia, that the concession is still valid. As such, the company claims that all the oil inside the JPDA belongs to them and East Timor ought not ratify the Timor Sea Treaty. In addition, they sought a reappraisal of the lateral boundaries of the JPDA, to take in both the whole of the Laminaria and Greater Sunrise fields as part of East Timorese continental shelf. Interestingly, even if these areas were part of the East Timorese shelf, they would lie outside the original concession granted by the Portuguese, but the company proceeded in any case.

The claim was supported by a written opinion given by Vaughn Lowe, the Professor of International Law at Oxford University, Christopher Carleton, perhaps the most distinguished hydrographer in the United Kingdom, and a Sydney Barrister, Christopher Ward. The opinion contended that international law would permit a much more generous delimitation in favour of East Timor. The company approached the East Timorese government asking them not to ratify the treaty with Australia and confirm the rights were vested in the company. To support this, they promised to donate 20% of the shares in their company to the East Timorese Government and said that they would build a natural gas pipeline from Laminaria and from Greater Sunrise to East Timor, to assist in the stimulation of the East Timorese economy. This was remarkable, in that the water through which the pipeline would run is about 3, 500 metres deep, when the deepest successful gas pipeline to date is only in water 1,100 metres deep. It was also claimed this pipeline would be cheaper than a pipeline to Darwin, over a relatively similar distance yet in water less than 200 metres deep.

To also help their cause Petro Timor has taken Australia to court, suing the Commonwealth for the deprivation of their assets before the Federal Court of Australia. These proceedings are ongoing at the present point in time. One point on the company's side is that in the original 1972 boundary treaty between Australia and Indonesia, points on the chart known as tri points were defined. These points are places where the jurisdiction of three states comes together. These points can be moved based on negotiations, which in 1972 would have been undertaken with Portugal. The fact that the points can be moved by negotiation may favour Petro Timor. However, it was envisaged that if the points were moved, they would move only very slightly. This is clear from the *travaux preparatoires* that it wasn't envisaged that they would move more than two nautical miles in any direction.

The negotiation of the Timor Sea Treaty presented a substantial complication for Australia with respect to Indonesia. The 1997 boundary treaty has yet to been ratified by either Australia or Indonesia. If the Indonesians chose to repudiate the treaty, the only agreement in place is that concerning the continental shelf boundaries. Renegotiation of the 1997 treaty would be inconvenient for Australia, and place some potential commercial petroleum deposits into question.

East Timor will continue to feel pressure. The people of East Timor have one of the lowest per capita incomes of any State in the world. Consequently anybody

telling them they are entitled to billions of dollars of revenue is likely to get a hearing in East Timor. In that respect the government of East Timor has shown remarkable restraint. Whilst giving Petro Timor a hearing, the government of East Timor did little to indicate that they accepted Petro Timor's point of view, and ultimately they have embraced the JPDA. For the time being, matters will remain quiet, and exploitation of the Gap can continue, at least for the foreseeable future. However as the Timor Sea Treaty is not intended to be permanent, the issues surrounding the maritime boundary will potentially resurface in the years hence.

Current maritime development projects 6

Lieutenant Commander Tony Powell, RAN

The focus of this paper is a selection of projects that Maritime Development (MD) Branch (in Capability Development) is currently undertaking. These projects are aimed at solving certain issues relating to protecting maritime resources. Defence, and therefore MD Branch, gains general guidance from Government via the Defence White Paper. This document provides high level strategic direction to the Department on a range of issues. One of these is capability development. The White Paper is reviewed annually, and it is expected that by the end of this year there will be revised priorities, including some changes in the Defence Capability Plan (DCP). In effect, the DCP provides rationalisation for the required levels of funding to go with the capital acquisitions that are being considered. The Royal Australian Navy's (RAN) relevant plan is known as 'Plan Blue', a document that forecasts out to 30 years and examines the potential fleets that may be required into the future. Again, the development of this plan is driven by the White Paper, so these are the two significant guiding documents in capability development.

The capability development process is begun by identifying initial needs, and involves consultation with key stakeholders (such as the RAN) on what are the perceived needs for Defence in the future. The process helps to determine what is already available and where gaps in capability may exist. There is obviously a strong need to identify the appropriate capability solutions to fill those gaps. For example, could a gap be filled with air warfare destroyers, or by acquiring additional aircraft? Then, in consultation with the Defence Materiel Organisation (DMO), the range of possible solutions is examined. This process identifies what specific ships and weapon systems are needed to develop this capability. The questions of how that capability will be maintained, both in terms of equipment and just as importantly personnel, and how eventual disposal will be undertaken are also considered.

The Capability Development Branch brings together the relevant experts into integrated project teams to assess the specific problem and to determine the best solution. Typically, Defence capability involves the assessment of military requirements. However there are non-military enforcement management capabilities, which may involve the use of military assets, that also need to be considered.

The replacement patrol boats project

About 5 years ago when negotiations with Malaysia concerning the development of an Offshore Patrol Vessel failed, the government examined extending the life of the existing patrol boats. Navy's advice to government at the time was that the best and the more cost-effective option would be to replace them. Additionally, Navy advised that the project needed to be concluded as quickly as possible. This would allow the existing patrol boats to remain in service and maintain that capability while the new vessels were under construction. Government accepted this advice.

For a variety of reasons the progress with the project has been protracted. The Patrol Boats Project was one of the first big projects where the option of private financing was considered. Other options considered by Defence included leasing vessels to achieve the patrol boat capability or leasing vessels with crews to achieve the capability. These options were included in the first round of tendering. Seven tenders from organisations who were either willing to provide the Navy with the vessels, or lease the capability for a period of 15 years were received. Assessment of the seven proposals showed that there was no significant advantage either way between leasing or purchasing the capability. This assessment recommended that a direct purchase acquisition would be more cost effective for government. The second stage of tendering incorporated direct acquisition with three tenderers developing solutions to meet Navy's capability requirements. Tenders are currently being assessed by DMO. It is expected that the contract will be signed early next year (at least in the first half of 2003.) and that construction will commence in 2004.

One unique feature about this acquisition is that Navy does not require a specific number of patrol boats. The requirement has been defined in terms of patrol boat availability. The requirement is for boats to be available for 3000

boat-days per year. This requirement was defined by assessing all likely patrol activities required over the next 10-15 years. Factors considered included activities involving migratory fish stocks, enforcement and regulation, activities in areas such as South Tasman Rise, together with availability estimates for current tasks and possible future tasks. Current tasks include the provision of 1800 boat-days a year for the civil surveillance program and visiting the South Pacific islands on behalf of DFAT. Each of these was included to generate the 3000 boat-days. The requirement to be able to operate below 50 degrees South has been recently referred to government for decision. Such a requirement incurs high costs, as a large ship is needed to operate in the extreme weather conditions. DMO is currently evaluating tenders from ADI, Austal DMS and Tenix.

The Armidale Class patrol boats will be crewed by naval personnel. We are now working to define the number of crew required. To drive a boat only needs a crew of nine or ten. However, as more varied functions and roles are defined, a larger crew is required. For example, the boats must be able to operate 24 hours per day for extended periods. Also, the main weapon system on a patrol boat is the boarding party. There must be enough crew members to maintain 24-hour operations anywhere in the Australian EEZ, and the South Pacific (excluding Antarctica and HIMI areas). The crew must conduct boarding operations and provide crew for ships under arrest being escorted back to harbour. Calculations show that the minimum number required to fully perform these roles and functions is 23 people.

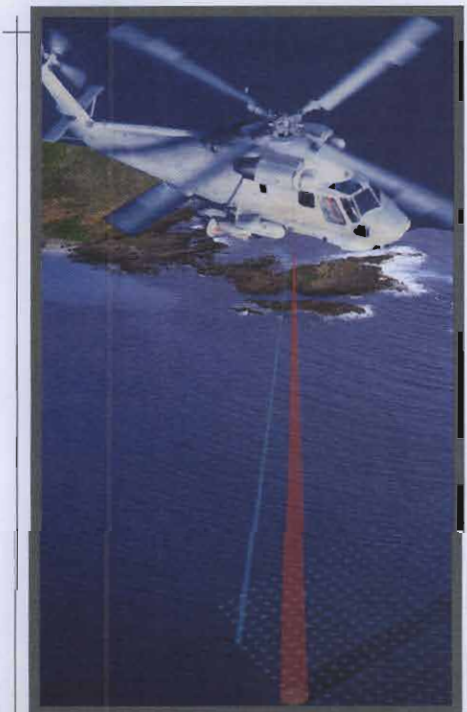

Figure 10: Laser Airborne Depth Sounder

Hydrographic projects

There are a number of hydrographic projects currently underway. These projects relate directly to the gathering of appropriate information in order to make

informed decisions on government issues. The Australian Hydrographic Office of the RAN possesses a range of capabilities that can provide survey information both for the National Charting Authority, and for military operations. One such project to upgrade these capabilities is the Laser Airborne Depth Sounder (LADS). LADS is an aircraft mounted sensor to measure the depth of that water using a laser. The water must be relatively clear and the depth must be less than about 70 metres. The project underway is to upgrade the sensor to improve its performance and reliability.

We also seek to gain a Rapid Environmental Assessment (REA) capability as in addition to measuring the depth of water, it is also able to measure information about the land adjacent to the water. So, for example, in relation to issues involved in defining Australia's baseline, this capability will be able to get a fairly complete picture of that sea-land interface which is not available at the moment.

The RAN has a number of ships in hydrographic service: HMA Ships Melvin and Leeuwin have just been delivered. The ships are currently working around the northern coast of the continent and the outer edges of the Barrier Reef. Additionally, the RAN also has four survey motor launches. These launches are about to be fitted with upgraded multi beam echo sounders.

Another project currently nearing completion is Sea 1430. This is the provision of electronic charting for Australia. Australia is one of the first nations in the world to undertake this form of Hydrographic information management. The database is being developed in the Hydrographic Office in Wollongong and it will be the central store for Australia's nautical charting information. It will be able to produce the standard charts that are currently in use and also produce a digital electronic chart for ships fitted with the appropriate equipment. Digital electronic charts are much more versatile than paper charts. The database will also be able to manage the oceanographic and environmental information that is used by Defence (as one of the responsible agencies) and will also be able to make this data available for use by the rest of the Australian community. Navy is currently defining those data base management systems needed to meet military requirements and those for use by other national organisations.

