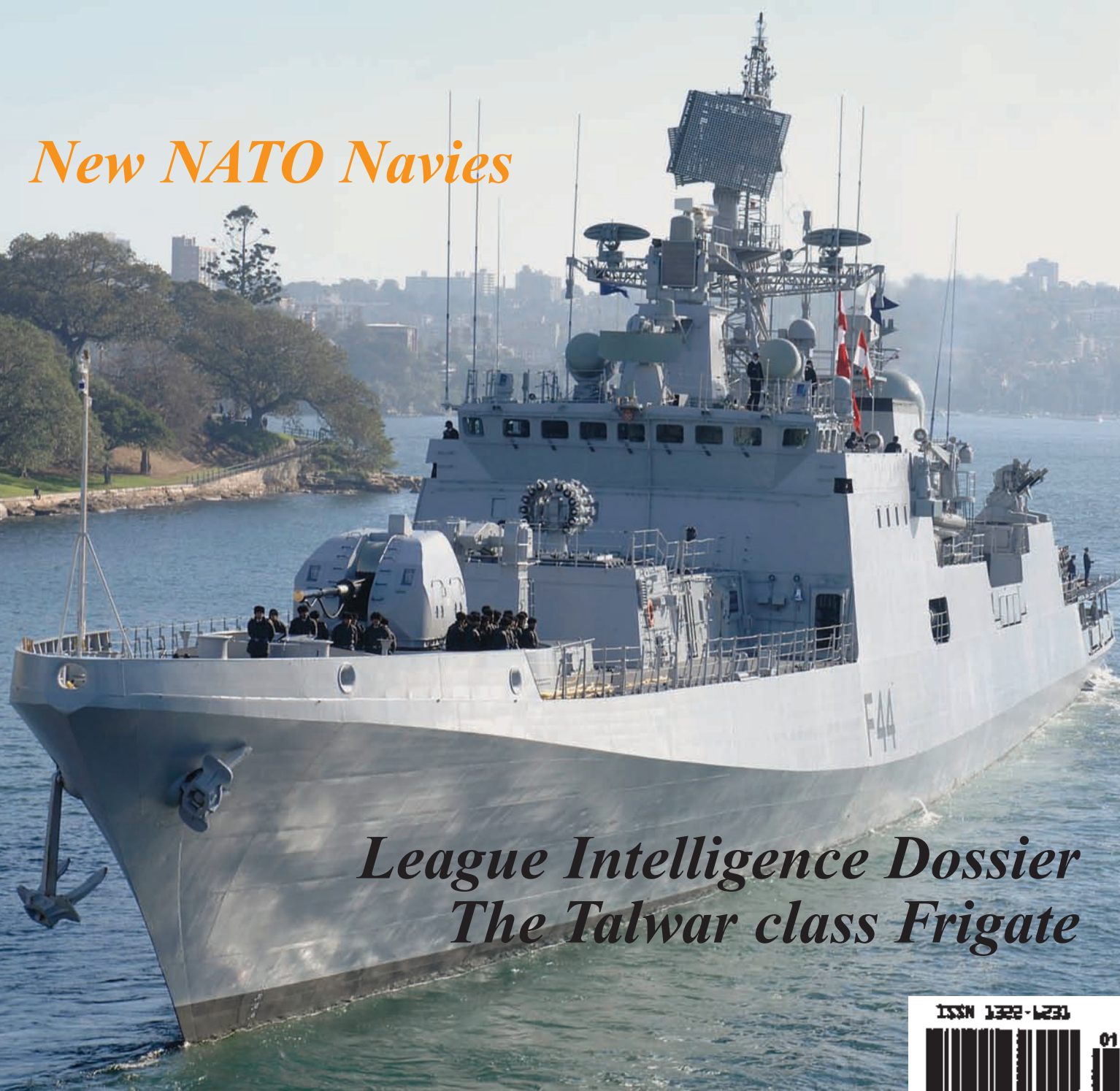


# THE NAVY

The Magazine of the Navy League of Australia

*JP2048 The 'Fat' Ships*

*New NATO Navies*



*League Intelligence Dossier  
The Talwar class Frigate*

*Australia's Leading Naval Magazine Since 1938*

ISSN 1322-1231



9 771322 023000

01



The Pakistani Naval Ship PNS TIPPU SULTAN exercising with US Warships recently off Pakistan. The PNS TIPPU SULTAN was the former RN Type 21 frigate ACTIVE. (USN)