Digital charts allow for a variety of information to be displayed. Normally, when a paper chart is printed, it can only contain verified information. For example, when the Hydrographic Office prints a chart of Australia, it includes only

Australia's recognised boundaries and does not include the boundaries of any other country's EEZ. This is because other countries have the right to claim their boundaries and until these are ratified, they should not be defined on a chart. This can cause problems. If a patrol boat is working in the South Pacific, it will be using generally Australian charts that do not show the boundaries of other country's EEZs.

Using electronic charting will allow for additional information to be displayed. The electronic charts can be viewed in a very simple format, little bits of information can be added where required/desired, so these electronic charts are built up in layers. They can include traditional soundings and look like a paper chart. Information can also be brought in from other sources for example, from vessel monitoring systems and ship's sensors such as from radars, or from Electronic Warfare (EW) sources. Also information from sources outside the ship, such as that received from the CoastWatch Surveillance Centre, can be used. The electronic chart on a Customs or a Navy boat can have information on all of the contacts gather by all Australian government sources. Borders, including those which other countries perceive their borders to be, can be added to the display. There have been a number of incidents both on land and at sea, where difficulties occur simply because one country does not understand where another country believes its borders to be.

Maritime Development is currently providing advice to government on the options required to provide solutions to issues in the Southern Ocean. Illegal fishing around HIMI is a recognised problem, but there are significant other issues surrounding that zone in the Southern Ocean that need to be considered. A paper advising government on the range of options to meet these issues including the costs, is due to be submitted for consideration. This paper also discusses the options for which agency would be best suited to performing the range of functions. This project is not necessarily a Defence project, but Defence is leading the way due to its expertise in undertaking capability development projects. Possible outcomes are that Defence should undertake some functions but that for others, a combination of military and civilian agencies will be needed.

The major determination is that Australia needs dedicated enforcement capabilities. It also needs improved capability for tasks such as escorting vessels from HIMI, back to Fremantle for prosecution. The paper submitted to

government includes some conceptual designs and indications of costs. The total system cost for the basic solution is about 20 million dollars per year, with the Rolls Royce solution being a bit over 100 million per year.

Australia is currently negotiating treaties concerning the southern oceans with the French. These currently do not include enforcement sharing, but this is a likely addition in future negotiations. These treaties and a number of other factors will impact on the government's willingness to spend on these capabilities.

Figure 11: Concept Design

Terrorism and territoriality: a new maritime strategic era

7

Dr John Reeve

Maritime nations and navies now live in a new strategic era, which has progressively come upon them during the last twenty years and especially the last decade. Against the complex background of change created by the end of the Cold War and a technological military revolution, the advent of transnational terrorism has become a critical factor in strategic analysis.[2] A further development has compounded the picture for maritime affairs: the evolving issue of territorial rights pursuant upon the United Nations Convention on the Law of the Sea (UNCLOS). Terrorism and territoriality are factors driving an increasing intermeshing of maritime legal and maritime strategic areas of concern. Maritime regimes and policies are not simply diplomatic and policing issues but also strategic ones. They can even constitute potential military flashpoints between states. Managing these areas requires the development of lower-end naval and maritime capabilities in conjunction with traditional higher-end force structures. The implication of all this is the need for imaginative approaches to the maritime-military interface. Analysts and planners must draw upon the accumulated wisdom of traditional maritime strategic principles while adapting them to new areas of policy.[3]

Contemporary terrorism—as a low-level threat often requiring high-level military capabilities to deal with it—is an inescapable link between maritime constabulary and naval affairs. Amongst the expert contributors to this timely collection of essays Norman Friedman stands out. His combination of broad scientific expertise, historical awareness and hands-on strategic planning experience is virtually unique. His new book *Seapower as Strategy* is an invaluable study of navies as instruments of graduated force and as subtle tools in international affairs.[4] Herein lies the potential for navies to be key players in fighting terrorism.

Their diplomatic immunity, reach, operational flexibility and graduated force are well suited to a complex war in the shadows in a world in which conventional conflict remains possible. Our strategic planners must utilise this versatility. There are surely relevant historical lessons in the naval anti-piracy and anti-slavery campaigns of the nineteenth century. There is now a difference, however, in the ability of terrorists to hit back, implying something of a strategic reversal: the seas may become a refuge and ports an area of threat for naval forces. There has been a paucity in recent years of creative strategic discussion in relation to terrorism. There is an urgent need for such discussion, including the maritime context and the role of navies in counter-terrorism.

Further on the subject of terrorism, a wider social point comes to mind. We must remember that one of the most powerful psychological weapons in combating terrorism is a sense of humour. Civilisation always has enemies crying out to be made fun of. In my office there is a statuette, fashioned by my uncle during the war in the Mediterranean, utilising scrap metal from the guard rail of the destroyer HMAS *Stuart*. It is a figure of a little man thumbing his nose and is entitled 'Malta's Salute to Mussolini'. In the midst of grim events and great drama, humour helps banish fear and unbalanced thinking. It replenishes strength and enables creative thinking and business as usual. Such humour is more valuable than any number of speeches about crusades for democracy.

Maritime territorial issues would appear to have created a new context for maritime strategy and naval operations. The high seas and lines of communication described by the classical writers Mahan and Corbett are still strategically relevant. But Corbett's perception of the sea as unpossessable must now be qualified, at least in a legal sense. States now own the sea in new and significant ways, and strategic thinking about sea lines of communication must see those lines against the background of sea ownership. This is of course an extremely complex area of discussion, which requires more time and space than are available here. Suffice to say that its importance is indicated, for example, by the case of the South China Sea, where issues of contested territoriality overlap with vital sea lanes in a highly sensitive area which is vital for the regional states, the great powers and the peace of the world.[5] We need more strategic analysis of this kind of nexus. As long ago as the 17th century the Anglo-Dutch Wars were fought over issues including sea lanes and fishing resources.[6] The sea abideth forever.

Heard and McDonald Islands and illegal fishing

8

Mr Paul Ryan

This paper intends to focus on Southern Ocean surveillance and enforcement, which is an area of great interest at the moment. In the Southern Ocean Australia is dealing with illegal, unregulated and unreported (IUU) fishing. Problems are encountered based on the environment, some of which for Heard Island and McDonald Island (HIMI) are surveillance issues. Others are related to the remoteness. The area is 2,500 nautical miles South West of Fremantle, which is the closest port on the Australian mainland. It is a long way from anywhere and there are no other countries that are any closer. The area is also very inhospitable: there have been waves of a height of 17 metres reported, there are continual gales, low visibility, freezing temperatures, and rough seas. It is not the sort of environment to go to unless there is an absolute need.

However, the environment around HIMI is very sensitive and is a designated World Heritage area. The islands have species of plants there that do not grow anywhere else in the world. The requirements on fishing boats in the area in relation to disposal of rubbish and other discharges are quite extreme. Brassicas, etc are not allowed to go overboard as they could on the island. It is also a big area for seal and penguin breeding, and the home of sea birds, particularly the wandering albatross and other endangered species. Their presence makes long lining a particularly dangerous and unfortunate fishing method to be using in those areas without appropriate safeguards.

As a consequence of these factors, it is a particularly expensive area in which to conduct surveillance. The Australian Fisheries Management Authority's (AFMA) program has been running under its current guise for the last four years, at a cost of roughly 4 million dollars a year. However, it is even more expensive to conduct enforcement (without an enforcement capability on the patrol boat), particularly when military intervention is required to actually make any arrests. Compared to the cost of surveillance, enforcement is very expensive and this has

been the limiting factor on what can be achieved. Australia shares the waters with a couple of neighbours: France in relation to Kerguelen and Crosier Islands and South Africa in relation to Prince Edward and Marion Islands. There is close cooperation with those countries to safeguard the resources.

The threat in the area comes predominantly from the operations of long line vessels. These vessels are 40-50 metres length overall, although those recently arrested by Australia have been at the larger end of that scale. The trend is for newer vessels coming into the area to be increasing in size and sophistication. These have hull capacities of at least 400 tons and onboard processing plants to process the catch at sea. These ships also have a large fuel capacity (2-4 months at sea in the chase of the South Tomey certainly tested the ability to stay at sea for a long time). These capabilities allow them to operate far from their home and to deliver a high value added product to a number of markets. This means that very large catches can be taken each visit. The vessels have a crew of 30-50 crewmen, with increasingly more Spanish masters with crewmembers from all over the world, although largely they range from Asian countries.

As more investigation occurs into the fishing companies involved, the involvement of organised crime is becoming clear. These are a fairly ruthless group of operators. The vessels are usually registered under flags of convenience, which are changed regularly. For example, Australia is trying to raise this issue concerning the vessel 'Volga'. The 'Volga' was originally flagged with the Russian Federation, but according to their authorities, it had re-flagged at sea the day before it was spotted, and so it was not a Russian Federation problem. There is a facility where the vessels can change flags at sea. Sometimes the new registry does not always allow easy to access to information. The vessels work through a series of front companies. Currently, investigations are underway to establish the ownership of these various companies that are involved in illegal fishing in the Southern Ocean. It is a complex web of companies. On apprehension of a ship, Australia tries to establish the beneficial owners of the ship. However, there are many legal impediments to stop that being achieved, a major one being refusal by the master to divulge the details of beneficial ownership so that bonding negotiations can take place.

The vessels that fish in the southern oceans are often sub standard. They are largely old long liners that are nearing the end of their economic life that have

been converted for this sort of work. Two or three years ago, the 'Amur' sunk in these waters, with a loss of life purportedly because the vessel was not up to the standard. The standard of the vessels that have been arrested and boarded by Australian crewmembers for the journey back to Australia has been assessed as below acceptable standards. Some officers were appalled at the condition of the vessels they had to come back on. The vessels that are being encountered are also a danger to the environment, not only because of taking sea birds, but because

Figure 12: Illegal Fishing Vessels

they are long lining with no precautions such as Torri poles to scare birds off. Also, as a result of the crews throwing foodstuffs overboard and oil spillage's (particularly when vessels go down), a major risk to the pristine environment exists, apart from the damage to the fish stocks.

The illegal fishers can make substantial amounts of money—at least one million dollars per trip. For example, the catch of one vessel arrested recently in the HIMI area, was sold (and it was only half full) for 1.93 million dollars Australian. Obviously a bigger vessel carrying a full load would generate much greater profits. To protect these profits, the illegal fishers are willing to invest in watching AFMA's surveillance activities. AFMA staffs are quite convinced that the illegal fishers are watching the surveillance activities at least as well as AFMA is watching them. This makes our surveillance activities difficult. AFMA is therefore involved in conducting counter surveillance and enforcement activities to circumvent being observed.

A number of different types of vessels have been observed. One such vessel is the 'Mila', which was seen in the Australian fishing zone (AFZ), by an Australian fishing boat. The 'Mila' was registered in the United Kingdom (UK), a country that takes its responsibility seriously. The Flag State prosecuted the 'Mila' and

after that court case, large fines were levied. The Australian Company whose vessel made the sighting was sent a reward for their efforts. Australia has rather less success with a number of other countries.

Surveillance in the Sub-Antarctic is basically reliant upon two groups of assets. These are naval vessels and the civilian charter vessels. Anzac Frigates have made a number of sorties to the southern oceans. These have been very expensive exercises, but they have had a high impact, not only in detecting IUU fishing when in the area, but they can also conduct armed boardings and apprehensions. The apprehensions that have been conducted by the Royal Australian Navy (RAN) will be discussed later. The civilian charter vessels such as the 'Southern Supporter', also conduct surveillance activities. These activities are unarmed. This is a lower cost option and obviously there is also a reduced impact. It can detect IUU fishing and until recently deter IUU fishing, collect fishing gear that has been deployed and disrupt fishing activities by that method. It can also gather evidence for prosecution by the Flag State.

Since the AFZ was declared, Navy has made a number of arrests in recent years:

- the 'Salvora' from Belize,
- the 'Eliza Glacial' from Panama, and in 1997-98,
- the 'Big Star' from the Seychelles.

This early involvement led to the subsequent program of chartering the 'Southern Supporter' initially from Australian Maritime Safety Authority and later from P&O. The 'Southern Supporter' has carried out eight patrols to the Heard and McDonald Islands (HIMI) area. The trip that probably generated the most interest was the 'South Tomi' incident. The 'Southern Supporter' intercepted the 'South Tomi' fishing in the HIMI area, and directed it to return to the mainland of Australia. Surprisingly, the 'South Tomi' appeared to comply with this instruction. Once outside the AFZ, however, it headed Northwest. The 'Southern Supporter' commenced hot pursuit. It appeared that the 'South Tomi' was headed for the East Coast of Africa around Mozambique so Australia sought cooperation from the French. The 'Southern Supporter' stayed in hot pursuit, but could not gain water to attempt boarding. There were some difficulties in getting final agreement with the French. However, the 'South Tomi' kept turning further to the south and headed across the bottom end of Africa. Australia sought and received support from South Africa. An Australian military team flew to South

Africa, boarded two South African vessels and apprehended the 'South Tomi' just inside the EEZ of South Africa. The 'South Tomi' was then steamed back to Australia. The hot pursuit lasted 14 days, and 6,100 kilometres. Apprehension was made using a third party vessel.

There were a number of issues in international law that arose from this pursuit and arrest. These, fortunately from Australia's point of view, and unfortunately for a number of international lawyers, were not really tested. One issue was in relation to the establishing of hot pursuit. Another was the involvement of a third party at the end of a hot pursuit, which can raise questions about the legality of the apprehension. The issues raised have not been resolved in this case, and will probably come up in future cases. In this instance AFMA was satisfied to simply get things sorted out. Although now having had the vessel sit in Fremantle since May 2001 costing roughly $40, 000 dollars a month for it and two other vessels, there is perhaps a level of regret in having caught the vessel in the first place. However, it is all part of the business. There are a number of lessons from the operation, things we got out of it.

Others parties involved may have seen it slightly differently. The action resulted in a changed relationship between AFMA and Coastwatch. Originally the arrangements between AFMA and the Australian Defence Force (ADF) were to go through the Coastwatch management system. However, due to the unusual nature of our requirements and the views of Coastwatch at the time, AFMA was required to make direct contact with ADF to work with them on getting a response. Procedures have since reverted to their more normal practices. Views on the need for a large armed vessel to do the work in the Southern Ocean have

Figure 13: Southern Supporter

been reinforced, as a result of the three years of activities with the 'Southern Supporter'. The surprising part from AFMA's point of view was that it took so long for this to be realised. This case showed that the flexible use of assets can address the shortcomings in the system, and that a successful apprehension can be achieved. Flexibility was shown by AFMA and particularly the South Africans. However, these events cannot be relied upon to occur in every eventuality, as is apparent with the 'Lena' situation. This situation showed the need for flexibility of action and also stressed the need for international cooperation. Cooperation with other sovereign States in the Southern Ocean, to a greater or lesser extent, was achieved, but this is not a process which can be relied upon long term, without some formal agreements.

Since the 'South Tomi' affair, a few other activities have occurred down South. AFMA engaged in a hot pursuit of a Russian fishing vessel called 'Lena' and sighted two other vessels in Division 58.4.2, which is further South again. The Australian civil patrol vessel the 'Southern Supporter' encountered the 'Lena' inside the Australian fishing zone (AFZ) in Division 58.5.2. Initially the vessel evaded direction to return to Australia, and then it left the AFZ. It took off, and headed into the French territorial sea and then demanded that the hot pursuit cease because AFMA had gone through the territorial sea of another country. AFMA stayed in hot pursuit, relying on the international court to decide whether the hot pursuit should have ceased or not. The vessel was refuelled at sea by a vessel called the 'Florence', which is a Bolivian flagged vessel. There is video footage of the refuelling supporting their operations. After the 'Lena' had completed refuelling, the 'Florence' and another vessel the 'Champion' (also Bolivian) activated their emergency beacons to drag the 'Southern Supporter' away from the hot pursuit. When an emergency beacon goes off the pursuer should break off. Fortunately it was established as a false signal before there was a requirement to fully terminate hot pursuit. Unfortunately, the hot pursuit had to eventually break off as the 'Southern Supporter' was running out of fuel and there was no other asset available to actually come and make an apprehension.

Subsequently another Australian civilian vessel, the 'Aurora Australis' encountered two fishing vessels in Division 58.4.2 within CCAMLR, but not in the Australian fishing zone. These vessels called themselves the 'Nova Tuna 1' from Ghana and 'Kambott' from Mauritania. Since only a sighting was made, and there wasn't an

asset in the area that could do anything about apprehending, a slightly different approach was taken in dealing with these vessels. It was believed that these vessels were actually the 'Dorita' and the 'Arvisa 1'. Photos were taken of the two vessels for comparison. Ship experts were asked to make the comparison and found eight different points of correspondence between the photographs. These included identical fore masts and stays, deck configurations etc, antenna arrays and some of the markings. AFMA was convinced that the ships calling themselves the 'Kambott', and the 'Arvisa 1' were the same vessel. Similarly, the experts found that the images of the 'Nova Tuna 1' and 'Dorita' were of the same vessel. Several ship registers were investigated to find out the background to them. The key results were that the 'Nova Tuna 1' was sunk off the coast of Africa in 1997 and no other vessel had been listed under that name. The only listing of the 'Kambott' was a small offshore trawler flagged in Mauritania, not a large 50 metre long liner. The only sensible action was to pursue the countries that supposedly owned them. The 'Kambott' or the 'Arvisa 1' was subsequently arrested as the 'Eternal' by France. The French have been requested to provide the VMS electronics from the 'Arvisa 1', now the 'Eternal', and AFMA is checking the data so that a case can be prepared to take to the International Court of Justice.

AFMA advised details of the sightings to Convention CAMLR and the CCAMLR parties as is required under the CCAMLR arrangement. Issues were raised with Uruguay as the 'Arvisa 1' and the 'Dorita' are both Uruguay flagged vessels. Uruguay was requested to cease further validations of Catch Documentation System (CDS) forms, the catch disposal arrangements for the tooth fish. To sell tooth fish anywhere in the world, there is a requirement to have validated catch documentation; the system then has to be validated by the flag state. Uruguay was also asked to rescind the existing validated catch disposal documents for both vessels and to stop consignments that are already in train on their way around the world. The last advice from Uruguay on15 October 2002, was that the investigation was still open. In the eight months in between there hasn't been a lot of progress at the Uruguay end.

At the same time, action was taken to seize tooth fish catch once it had been sold. Since economics drives this whole exercise, if the boats cannot be prevented from fishing, stopping the sale of the fish is also effective. The 'Arvisa 1' landed its catch in Mozambique with part of the catch being sent to the US. The 'Dorita'

catch went from Kenya to Singapore, Hong Kong, China and Japan. The catches were tracked around the world through tracking the documentation and by the use of diplomatic pressure on various countries with the following outcome:

- Japan accepted the shipment from 'Dorita' and nothing else can be done.
- Hong Kong also accepted the shipment from the 'Dorita'.
- China approved the re-export of the Hong Kong 'Dorita' shipment.
- The US stopped and seized the shipment from the 'Arvisa 1' and AFMA is assisting the US to prevent the catch being released.

Australia (AFMA) is in regular contact with the US and is providing evidence in support of the case. Some time after these events, the Australian fishing vessel the 'Southern Champion' sighted and pursued a vessel into the French EEZ. The French were contacted and through AFMA, a French Patrol vessel was directed to the area and conducted hot pursuit, apprehending a vessel in July 2002. The vessel was going under the name of 'Eternal'. Research has indicated that it is also (or has been) known as 'Arvisa 1' (from Uruguay), 'Kambott' (from Mauritania), and 'Camouco' (from Panama), which is a notorious pirate fishing vessel in that area. The 'Eternal', when it was finally apprehended by the French, was registered in the Netherlands Antilles.