The Romanian frigate MARASESTI seen here in a Turkish harbour participating in a NATO exercise. (NATO)



# THE NAVY

## Volume 69 No. 1

### Contents

#### JP2048 THE 'FAT' SHIPS

By Conrad Wagner and Roger Thornhill Page 7

#### NAVY LEAGUE INTELLIGENCE DOSSIER THE TALWAR CLASS FRIGATE

By Ian Johnson and George Kaplan Page 20

#### NEW NATO NAVIES BREAK RUSSIA'S BLACK SEA MONOPOLY

By Charles Strathdee Page 26

### Regular Features

From the Crow's Nest	Page 2
From our Readers	Page 3
The Presidents Page	Page 5
Flash Traffic	Page 11
Observations	Page 19
Hatch, Match & Dispatch	Page 29
Product Review	Page 31
League Policy Statement	Page 32

The opinions or assertions expressed in *THE NAVY* are those of the authors and not necessarily those of the Federal Council of the Navy League of Australia, the Editor of *THE NAVY*, the RAN or the Department of Defence. The Editor welcomes correspondence, photographs and contributions and will assume that by making submissions, contributors agree that all material may be used free of charge, edited and amended at the Editor's discretion. No part of this publication may be reproduced without the permission of the Editor.

**Front cover:** The Indian Naval frigate INS TABAR approaching Sydney's Garden Island for a port visit. The Talwar class is featured in a special 'Intelligence Dossier' in this edition. (RAN)

#### *The Navy*

All letters and contributions to:

**The Office of The Editor**

**THE NAVY**

**Navy League of Australia**

**GPO Box 1719**

**Sydney, NSW 2001**

E-mail to: [editorthenavy@hotmail.com](mailto:editorthenavy@hotmail.com)

**All Subscriptions, Membership and Advertising enquiries to:**

The Hon Secretary,

Navy League of Australia, NSW Division

GPO Box 1719

Sydney, NSW 2001

**Deadline for next edition 5 February, 2007**

## The Navy League of Australia

### FEDERAL COUNCIL

**Patron in Chief:** His Excellency, The Governor General.

**President:** Graham M Harris, RFD.

**Vice-Presidents:** RADM A.J. Robertson, AO, DSC, RAN (Rtd): John Bird, CDRE H.J.P. Adams, AM, RAN (Rtd). CAPT H.A. Josephs, AM, RAN (Rtd)

**Hon. Secretary:** Philip Corboy, PO Box 2063, Moorabbin, Vic 3189.

Telephone: 1300 739 681, Fax: 1300 739 682,

Email: [nla@wxc.com.au](mailto:nla@wxc.com.au).

### NEW SOUTH WALES DIVISION

**Patron:** Her Excellency, The Governor of New South Wales.

**President:** R O Albert, AO, RFD, RD.

**Hon. Secretary:** Elizabeth Sykes, GPO Box 1719, Sydney, NSW 2001

Telephone: (02) 9232 2144, Fax: (02) 9232 8383.

### VICTORIA DIVISION

**Patron:** His Excellency, The Governor of Victoria.

**President:** J M Wilkins, RFD\*. Email: [ausnavyleague@mac.com](mailto:ausnavyleague@mac.com)

**Hon. Secretary:** Ray Gill, PO Box 1303, Box Hill, Vic 3128

Telephone: (03) 9884 6237

Email: [rgill1@optusnet.com.au](mailto:rgill1@optusnet.com.au)

**Membership Secretary:** LCDR Tom Kilburn MBE, RFD, VRD

Telephone: (03) 9560 9927, PO Box 1303 Box Hill VIC 3128.

### QUEENSLAND DIVISION

**Patron:** Her Excellency, The Governor of Queensland.

**President:** I M Fraser, OAM.

**Hon. Secretary:** Matthew Rowe, PO Box 13402, George Street Post Shop, Brisbane, Qld 4003. Telephone: 0405 734 437.

#### State Branches:

**Cairns:** A Cunneen, PO Box 1009, Cairns, Qld 4870.

Telephone: (07) 4054 1195

**Townsville:** I McDougall, PO Box 1478, Townsville, Qld 4810.

Telephone: (07) 4772 4588

**Bundaberg:** I Lohse, PO Box 5141, Bundaberg West, Qld 4670.

Telephone: (07) 4151 2210.