The RAN has also been involved enforcement in the southern oceans. In February 2002, HMAS *Canberra* apprehended two vessels, fishing in Australia's EEZ. The first of these was the 'Lena', which was believed to be Russian. The Russians, for most intents and purposes, are behaving as if this is so. The second was the 'Volga'. The 'Lena' was immediately apprehended in the zone, and the vessel and crew directed to Fremantle. Legal proceedings resulted in the master and the senior crew being fined. The catch has been forfeited and sold, and the vessel has been forfeited and is in Australia's possession. The Minister made an announcement in November 2002 that Australia is in the final stages of selling it. The 'Volga' case is less straightforward. It was apprehended after a short hot pursuit. The vessel and crew were likewise directed to Fremantle. The prosecution of the crew and legal action to forfeit the vessel and catches has been commenced. There are some problems with this case and as of November 2002, it is not yet complete.

One of the issues in seeking forfeiture of the vessels is that the forfeiture is a civil matter and the civil courts will not hear the case until the criminal charges against

the master have been heard. This will be delayed until November 2003. The vessel must be detained until the civil courts hear the forfeiture case. However, Russia has brought legal action against Australia before the International Tribunal on the Law of the Sea, for the release of the ship for which it is claiming ownership. The issues that were not satisfied in relation to the 'South Tomi' may yet be fought over in relation to the 'Volga'.

Enforcement in the future

Submissions have currently been put forward to government concerning an armed civil apprehension capability in the both long term and the short term. The existing arrangement for the 'Southern Supporter' concludes in June 2003 (it was only a four year program), so options for the future need to be pursued by government. The 'Southern Supporter' program has been a success in some areas and has revealed some shortcomings in others, so government is currently looking alternatives to correct the shortcomings. Surveillance and enforcement treaties are being developed between Australia and France and are in diplomatic terms relatively advanced. These should hopefully be finalised in 2003. Australia has also commenced similar treaty negotiations with South Africa.

Additionally, a program of closer cooperation in surveillance and law enforcement with other countries is under consideration. Groups of countries such as Australia, New Zealand, South Africa, the United States, and France could work together effectively to combat illegal fishing in the southern oceans. Joint enforcement is a difficult operation but the combined resources of a number of countries provides more effective measures for the apprehension of vessels and the tracking of catches trade than the limited resources of only one country can achieve. The possibility of additional involvement of the Royal Australian Navy in patrols (as they provide an enforcement presence) is also being considered.

Australia's extended continental shelf 9

Dr Phil Symonds

When thinking about Australia's resources and the protection of these resources in the maritime environment the problem is larger than it first appears. It is not an 8 million square kilometre problem associated with Australia's 200 nautical mile exclusive economic zone (EEZ), but a 12 to 16 million square kilometre problem associated with its 'legal' continental shelf. This paper will focus on the part of the continental shelf that extends beyond 200 nautical miles (M). It will summarise what the extended continental shelf is, how it is defined, and who and what is involved in this activity. Finally, some of the issues involved with Australia's extended continental shelf and what it means for the country will be discussed, including its potential resources and their management, and the future protection of the area.

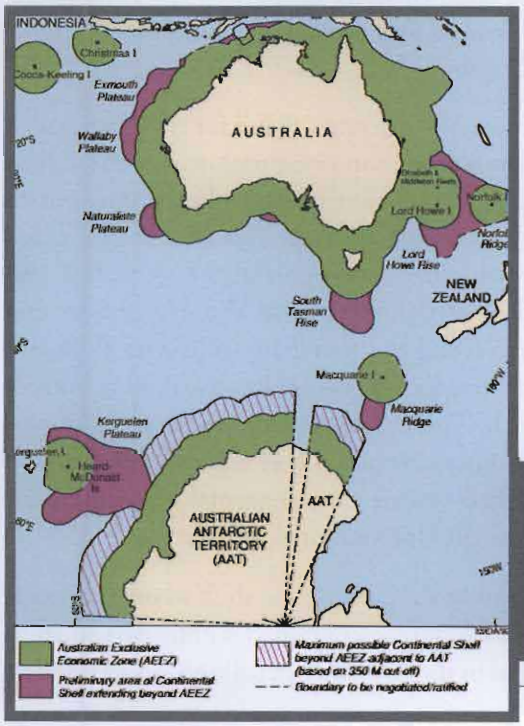

Figure 14: Sketch map showing the main UNCLOS marine jurisdictional zones around Australia and its territories (after Symonds et al. 1998).

Australia has a variety of maritime boundaries. Some are negotiated boundaries with the adjacent maritime states of Indonesia, East Timor, Papua New Guinea, Solomon Islands, France (with respect to New Caledonia), and between France's Kerguelen

Island and Australia's Heard and McDonald Islands (HIMI) in the remote Southern Ocean. The delimitation of boundaries with New Zealand is still under negotiation. In areas facing open ocean Australia's boundaries are based on the provisions of United Nations Convention on the Law of the Sea (UNCLOS). In this paper the emphasis is on areas of extended continental shelf. There are ten such areas that extend beyond 200 M around the continental margins of Australia and its sovereign external territories (Figure 14).

The United Nations Convention on the Law of the Sea (UNCLOS) defines a series of marine jurisdictional zones (Figure 15)—a territorial sea that extends not more than 12 nautical miles (M) from the territorial sea baseline (TSB); a contiguous zone that extends beyond the territorial sea not more than 24 M from the TSB; an exclusive economic zone (EEZ), which extends beyond the territorial sea not more than 200 M from the TSB; and a continental shelf that extends beyond the territorial sea to 200 M from the TSB, overlapping with the EEZ, or beyond that to the outer edge of the continental margin as defined in Article 76 of UNCLOS. In the EEZ, a coastal State has sovereign rights for the purposes of exploring and exploiting, conserving and managing the natural resources (living or non-living) of the water column, seabed and subsoil. Thus, a State's normal fishing rights arise through the EEZ regime.

In the continental shelf, a coastal State has sovereign rights for the purposes of exploring and exploiting its mineral and other non-living resources of the seabed and subsoil, together with sedentary living organisms. In other words, out to 200 M Australia has sovereign rights over all resources, but in the extended continental shelf beyond 200 M it only has sovereign rights over seabed and subsoil resources. The continental shelf rights relate to the exploration and exploitation of marine resources (both living and non-living) of the sea floor and what is beneath the sea floor. In this zone a country also has the right to control and manage marine scientific research. These rights come with an obligation to conserve and manage the natural resources of the EEZ, as well as to protect and preserve the marine environment. The marine environmental responsibilities relate to activities within both national and international jurisdiction.

The method of defining the outer limit of the continental shelf where it extends beyond 200 M is set out in a series of formulae contained within Article 76 of UNCLOS. There are several grey areas in the Article 76 definition, and a number

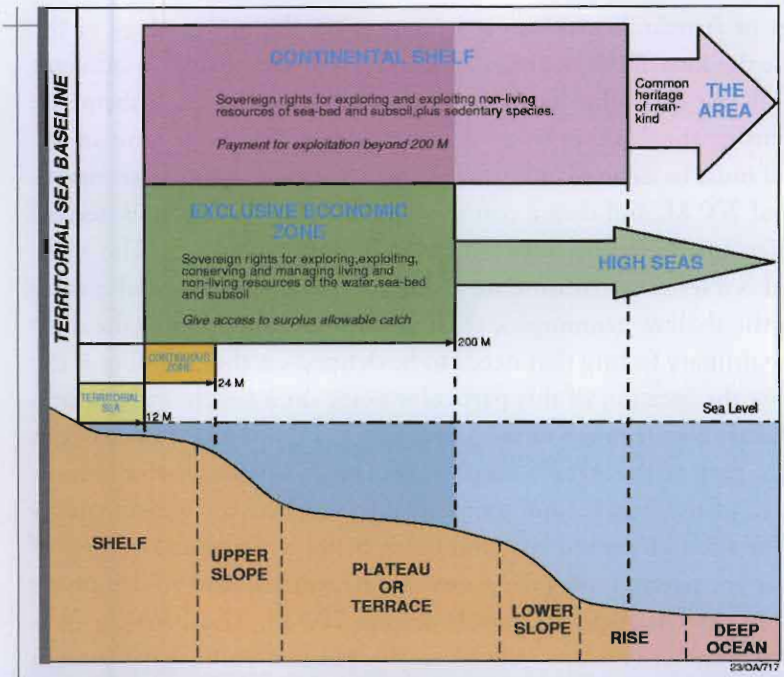

Figure 15: Marine jurisdictional zones contained in the 1982 United Nations Convention on the Law of the Sea (after Symonds et al. 1998).

of unknowns. However, there are ways to work through these. Submissions on the outer limit of the extended continental shelf are made to a UN body known as the Commission on the Limits of the Continental Shelf (CLCS). This Commission will consider the data and information provided by coastal States and assess it to determine whether or not the rules of Article 76 of UNCLOS have been correctly applied. When a State establishes the outer limit of its extended continental shelf on the basis of the Commission's recommendations, the limit will become final and binding under international law. Coastal States must make their submissions to the CLCS within ten years on entry into force of the Convention for that State (ie. originally by 16 November 2004 for Australia). At a 2001 meeting of States that are party to UNCLOS, the initial deadline for submissions was changed to 13 May 2009 (ten years from the date on which the CLCS adopted its Scientific and Technical Guidelines) for States for which UNCLOS entered into force before May 1999. Despite the new deadline Australia is still working towards making its submission to the CLCS by the original 2004 date.

Full application of Article 76 requires information on the morphology of the margin to define the foot of the continental slope (FoS), knowledge of sediment thickness beyond the FoS, the location of the TSB, and good bathymetric information defining the 2500 m water depth contour. The outer limit of the continental shelf must be defined at least every 60 M around parts of the margin extending beyond 200 M, and thus a considerable technical data base is needed consisting of high quality bathymetric and seismic reflection data. The main data set required is a series of bathymetric profiles across the continental margin extending from the shallow geomorphic shelf, down the slope towards the deep ocean floor. The primary feature that needs to be defined on these profiles is the FoS. Determining the location of this particular point on a simple margin, or a complex margin that goes through terraces and plateaus down to the deep ocean floor, is a critical part of the Article 76 process. This is because the definition of the outer edge of the 'legal' continental margin is based on measurements from the FoS. The shelf, slope and rise, and the FoS, are real physical features of the sea floor that are referred to in the Convention, and are used to determine a legal limit to national seabed and subsoil beyond 200 M. Thus, Article 76 is actually a combination of concepts related to the physical continental margin (a geomorphological and geological entity), and legal concepts, and as such the definition of the limits of the extended continental shelf involves both technical and legal interpretations.