### SOUTH AUSTRALIAN DIVISION

**Patron:** Her Excellency, The Governor of South Australia.

**President:** CMDR Dean Watson, RFD\*, RANR (Rtd), 249 Fletcher Road, Largs North, SA 5016.

**Hon. Secretary:** Miss J E Gill, GPO Box 1529, Adelaide, SA 5001.

Telephone: (08) 8272 6435.

### TASMANIAN DIVISION

**Patron:** Mr Tony Lee

**President:** Mr Tudor Hardy, 4 Illawarra Road, Perth, Tas 7300.

**Hon. Secretary:** Mr Derek Le Marchant, PO Box 1337, Launceston, Tas 7250.

Telephone: (03) 6336 2923, Mob: 0404 486 329.

#### State Branch:

**Launceston:** Mr Tudor Hardy, 4 Illawarra Road, Perth, Tas. 7300

Mrs L Cottrell, 5 Anchorage Street, Clarence Point, Tas. 7280.

### WESTERN AUSTRALIAN DIVISION

**Patron:** His Excellency, The Governor of Western Australia.

**President:** Mason Hayman, 33 Keane Street, Peppermint Grove, WA 6011

Telephone: (08) 9384 5794, Mob: 0404 949 282

**Hon. Secretary:** Trevor Vincent, 3 Prosser Way, Myaree, WA 6154

Telephone: (08) 9330 5129, Mob: 0417 933 780, Fax: (08) 9330 5129,

Email: [chebbie\\_rjnt@primus.com.au](mailto:chebbie_rjnt@primus.com.au).

### FEDERAL ADVISORY COUNCIL

F. Geoffrey Evans, OBE, VRD, Chairman

Neil Baird, Chairman Baird Publications

Wm. Bolitho, AM.

Vice Admiral David Leach, AC CBE, LVO, RAN (Rtd)

Lachlan Payne, CEO Australian Shipowners' Association

Vice Admiral Sir Richard Peek, KBE, CB, DSC, RAN (Rtd)

Vice Admiral Chris Ritchie, AO, RAN (Rtd)

John Strang, Chairman Strang International Pty Ltd.

### Corporate Members

The Australian Shipowners' Association

Hawker De Havilland Limited

Strang International Pty Ltd



## The Nuclear Option?

During the late 1980s – early 1990s when the project to replace the Oberon class submarines was initiated the Navy League published a special supplement to *THE NAVY* entitled “Nuclear Powered Submarines for the Royal Australian Navy”. It argued that Australia should look to nuclear powered submarines (SSNs) instead of the traditional diesel-electric submarine (SSK) design. Nuclear power, it argued, would provide a force multiplier effect for the RAN submarine fleet in the form of underwater speed and endurance. Particularly important for a nation such as Australia with its tremendously long coastline. The special supplement was also aimed at the many naysayers who were using deliberately inaccurate and emotional arguments against such a move.

The Navy League special supplement on SSNs also examined the issue of cost. It found that initial acquisition of SSNs was extremely expensive when compared to SSKs, but also found that SSNs actually cost slightly less over the entire life of the submarine due to maintenance and the constant diesel fuel requirements of the SSK, as well as replacement batteries. One of the significant cost prohibitive issues against the SSN in RAN service was that Australia had no nuclear industry to manufacture nuclear fuel or to store waste. However, since that time things have changed. World diesel prices have risen sharply. Australia is also currently leaning towards nuclear power to alleviate its dependence on green house gas producing coal fired power stations.

So if Australia takes the nuclear power option for domestic

use it makes sense to take another look at the nuclear powered submarine issue in regards to the Collins class replacement in 2026.

Many nuclear submarine navies experienced a quantum shift in submarine tactics, strategy and employment on moving to nuclear power. Their submarines were now the first units on the scene of maritime trouble spots due to the underwater speed and endurance only nuclear power can bring. In contrast, the modern SSK is usually the last to arrive. In the Falklands Conflict it was the RN's SSNs that set up the Maritime Exclusion Zone weeks before the surface ships arrived. They also started the vital intelligence gathering effort needed for the eventual success of the operation.

A change unforeseen by the Navy League special supplement was that the modern SSK requires far more electrical power to run the complex computer and sonar systems today than in the 1980s. Their cost is also said to have risen so sharply as to now resemble SSN prices. If pragmatism and common sense can triumph in this issue then the nuclear option may just become an option for the RAN.



A copy of the front page of the special supplement on Nuclear Powered Submarines for the Royal Australian Navy.

## Fiji

The recent coup in Fiji demonstrated yet again the value of sea power to the Howard Government. Although not used, the small RAN task force off Fiji at the time of the coup provided the government with real options. These options included actions such as monitoring the situation, a military assisted evacuation of civilians, a military protected evacuation of civilians to the evacuation and protection through military force of the legitimate Fiji government. Depending on the land forces deployed on the ships, they could also have captured port or airport facilities to allow more forces entry to 'stabilise the situation'.

The fact that the task force ships could loiter off Fiji for as long as needed was another demonstration of the 'presence pillar' of sea power so aptly demonstrated during the East Timor operation in 1999. That presence, or poise, off Fiji probably had an effect on the coup leader's planning. Having world class Special Forces off one's coast with their helicopters and equipment would have to have been a consideration for the coup's conduct. Thus, the acquisition of an even greater capability in the form of the JP2048 LHDs cannot come too soon for use in our 'arc of instability'.

By Themistocles



A file image of the RAN LPA KANIMBLA off the coast with two Army Black Hawks on the landing deck and an LCM 8 at the stern transfer door. The capability this represents will be vital to Australia's continuing Pacific Island security policies. The new LHD capability to replace the two LPAs and TOBRUK will be far more capable and thus provide more options to Government for any future security situations in the region. (RAN)

## FROM OUR READERS

Dear Editor,

As a long time reader of *THE NAVY*, and member of the Navy League, I was heartened to read in your last issue's news section about the magazine being listed with the top five defence and Aerospace magazines in the world at the award for the best defence submission.

It is a shame CDR Hobbs' article didn't win as it would have meant that many more people around the world would come to know what we know – that *THE NAVY* is and has always been a great read. I am very proud to be associated with it.

BZ!

Mr Charlie Harrington  
Port Macquarie, NSW

Dear Sir,

I write about the recent discovery of the missing 3rd Japanese Midget Sub that attacked Sydney Harbour. I think it

rather odd that a submarine can lie off the coast of Australia's biggest and busiest naval base undetected for 60+ years despite our Navy's best anti-submarine efforts during WW II.

It is also somewhat odd that even during the height of the Cold War when we were at times actively searching for known Soviet submarines along the east coast of Australia that this sub remained undetected.

It is further confusing when our hydrographic services have mapped the entire seabed with modern sonar and still didn't find it, not to mention the occasional mine hunting exercises in the area.

Is this bad anti-sub training, a lack of funds for proper training or is our Navy just slack at this sort of thing?

It would seem the best and most useful tactic our submarine foes can mount is 'bottom the boat' and stay there for as long as they like.

Robert Grey  
(via e-mail)



# The Navy League of Australia

## 2007 Maritime Essay Competition

The Navy League of Australia is holding a maritime essay competition during the first half of 2007 and invites entries on either of the following topics:

*20th Century Naval History*  
*Modern Maritime Warfare*

A first, second and third prize will be awarded in each of two categories: *Professional*, which covers Journalists, Defence Officials, Academics, Naval personnel and previous contributors to *THE NAVY*; and *Non-Professional* for those not falling into the *Professional* category.

The prizes are:

- *Professional* category: \$1,000, \$500 and \$250.
- *Non-Professional* category: \$500, \$200 and \$150.

Essays should be 2,000-3,000 words in length and will be judged on content and structure.

The deadline for entries is 30 June 2007, with the prize-winners announced in the October 2007 issue of *THE NAVY*.

Essays should be submitted in Microsoft Word format either on disk and posted to: Navy League Essay Competition, GPO Box 1719, SYDNEY NSW 2001; or emailed to [editorthenavy@hotmail.com](mailto:editorthenavy@hotmail.com).

Submissions should include the writer's name, address, telephone and email contacts, along with the nominated entry category.