The outer edge of the 'legal' continental margin is defined in two ways under Article 76 (Figures 16a and 16b)—one based on sediment thickness beyond the foot of slope, and the other on a distance measurement from the foot of the slope. Both formulae define the outer edge of the continental margin, the first step in defining the outer limit of the extended continental shelf. The foot of the continental slope, as determined on bathymetric profiles across the margin to the deep ocean floor, is the starting point for the application of both formulae. Using the first formula, the outer edge of the continental margin is the point at which the thickness of sediment is 1% of the distance from the FoS. For example, at a distance of 250 kilometres from the FoS, 2.5 km of sediment is required beneath the sea floor for this formula to apply. The application of this approach requires knowledge of the location of the FoS, and the thickness of sediment beyond the FoS. In the second much simpler formula, the outer edge of the continental margin is defined by points not more than 60 M beyond the FoS.

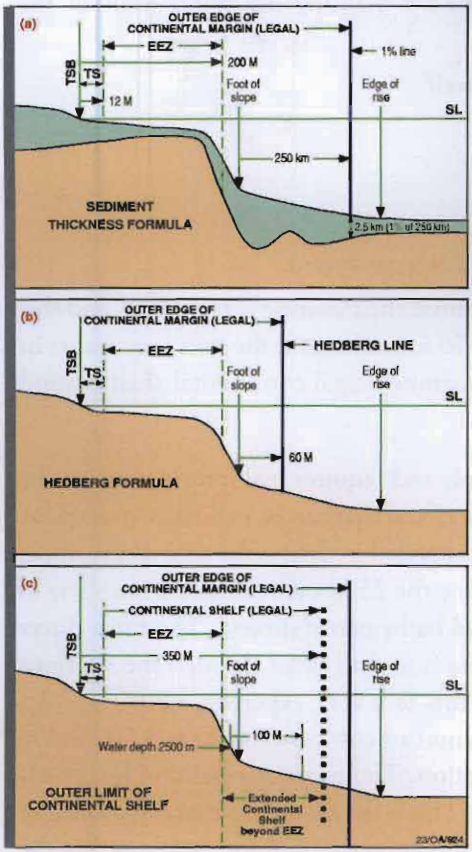

Figure 16: Procedures for determining the outer limit of the continental shelf under Article 76 of the 1982 United Nations Convention on the Law of the Sea (modified from Symonds & Willcox 1989): (a) the sediment thickness formula, and (b) the Hedberg formula. (c) Application of the two constraints, showing the zone of extended continental shelf that lies beyond the 200 M exclusive economic zone.

In order to define the outer limit of the continental shelf, the Article 76 formula points defining the edge of the continental margin must be tested against two constraints. These formulae points cannot lie beyond either 350 M from the TSB, or 100 M beyond the 2500-metre water depth contour or isobath. If they lie inside the maximum of those constraints, the edge of the continental margin itself becomes the outer limit of the continental shelf. If they lie beyond the constraints, then the outermost constraint itself becomes the outer limit of the continental shelf (Figure 16c).

Thus, there are basically five possibilities for defining the outer limit of the continental shelf:

- The 200 M exclusive economic zone itself
- The sediment thickness formula
- The 60 M Hedberg or distance formula
- The 350 M constraint, and
- The 100 M beyond the 2500 metre isobath constraint.

Naturally, most countries will want to optimise their marine jurisdiction, and this is achieved by combining the two Article 76 formulae and the two constraints in the most appropriate way to achieve a maximised legal continental shelf beyond 200 M.

Article 76 can be quite complicated to apply and requires real information on the nature and physical characteristics of the sea floor that can be expensive to acquire. Information on the shape of the margin is needed to define the foot of the slope, and the true water depth is needed to define the 2500 metre isobath. Both sets of information can be obtained from normal bathymetric surveys. The most direct method of determining sediment thickness is to drill holes through the sea floor and the underlying sediment; however, this is a very expensive operation. An exploration hole in deep water environments can cost between 20 and 50 million Australian dollars depending on the location. The more normal and less costly alternative is to use the seismic technique. This is very much like an echo sounder in principle except it uses greater power and appropriate frequencies so that the acoustic source signal penetrates the sediments of the sea floor.

Now what does all this mean for Australia? As mentioned at the start of this paper, it does give Australia a vast marine jurisdiction. When thinking about Australia as a legal and resource entity rather than just a landmass, 61% of Australia is beneath water. For those interested in Naval and marine matters that is a very interesting point to bear in mind. More of Australia in terms of its legal and resource characteristics lies beneath the ocean than the land (Figure 17). Australia's large landmass of about 7.7 million square kilometres is dwarfed by its marine zone. The 200 M exclusive economic zone of about 8.6 million square kilometres, and the extended shelf of about 3.8 million square kilometres creates a total marine jurisdiction around Australia and its island territories, excluding

Antarctica, of more than 12 million square kilometres. If Antarctica is added to the figures, the total area is over16 million square kilometres–a vast marine jurisdiction. If the land and marine jurisdictions are added together, the total legal and resource jurisdiction under Australian control is in the order of 24 square million kilometres. Just from the point of view of size alone this is a very significant issue for the country.

Who is involved in carrying out the work to define Australia's extended continental shelf? There is a broad-ranging inter-departmental committee (IDC) that looks at many of the issues related to the Law of the Sea. Most of the technical and legal work is conducted through a technical sub-committee of that IDC, and more recently, a CLCS Submission Working Group was established to oversee the preparation of Australia's case to be presented to the United Nations' Commission on the Limits of the Continental Shelf. As previously mentioned, under the Convention a country typically has ten years from the time it ratifies the Convention in which to make a submission for extended continental shelf. The ten years allows the country sufficient time to complete the necessary survey and interpretive work, and prepare its submission for the CLCS. In the case of Australia, the original deadline was 16th of November 2004, but a 2001 decision of States Parties to UNCLOS extended this to May 2009. Despite this, a number of developed countries are still working towards the original deadline.

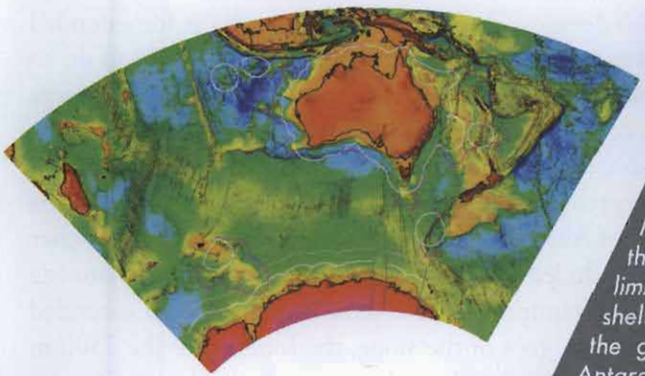

Figure 17: Image of the seafloor around Australia and its territories showing the extent of Australia's main marine jurisdictional zones. The white line is the outer limit of Australia's 200 M exclusive economic zone; the magenta line is the outer limit of the extended continental shelf (ECS) beyond 200 M; and the grey line off the Australian Antarctic Territory is the maximum outer limit of an ECS based on the 350 M constraint of Article 76.

The organisations involved in defining Australia's extended continental shelf are the Department of Foreign Affairs and Trade (DFAT), the Attorney-General's Department and the Department of Industry, Tourism and Resources' Geoscience Australia (GA). Geoscience Australia has two of its divisions working on the task. The Law of the Sea project of the Petroleum and Marine Division carries out the geoscience part of the work, which involves analysing the morphology of the margin and mapping the sediment thickness. The other group, from the National Mapping Division, is involved in the geodetic computational work and determining the territorial sea baseline. All of these departments/agencies are working closely together to complete the task.

There are essentially three stages in determining the outer limit of extended continental shelf. The first is to acquire new data and compile existing data; the second is to interpret and analyse the data according to the rules of Article 76 of UNCLOS; and the third is to prepare the submission to the CLCS. Since 1994, Australia has been undertaking survey work for this purpose around both Australia and its external territories, including off Antarctica. Australia is currently about half way through the final submission phase and expects to complete the main body of this work in early 2004. At this stage, Australia is working towards making its submission towards the end of 2004. If Australia's work is found to be sound by the CLCS it will have an outer limit for the continental shelf that will be final, binding and valid under international law.

Australia has so far made no decision about making a submission for extended shelf off Antarctica. However, it has put itself in a position to be able to do so if it chooses by ensuring that all the necessary data have been acquired. A large amount of survey work was conduct off Australia's Antarctic Territory (AAT) for this purpose in 2001 and 2002, and this is currently being interpreted. A vast amount of survey and interpretive work has also been carried out to support definition of the outer limit of Australia's extended continental shelf over other areas of margin. This work included desktop studies of existing data; planning and conducting new surveys; examining all the data in ten areas of extended continental shelf to determine the foot of the slope, the location of the 2500 m isobath and the sediment thickness; using these data to apply the Article 76 rules and derive and outer limit of the extended continental shelf.

What is the point of all of this work and expenditure to define areas of extended jurisdiction? What's in it for Australia? Many of the areas under consideration

are generally remote and in deep water way beyond the normal 200 m deep geomorphic shelf. Although many of these areas are still very poorly known, there are indications in some places of the presence of conventional resources such as petroleum. There may also be possibilities for the presence of unconventional living and non-living resources as well, such as organisms that may have biotechnological uses, and gas hydrates. The reality is that the actual resource and environmental significance of these remote areas is likely to remain unknown well into the future. There are a number of potential resources that have been discovered in the world's oceans in recent times that are now being studied and explored. Some of these may be of economic interest to Australia and other countries in the future.