*THE NAVY reserves the right to reprint all essays in the magazine, together with the right to edit them as considered appropriate for publication.*





# The President's Page

By Navy League of Australia President Mr Graham Harris

## *The 2006 Federal AGM*



The assembled AGM attendees. From left to right (standing) Mr John Bird, Federal Vice-President; Mr Robert Albert, NSW Division President; Mr John Wilkins, VIC Division President; Mr John Jeremy, NSW Division Executive; Mr Peter Jarvis, WA Division Executive; Mr Dean Watson, SA Division President; Mr Graham Harris, Federal President; Mr Bill Kynaston, WA Division Executive; Mr Ray Corboy, Hon. Federal Secretary and Mr Phillip Corboy, QLD Division. Kneeling, Mr Bill Dobbie, NZ Navy League Executive and Mr Trevor Vincent, WA Division Secretary.

The 2006 Annual Meeting of the League was held in Canberra in October. This annual meeting is a chance for members of the Federal Council of the League to get together in one place at the one time. It makes a welcome change from emails, phones and faxes which are the necessary means of communication in our widespread Federation.

A regular highlight of each Annual Meeting is the Friday briefing provided by Navy. Members of Federal Council very much value their visit to Navy Headquarters in Canberra. It is a great opportunity to learn about naval activities and developments and to gain an insight into Navy thinking on current issues. On the Saturday we had the chance to put our views in a two hour session with the Director General Navy Capability Performance and Plans, Commodore Trevor Jones.

Each year the Federal Council awards the Navy League of Australia Perpetual Trophy – Community Award with much discussion at the annual meeting to decide a winner. The purpose of the award is to recognise the strong community support ethic within Navy. In 2006 10 ships and establishments nominated for the award. Every one of them deserve commendation.

The three finalists on the shortlist forwarded from Navy Headquarters were HMAS ALBATROSS, HS *Red Crew* and HMAS CERBERUS. The two establishments had both been very active in working with their local communities. Either would have made a worthy winner.

In the event, however, Federal Council decided that the award for 2006 should go to HS *Red Crew*. In making its decision the Council took into account the effort that had been put in by the relatively small number of people comprising HS *Red Crew* while serving in the hydrographic survey ships HMAS MELVILLE and HMAS LEEUWIN in Queensland, New South Wales, Victorian and South Australian waters. One matter that Federal Council felt was particularly worthy of recognition was the amount of work HS *Red Crew* did with Australian Navy Cadets.



Mr John Jeremy giving a presentation to the AGM on the RAN's two major acquisition projects, JP 2048 and SEA 4000.



Director General Navy Performance and Plans, CDRE Trevor Jones, representing Chief of Navy VADM Russ Shalders. Here CDRE Jones models his new Navy League of Australia 'ball cap'.

At a meeting such as this a great many issues are covered. I will attempt to summarise some of the matters that were of particular interest to Federal Council.

**The Air Warfare Destroyers:** The League had for quite some time argued for the acquisition of this capability. The announcement of the decision to build three AWDs was welcomed by the League.

**The new amphibious ships:** The League had been putting the case for LHDs. When the Government announced that Navy was to get two such ships the League was pleased to note that they were to be 22,000 to 28,000 tons – depending on the type chosen. No decision has been announced about construction. While the preferred outcome is construction in Australia, the League acknowledges that two ships of this size may not be built here. In the event that a decision is made to have these ships built overseas then the League will argue for the maximum possible fit out to be completed in Australia.

The Federal Council considers that the key issue is for Australia to have a substantial shipbuilding capacity.

As with the case of the AWDs, the League hopes that contracts for the LHDs can be entered into in the first half of 2007.

The problems the RAN is having with recruiting and retention were the subject of considerable discussion. It is not widely recognised that retention is just as important as



Mr Bill Dobbie of the Navy League of New Zealand seen here accepting a Navy League of Australia tie.

recruiting. One aspect of retention that was highlighted was the desirability of providing a settled family life for RAN personnel. In this regard the need to have shore postings near to fleet bases is an increasingly pressing issue. It is apparent that at some point Navy will have to consider moving HMAS CERBERUS, or at least some of that establishment's activities, to the West.

The needs of the Australian Navy Cadets are always on the agenda of Federal Council and our 2006 meeting maintained that record. The emphasis at this meeting was on the value the Cadets have to the RAN as a source of recruits. The League believes that Navy should, whenever possible, have an active hands-on involvement with Cadets.

A recent edition of THE NAVY contained an article "*The Terminal Decline of the Royal Navy*". This provoked considerable discussion. There is little doubt that there is widespread concern at the shrinking of the RN. The proposed new aircraft carriers are impressive – if they are ever built. The Daring class destroyers are well regarded – but the RN might get only half the number promised. The attack submarine force may be reduced to just six boats.