For example, gas hydrates, which are frozen methane trapped within the sedimentary section beneath the deeper parts of some continental margins are believe by some to represent a long-term resource. Recent estimates of the global gas resources in hydrates suggest they may hold twice the energy contained in all of the world's oil, coal and natural gas. Gas hydrates are ice-like crystalline solids formed from a mixture of water and natural gas, mostly methane. They occur widely beneath the deep ocean in the pores in sediments and sedimentary rocks where the pressure is high and the temperature is low. The methane in gas hydrates is usually from one of two sources-bacterial activity in the shallow sediments (biogenic methane), or from the same processes that create petroleum deep in sedimentary basins (thermogenic methane). Gas hydrates can be detected in reflection seismic profiles, which provide a cross-section through the strata below the seabed under the survey ship. The hydrates can form a reflective layer that roughly parallels the sea bed about 500-700 m beneath it-a 'bottom simulating reflector' (BSR). Where strong BSRs have been sampled appropriately, at or below the seabed, gas hydrates have been recovered. However, not all BSRs are associated with gas hydrates, and can also represent other chemical (diagenetic) changes within the sediments. In some cases these same seismic data also provide indications of potentially normal hydrocarbon accumulations in association with the gas hydrates. Not only do gas hydrates occur beneath the sea floor, they occasionally burst out onto the sea floor and whole ecosystems thrive on the bacteria and microbes that are associated with them. In some places, exposed gas hydrate accumulations release their gas forming a gas plume rising from the top of the deposit. These gas plumes can be good indicators of where methane is stored

within the sediments, but they can also be potential pollutants within the water column as well as sources of seafloor instability. The commercial recovery of gas from hydrates is a very difficult engineering challenge, and it is likely it will take many years to develop appropriate extraction technologies.

The continental shelf regime not only deals with non-living resources such as minerals and petroleum, but also resources that live on, or beneath the sea floor. Until recently, the deep ocean floor has commonly been thought of as a very sterile environment. However, over the last few years scientific drilling into the sea floor by the Ocean Drilling Program has discovered that there are whole ecosystems living beneath the seafloor down to nearly 1000 metres depth that largely consists of bacteria and microbes—the so-called deep biosphere. Very little is know about these unique organisms, but some have already been shown to have biotechnological uses. These living organisms within the continental shelf and adjacent EEZ regime may ultimately prove to be one of the most significant aspects of the deep marine jurisdiction. Whether these living resources will ever be economic is another matter.

In the last five to ten years has a lot of work has commenced on the organisms of the deep biosphere that are known from drilling to occur down to at least 700 or 800 metres beneath the sea floor in water depths of up to 4000 metres—that is, up to 5000 metres below sea level. It is now thought that there are whole biological communities in place living within the sediments and solid crystalline rock beneath the sea floor. These organisms can live in cracks and crevasses within basaltic rocks, and some of the microbes actually feed on the inorganic minerals of the rock. This makes them very unique organisms, and this type of biochemistry may have great potential use in the future. Some of these organisms have been studied, and the enzymes from them have been looked at because of their characteristic of being able to survive in very high temperatures. There is an increasing level of bio-exploration going on around the world at the moment partly focussed on locating and extracting microbes of the deep biosphere for biotechnological purposes. This is a new resource regime, which up until about ten years ago, was totally unknown.

Under UNCLOS, Australia has sovereign rights over resources, and associated environmental responsibilities, for a very large marine jurisdiction of at least 12 million square kilometres. The sustainable management of this jurisdiction

will raise many challenges for science, technology and engineering, and also for managers and enforcers of national legislation. How will Australia protect the environment and the resources that it currently can't even speculate about, that lie within its vast marine jurisdiction? This is a very significant issue to deal with, particularly given the unknowns involved, and the often remote and harsh nature of much of our marine jurisdiction.

References

Symonds, P.A.; Willcox, J.B. (1989) Australia's petroleum potential in areas beyond an Exclusive Economic Zone. *BMR Journal of Australian Geology & Geophysics*, 11(1), 11-36.

Symonds, P.A.; Murphy, B.; Ramsay, D.; Lockwood K.; Borissova, A.I. (1998) The outer limits of Australia's resource jurisdiction off Western Australia. Purcell P.G. & R.R eds. *The Sedimentary basins of Western Australia 2: Proceedings of Petroleum Exploration Society of Australia Symposium*, Perth, WA, 1998, p. 3-20.

United Nations (1983) The Law of the Sea: official text of the United Nations Convention on the Law of the Sea with annexes and index, 224p. United Nations, New York.

The implications of the WCPFC for Australia's maritime regulation and enforcement

10

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The Convention for the Conservation and Management of the Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC)[7] was adopted to ensure the long-term conservation and sustainable use of highly migratory fish stocks in the western and central Pacific Region (WCP Region). The adoption and implementation of the WCPFC has implications for Australia's Maritime Regulation and Enforcement, because the WCP regional conservation and management measures that will be adopted require enforcement and include provisions for regional monitoring, control and surveillance (MCS) efforts. Consistent with the FAO Compliance Agreement[8], UNFSA[9] and FAO Code of Conduct[10], such MCS provisions further build on those of the United Nations Convention on the Law of the Sea (UNCLOS)[11].

UNCLOS established zones of jurisdiction and the rights of both coastal States and foreign States within each zone. Such rights include the sovereign rights of coastal States to exploit, conserve and manage the natural resources found within their Exclusive Economic Zones (EEZs)[12] and the freedom for any State to fish on the high seas. Article 63 of UNCLOS also obliges States to cooperate to adopt measures for shared and straddling stocks and Article 64 makes particular provision for cooperation between States to ensure the conservation and promote the optimum utilisation of highly migratory fish stocks. However UNCLOS did not define how States were to cooperate to establish, implement and enforce measures for such stocks. In recognition of these deficiencies the international community has made both binding and voluntary attempts to address such limitations in the fisheries aspects of the Law of the Sea regime.

The FAO Compliance Agreement[13] aimed to improve implementation of UNCLOS fishing provisions through obliging Flag States[14] to take greater responsibility for ensuring the compliance of their fishing vessels with international conservation and management measures. Flag States are not to authorise fishing vessels to fish on the high seas unless the State is sure that it could effectively exercise its Flag State responsibilities in respect of each vessel. The UNFSA[15] specifically aims to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks. The UNFSA implements UNCLOS by defining a framework for cooperation which requires coastal States and Flag States to establish regional fisheries management organisations. Within such regional organisations, States were to agree on specific conservation and management measures intended to ensure the long-term sustainability of the stocks, including cooperative mechanisms for effective MCS and enforcement[16]. To further encourage cooperation between States, non-parties to the organisations are not to have access to the resources covered by such organisations[17] and Parties may take measures consistent with international law to deter the activities of vessels that undermine conservation and management measures[18]. Flag State responsibilities were also further described and States are to control vessels flying their flag and fishing on the high seas through proper authorisation and permit systems. States should also take all measures necessary to ensure that their vessels comply with subregional and regional conservation and management measures[19], including taking enforcement action irrespective of where violations occur[20]. The FAO Code of Conduct is a voluntary instrument with its objective to establish principles for responsible fishing and fisheries, it re-emphasises the provisions of the FAO Compliance Agreement and UNFSA.

Within the WCP region there are many examples of regional cooperation particularly for MCS and enforcement, Australia plays a significant role in many of these. The WCP region (Figure 18) is unique in that it consists of many small-island-developing States that have limited resources for maritime regulation and enforcement and secondly they have very large EEZ areas relative to land area, which further constrains effective MCS and enforcement. Recognising these constraints, the Governments of the South Pacific Forum adopted the FFA Convention in 1979, which formally established regional cooperation and coordination, particularly for highly migratory species, in surveillance and enforcement. Subsequently the subregional Nauru Agreement was adopted[21] to

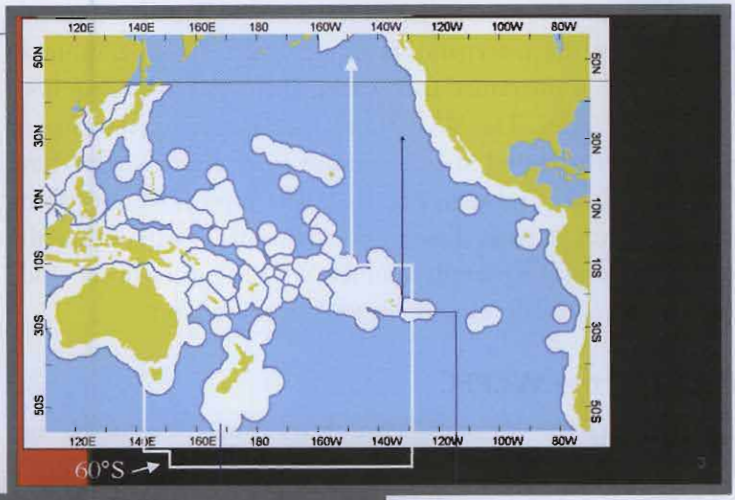

Figure 18: WCP Region

further coordinate and harmonise the management of common fisheries stocks within the EEZs of the subregion. Minimum terms and conditions under which foreign fishing vessels are licenced to fish within EEZs were originally developed under the Nauru Agreement, the members of the FFA subsequently adopted them for the WCP region. The Harmonised Minimum Terms and Conditions for Foreign Fishing Vessels Access have improved the compliance of foreign fishing vessels within the WCP region in a non-physical enforcement manner, by requiring, as a licence condition, that vessels comply with all regional boarding and inspection procedures, marking requirements and reporting. Vessels must also comply with a regional satellite vessel monitoring system. These terms and conditions have further been enforced by making them a requirement for listing on the Regional Register of Foreign Fishing Vessels[22], which is a precondition of eligibility to apply for a licence to fish within the EEZs of one or more coastal States within the WCP region. The Niue Treaty[23] sets out a framework of cooperation to develop regionally agreed procedures for the conduct of fisheries surveillance and law enforcement. Such procedures include developing agreements with other WCP States to provide shared access to EEZ areas for surveillance and law enforcement; another State can pursue and board and inspect a vessel within another States EEZ. Regional inspectors can also be authorised to conduct boarding, inspections and enforcement anywhere within the WCP region.

The WCPFC has significant implications for MCS and enforcement arrangements within the region. It follows the international framework for cooperation set out by the UNFSA for highly migratory fish stocks, including involving both Fishing States and Coastal States. The WCPFC further builds on the current WCP regional arrangements outlined above, because such arrangements have only been between coastal States and then imposed, where possible, on fishing vessels as licence requirements. Bearing these in mind this paper will outline the key enforcement components of the recently adopted WCPFC and will conclude with the implications of these new developments to Australia's Navy.