Federal President Mr Graham Harris (standing) with newly appointed Life Member of the Navy League of Australia, Mr Ray Corboy, Hon. Federal Secretary.

The Federal Council found it hard to understand why a nation with interests and involvements world-wide would wish to so truncate its navy. Or as one person said "the United Kingdom has forgotten its history".

A pleasing aspect of the Annual Meeting was the vitality of the State Divisions as evidenced by their reports to Federal Council. Well done to all involved.

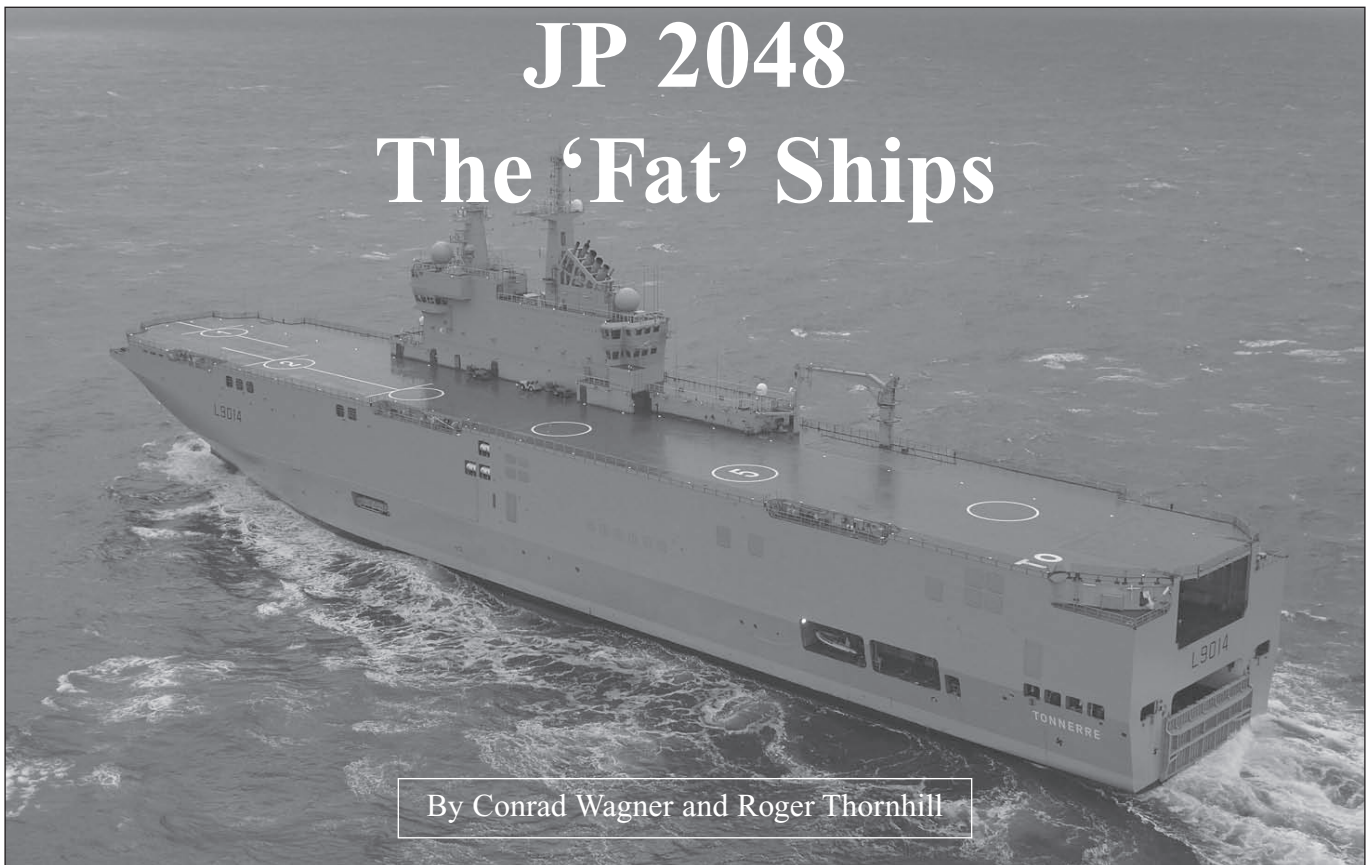
The Federal Council only rarely elects people to Life Membership. At our 2006 meeting we did it twice! Congratulations to Ray Corboy, our long-serving Secretary/Treasurer and to Trevor Vincent, for many years an active member of Western Australia Division in a variety of roles.