General provisions of the WCPFC

The WCPFC aims to ensure the long-term conservation and sustainable use of highly migratory fish stocks in the WCP region[24]. The area of application of the WCPFC (Convention Area) is defined as the waters bounded to the south and east of a specified boundary[25] illustrated in Figure 1. The WCPFC applies throughout the range of highly migratory fish stocks within the Convention Area, except sauries[26]. The Convention Area is ideal from a scientific perspective because it encompasses the theoretical range of the four primary tuna stocks[27] to which the Convention applies. However, owing to the undefined northern and western boundaries, the definition of the Convention Area is less than ideal from a regulatory perspective; it is yet to be seen in practice how conservation and management measures that apply to such an unspecified area[28] will be implemented and enforced.

A Commission for the Conservation and Management of Highly Migratory Fish Stocks of the Western and Central Pacific Ocean (the Commission) is established under Article 9. The Commission is the supreme decision-making body of and it is the role of the Commission to determine conservation and management measures for highly migratory fish stocks in the Convention Area, including establishing cooperative mechanisms for effective MCS and enforcement[29] within the Convention Area. All decisions of the Commission are binding on, and are to be promptly implemented by, members of the Commission (parties to the WCPFC). To assist the Commission a Technical and Compliance Committee is established under Article 11 to provide information, technical advice and recommendations on the implementation of, and compliance with, conservation and management measures adopted by the Commission[30]. To enable such advice

and recommendations to be made the Technical and Compliance Committee shall also monitor and review compliance with conservation and management measures and review the implementation of cooperative measures for MCS and enforcement[31].

The WCPFC was developed through the cooperation of both coastal States (Pacific Islands) and fishing States, all have the option of becoming participating members once the WCPFC is in force, Table 1 lists the potential members and the status of the Convention. Despite the wide involvement of both coastal and fishing States in the development[32] and current implementation[33] of the WCPFC, the WCPFC is not yet in force. The Convention will enter into force 30 days after ratification by 3 States 'situated north of the 20° parallel of north latitude' and 7 States 'situated south of the 20° parallel of north latitude (3 Non-Pacific Islands parties or fishing States and 7 Pacific Islands parties, refer to Table 1). Additionally if it is not in force by 4 September 2003, the WCPFC will enter into force 6 months after any 13 States have ratified: in effect it could be brought into force with ratifications of only Pacific Islands parties. Therefore it is possible that Pacific Islands parties could solely comprise the membership of the Commission and without the support of the major fishing States the effectiveness of any conservation and management measures established by the Commission will be jeopardised.

Table 1. Status of the convention as of 25 February 2002[34]

Country	Signed[35]	Ratified	
Australia	Y		Pacific Islands Party
Canada	Y		
China			
Chinese Taipei	Y[36]		
Cook Islands	Y		Pacific Islands Party
Federated States of Micronesia	Y		Pacific Islands Party
Fiji	Y	Y	Pacific Islands Party
France			
Indonesia	Y		
Japan			
Kiribati			Pacific Islands Party
Korea			
Marshall Islands	Y	Y	Pacific Islands Party
Nauru	Y		Pacific Islands Party
New Zealand	Y		Pacific Islands Party
Niue	Y		Pacific Islands Party
Palau	Y		Pacific Islands Party
Papua New Guinea	Y	Y	Pacific Islands Party
Philippines	Y		
Samoa	Y	Y	Pacific Islands Party
Solomon Islands	Y		Pacific Islands Party
Tonga	Y		Pacific Islands Party
Tuvalu	Y		Pacific Islands Party
United Kingdom[37]			Pacific Islands Party
USA	Y		
Vanuatu	Y		Pacific Islands Party

Generally individual members are to promptly implement the provisions of the WCPFC and any conservation and management measures agreed pursuant to the WCPFC. Additionally members are, to the greatest extent possible, to take measures to ensure that its nationals and fishing vessels owned or controlled by its nationals fishing in the Convention Area, comply with the provisions of the WCPFC[38]. Members should also keep the Commission informed of measures they taken to implement the conservation and management measures adopted by the Commission[39]. This provision raises practical questions from a regulatory perspective, particularly what is a national? And how does a country control or even keep track of all its citizens and their activities both inside their country and outside it? Additionally ambiguities of the Convention Area and the possibility of entry into force of the WCPFC without the support of all parties with a 'real interest' in the stocks to which the WCPFC applies, are definite obstacles to achieving effective management and the long-term conservation and sustainable use of highly migratory fish stocks in the WCP region. Furthermore such issues are very real practical obstacles to MCS and enforcement of any conservation and management measures established by the Commission.

Key enforcement components of the WCPFC

MCS and enforcement obligations on parties to the WCPFC can be divided into two parts: physical and non-physical measures.

Physical enforcement measures

The general principles for compliance and enforcement are found in Article 25 of the WCPFC. Article 25 sets out the principles for compliance and enforcement by members of the Commission, with regard to fishing vessels flying their flag. In situations where a vessel is suspected of violating the conservation and management measures established by the Commission, the Flag State of the vessel should be notified of the violation[40].

Non-parties to a Convention have the potential to undermine the effectiveness of conservation and management measures adopted by a regional fisheries management organisation. Article 32 of the WCPFC allows the Commission to develop procedures to deter fishing vessels that undermine measures adopted by the Commission, however such measures may only be imposed until such time as appropriate action is taken by the Flag State.

Article 26 of the WCPFC allows the Commission to develop procedures for boarding and inspection of fishing vessels on the high seas. Such procedures shall be for the purpose of ensuring compliance with conservation and management measures. The WCPFC already stipulates certain legal requirements, in that vessels used for boarding and inspection of fishing vessels on the high seas shall be marked and identifiable as being on government service and authorized to undertake high seas boarding. Article 6(2) of Annex III of the WCPFC also provides that

> "The master and each member of the crew of the vessel shall immediately comply with every instruction and direction given by an authorised and identified officer of the Commission, including to stop, to move to a safe location, and to facilitate safe boarding and inspection of the vessel, its licence, gear, equipment, records, facilities, fish and fish products. Such boarding and inspection shall be conducted as much as possible in a manner so as not to interfere unduly with the lawful operation of the vessel. The operator and each member of the crew shall facilitate and assist in any action by an authorised officer and shall not assault, obstruct, resist, delay, refuse boarding to, intimidate or interfere with an authorised officer in the performance of his or her duties."

The remaining practical aspects of boarding and inspection procedures are being worked out at the WCPFC Preparatory Conferences[41].

Another tool that relates to boarding and inspection is the placement of observers on fishing vessels. Article 28 of the WCPFC provides for the establishment of a regional observer program, to collect verified catch data, other scientific data and additional information on the fishery in the Convention Area and to monitor the implementation of conservation and management measures. Article 3 of Annex III of the WCPFC stipulates the obligations of vessels and their crew in respect of observers. Such obligations include pick-up and drop-off at a place and time agreed to, safety and full access on the vessel for the observer to carry out his or her duties.

Physical enforcement powers may also be exercised when the fishing vessel enters the port or offshore terminal of a member of the Commission. Article 27 of the WCPFC recognizes the right of a Port State under international law, to take enforcement measures. Port State powers include the inspection of

documents, fishing gear and catch on board fishing vessels. Port States may also enact laws to restrict landings of fish caught in violation of measures adopted by the Commission.

The various Articles discussed above give the Parties various powers to carry out physical enforcement of conservation and management measures on the high seas. In addition, the WCPFC also makes provisions to allow the Parties to enforce measures in a non-physical way.

Non-physical enforcement measures

Non-physical enforcement measures offer many advantages to ensuring enforcement of conservation and management measures in the WCP region. Article 24(8) requires each member of the Commission to require its fishing vessels that fish for highly migratory fish stocks on the high seas in the Convention Area to use near real time satellite position-fixing transmitters while in such areas. Such a vessel monitoring system would probably build on that of the current regional vessel monitoring system that is maintained by FFA. The advantage of such a vessel monitoring system is that it helps determine the position of a vessel at any given time.

Other requirements that facilitate enforcement are stipulated in Article 6 of Annex III. These are:

- The authorisation and licence issued by the Flag State and Coastal State must be carried on board the vessel at all times and produced to an authorised enforcement official of any member of the Commission.
- The vessel shall be marked and identified in accordance with the FAO Standard Specifications for the Marking and Identification of Fishing Vessels or such other standards adopted by the Commission.

The marking of vessels would assist to identify a vessel and determine whether a vessel is authorised or licensed to fish in the Convention Area. It is a requirement that at all times when the vessel is in the Convention Area, all parts of such markings shall be clear, distinct and uncovered.

Controls are also achieved through the general discouragement of transhipment at sea, to "*support efforts to ensure accurate reporting of catches*"[42]. Article 29.4 of WCPFC instructs that transshipment may only take place in accordance with

specified procedures developed by the Commission and terms and conditions stipulated in Article 4 of Annex III, including a general prohibition on transshipment at sea by purse seine vessels operating within the Convention Area[43].

Finally the imposition of Flag State responsibilities and general member responsibilities for their nationals[44] are other means of non-physical enforcement. Article 24 of the WCPFC establishes a rigorous Flag State responsibility regime. The essential features of the regime are that a member of the Commission shall not allow a vessel flying its flag to fish on the high seas without proper authorization. Article 24 is to be applied in conjunction with Article 25, which also establishes a regime for enforcement and compliance by members of the Commission.

Implications for Australia's navy

The WCP region, being largely comprised of many small-island-developing States as Coastal States, faces significant constraints towards achieving effective maritime regulation and enforcement. International developments in international fisheries law, post UNCLOS, have formalized tools that the WCP region has been able to use in bettering their maritime regulation and enforcement. Within the WCP region, Pacific Island States have also taken initiatives to cooperate with each other to better coordinate and harmonise management, surveillance and enforcement of fisheries. Such cooperative arrangements have been further implemented by making them require a licence to fish within the EEZ of any Pacific Island State and thus the WCP region as a whole. Australia and New Zealand, as the more developed of the Pacific Island States, have been instrumental in such arrangements. The implications of the WCPFC, particularly the MCS and enforcement aspects, on Pacific Island States once the WCPFC is in force, are likely to be significant on Australia's Navy. The role of Australia's Navy in the WCP region could be expected to further increase should the membership of the Commission be largely comprised of Pacific Island States and with little support from Fishing States.

Many enforcement provisions of the WCPFC have been discussed and those that relate to boarding and inspection and other aspects of physical enforcement have particular implications on Australia's Navy. Many of these provisions are stated

generally within the WCPFC, with the specifics of procedures and rules still to be determined. Such ambiguities include:

- the extent of flag State responsibility and general member responsibility for ensuring the compliance of their "nationals" with regional conservation and management measures;
- the measures that may be taken, consistent with international law to discourage the activities of non-Parties;
- the measures that may be taken by a Port State to enforce regional conservation and management measures, and
- the procedures and authorizations for boarding and inspection both on the high seas and in the EEZs of other Coastal States.

Similarly for the non-physical enforcement measures, the details on the vessel-monitoring system and who may be able to access the information has not yet been determined, and the procedures to control transshipment are also undefined.

These ambiguities place greater significance on the current Preparatory Conferences (PrepCon) process in implementing the WCPFC. At these meetings the procedures, arrangements and rules are being debated for all aspects of the Commission. At PrepCon3 WGIII began its work on defining the needs of the Commission with respect to MCS. The principle elements for a boarding and inspection scheme and observer programme were adopted, and are to be further elaborated upon at future PrepCon's to be held in 2003. The Principle Elements for a Boarding and Inspection Scheme are:

- definition, scope and objectives of the boarding and inspection scheme.
- vessels and personnel authorized to conduct boarding and inspection activities on the high seas in the Convention Area.
- guidelines governing boarding and inspection procedures.
- guidelines governing use of force.
- mechanism for coordination between the Secretariat, enforcement authorities of Parties involved in high seas boarding and inspection activities and enforcement authorities exercising jurisdiction over vessels fishing in the Convention Area and between respective enforcement authorities of Parties[45].

A draft boarding and inspection scheme is to be debated at PrepCon4 in early 2003. It is necessary that maritime enforcement policy planners in Australia's Navy take serious interest in WCPFC because of its likely implications for the Navy.

Notes

1 Registered trademark of Environmental Systems Research Institute Inc. (ESRI).

2 On the wider background of change see L.Freedman, *The Revolution in Strategic Affairs*, International Institute for Strategic Studies Adelphi Paper 318 (London, 1998). On the advent of transnational terrorism see 'Countering Terror after 11 September. Early Lessons, Future Challenges' in *The Military Balance 2002-2003* (International Institute for Strategic Studies: London, 2002), p. 237 et passim.

3 On these traditional principles see *Australian Maritime Doctrine: RAN Doctrine 1* (Defence Publishing Service: Canberra, 2000).

4 N.Friedman, *Seapower as Strategy. Navies and National Interests* (US Naval Institute Press: Annapolis, 2001).

5 For a general discussion see M. Murfett, 'All Bets Are Off: the Maritime Situation in South-east Asia in the Year 2000' in G.Till (ed.), *Seapower at the Millennium* (Sutton/Royal Naval Museum: Stroud/Portsmouth, 2001).

6 J.R. Jones, *The Anglo-Dutch Wars* (Longman: London, 1996), pp. 11-12.

7 Adopted in Honolulu, Hawaii on the 5th September 2000.

8 Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, of 24 November 1993.

9 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, of 4 December 1995.

10 FAO Code of Conduct for Responsible Fisheries, of 31 October 1995.

11 United Nations Convention on the Law of the Sea, of 10 December 1982.

12 Exclusive Economic Zones.

13 Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, of 24 November 1993.

[14] States which has fishing vessels flying its flag and fishing in areas outside its own jurisdiction, such as on the high seas or in another States waters.

[15] Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, of 4 December 1995

[16] UNFSA, Article 10

[17] UNFSA, Article 8(4)

[18] UNFSA, Article 17

[19] UNFSA, Article 18

[20] UNFSA, Article 19

[21] On 11 February 1982, by Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.

[22] Maintained by the FFA and updated annually. Vessels may be blacklisted if found to be uncompliant.

[23] Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region, of 9 July 1992.

[24] WCPFC, Article 2

[25] WCPFC, Article 3(1)

From the south coast of Australia due south along the 141° meridian of east longitude to its intersection with the 55° parallel of south latitude; thence due east along the 55° parallel of south latitude to its intersection with the 150° meridian of east longitude to its intersection with the 60° parallel of south latitude; thence due east along the 60° parallel of south latitude to its intersection with the 130° meridian of west longitude; thence due north along the 130° meridian of west longitude to its intersection with the 4° parallel of south latitude; thence due west along the 4° parallel of south latitude to its intersection with the 150° meridian of west longitude; thence due north along the 150° meridian of west longitude.

[26] WCPFC, Article 3(3)

[27] skipjack tuna, *Katsuwonus pelamis*; yellowfin tuna, *Thunnus albacares*; albacore tuna, Thunnus alalunga; bigeye tuna, *Thunnus obesus*.

[28] The migratory range of all highly migratory fish stocks, except sauries.

[29] WCPFC, Article 10(i)

[30] WCPFC, Article 14.1(a)

[31] WCPFC, Article 14.1 (b) and (c)

[32] Multilateral High Level Conferences (MHLC); 4 were held from 1994 - 2000.

[33] Preparatory Conferences (PrepCon); 3 have been held as of the end of 2002, and 2 more are intended for 2003.

[34] Adapted from Working Paper: WCPFC/BP.1/Rev/4, presented at PrepCon2, Madang, Papua New Guinea 25 Feb-1 Mar 2002.

[35] In accordance with WCPFC, Article 34, the WCFSC was opened for signature for 12 months from 5 September 2000.

[36] Chinese Taipei is not considered a member as such, they have agreed to the Convention through signing the Arrangement for the Participation of Fishing Entities.

[37] (for Pitcairn, Henderson, Ducie and Oeno Islands).

[38] WCPFC, Article 23.5

[39] WCPFC, Article 23.2 (c)

[40] WCPFC, Article 25.10

[41] A special working group, WGIII began its work on the practical procedures for MCS and enforcement at PrepCon3 (3rd Preparatory Conference), held in Manila, Philippines 18-23 November 2002 and will continue its work over the next two Preparatory Conferences scheduled for 2003.

[42] WCPFC Article 29

[43] WCPFC Article 29.5

[44] WCPFC Article 23.5

[45] Summary Report by the Chairman of Working Group III, presented at PrepCon3, Manila, Philippines 18-22 November 2002.

Closing remarks to the maritime studies program

Commodore Warwick Gately, RAN,
Director General,
Navy Strategic Policy and Futures,
Department of Defence

I am very sorry that I was not able to attend all the proceedings. To put you in the picture, my role is as the Director General of Naval Strategic Policy and Futures (DGNSPF) and the Sea Power Centre – Australia (SPC-A) and the Naval History section (NHS) come under my area of responsibility, so Richard Menhinick has asked me to come out here today. I didn't take part yesterday and I've only been here really for the last hour today. The reason being that I've been in Canberra and in Sydney with a Canadian delegation conducting Navy to Navy talks, mostly at the operational and tactical level, about issues of common concern.

Not surprisingly, between Canada and Australia there are a lot of common interests, particularly relating to personnel and operational tempo. The problems we have with retention and recruiting. The problem that we both have in operating in distant theatres, trying to stay interoperable with the United States at really quite considerable costs, and what we need to do for the future to be able to retain that ability. We were listening to them about some of the harsh environments that they operate in, not unlike the seas around Heard Island. They need ice strengthened vessels. They've got an apathetic government that isn't really that interested in Defence spending. A comment was made, and it comes back to your point John, about previously seeking safety and security in harbour. The Canadians made a comment that a recent returned deployment from the Middle East could not find a port in South East Asia that met their needs. They kept going to Hawaii and then back to Canada looking for security in allied Naval bases and we may well find ourselves in that same situation in the future. That is a change in what we're doing, so our sailors for example aren't getting respite. When in the Middle East they're involved in force protection ashore, in what is normally a period of off time in harbour. So they don't get the rest, and then they go back on station again. We need to watch where we go with that issue.

I'm relying on the staff here to give me some comments about the proceedings through the course of yesterday and today and I'll just reflect on those. Firstly Dr Norman Friedman, thank you for coming out for the Synott Lectures and for providing the keynote address here. Having now heard you talk a couple of times, it is entertaining, it is thought provoking, so we thank you very much for that.

The group presentation that was put together by Dr Phil Symonds, Mr Bill Campbell, Dr Greg French and Mr Bill Hirst on the issues surrounding the definition of our continental shelf and the delimitation of our maritime boundaries highlighted for many, I believe, the complexity of our offshore jurisdiction. I think that was evident in some of the questions here today that Professor Martin Tsamenyi and Professor Stuart Kaye both answered. Of course Stuart, your presentation on boundary delimitation with East Timor was something of an education. I also believe Paul Ryan's presentation on illegal and unlicensed fishing sparked some debate with some unusual options for enforcement being raised, and Tony Powell got into that in a bit more detail today when he spoke of future capability development options and plans for the Royal Australian Navy (RAN).

In my previous job I was very closely involved in the Heard Island activity and particularly the operation where we mounted Special Air Services (SAS) across to South Africa and we had great support there. We had a successful conclusion to that. So it will be interesting to see where government takes the paperwork in relation to sovereignty protection. What are they prepared to spend? What do they want to do with that? Which agency will take responsibility for that? It is a national problem, it is not just a Defence issue and I think we'll all watch carefully how that unfolds. Martin Tsamenyi, this morning you spoke about the convention for the conservation and management of migratory fish stocks and you looked at the increasing maritime enforcement obligations that Australia has, so I thank you for that.

Thank you also to LCDR Tony Powell for your update on maritime development. It's an interesting area. What government requires Navy to do, what government is prepared to spend in achieving that: Technology is not cheap. Norman some of your comments there in relation to steel being cheap, we need to think about that. We need to think about what we want to do in the future, the issues of obsolescence, sensors, all those matters that you've spoken about before, so Tony thank you for your comments.

I enjoyed the open forum and that was a lively discussion as well. Dr John Reeve your introductory comments I think were quite relevant and appropriate. I'd like to thank you all for being involved in this period. I understand that there'll be a book that Martin Tsamenyi and Richard Menhinick will put together, so we'll look forward to that as well. Thank you for your involvement and your attendance and we'd like you to join us for lunch. Thank you very much.