It was an excellent conference. We all look forward to the next meeting in Canberra in October 2007.



# JP 2048

## The 'Fat' Ships



By Conrad Wagner and Roger Thornhill

The French Navy (Marine Nationale) LHD MISTRAL on sea trials. The Mistral class is one of the two contenders for Phase 4A/4B of JP 2048. (Thales Australia)

**The ADF's 'Joint Project 2048' is often referred to in Army circles as the project to acquire "The Fat Ships". While some might think this is an acronym for 'Fast Amphibious Transport' it is actually a rather unflattering reference to the size of the ships Australia is set to acquire in this new amphibious capability.**

JP 2048 is slated to acquire a quantum leap in the ADF's amphibious capability. Given this mammoth task it naturally consists of a number of Phases. The most notable are Phases 4A and 4B. Each of these phases focuses on acquiring an LHD (Landing Ship Helicopter Dock) for the RAN. Phase 3 will acquire the amphibious landing watercraft to operate from their well dock. Phase 4C will obtain a large merchant style Sea Lift ship with roll-on-roll-off capabilities for use in ports. Thus JP2048 is not just about acquiring two ships but an entire amphibious/expeditionary capability.

It is intended that each LHD will be capable of embarking and deploying a combined arms battalion group (i.e infantry, tanks, APCs, artillery, combat engineers and logistics units to support them). In addition, the ships will employ 10+ medium

lift helicopters, as well as attack helicopters, that will operate from six landing spots on the flight deck. They will also be capable of embarking up to four landing craft each.

The ships are also designed to operate as command centres while on deployment.

The contenders for Phase 4A/4B are Navantia of Spain with their BPE or Strategic Protection Ship and France's Armaris with their Mistral Class. Navantia of Spain have teamed up with Tenix Australia while Armaris of France have teamed with Thales Australia (formerly ADI).

The two LHDs will replace the RAN's three existing amphibious ships TOBRUK, KANIMBLA and MANOORA. TOBRUK was launched in 1981 and due to retire in 2010 at the age of 29. KANIMBLA and MANOORA however, will be well over 40 years old when eventually decommissioned. It has been suggested that one of them may stay on till 2018 making her service life nearly 50 years. This is quite remarkable for a ship that was originally designed to do one crossing of the Atlantic and one amphibious assault if the Cold War ever heated up.

The two names for the LHDs will be HMAS CANBERRA and HMAS ADELAIDE, which were announced by the previous Defence Minister Senator Robert Hill in early 2006. CANBERRA is expected to be in service in 2012 with ADELAIDE in 2014. The Government will decide which design to choose by the middle of 2007.

Recent criticisms of the naming of the ships have been voiced within circles of the Australian naval community. Many feel that it is more appropriate to closely associate the



The RAN's LPAs KANIMBLA and MANOORA. Both have proven their worth as helicopter carriers to the ADF and more importantly to Government. By the time they are replaced they will be over 40 years old, with one possibly staying on until 2018 and retiring at 50 years of age. (RAN)



MISTRAL and TONNERRE together on sea trials. The Mistral class displace 21,500 tonnes fully loaded and can accommodate up to 16 MRH-90 helicopters. (Thales Australia)

naming of the ships with events in Australia's military history. These names include KOKODA and GALLIPOLI.

## The Mistral class

Thales Australia has teamed up with Armaris to deliver its Mistral class LHD. The Mistral class are already in service with the French Navy (MISTRAL and TONNERRE). They have a displacement of 21,500 tons, are 199 metres in length with a beam of 32 metres. They will be able to deploy two to four medium size landing craft (LCU) through a floodable docking area at the stern. The flight deck runs the entire length of the ship and will be able to deploy six medium sized helicopters such as the new MRH-90, Seahawk and the Army's Tiger attack helicopter from six landing spots. In addition, the vessels will also be able to accommodate one or two larger helicopters such as the CH-47 Chinook or CH-53 Super Stallion for short periods at the expense of the normal helicopter complement.

Joint work by Aramis and the Australian Defence Materiel Organisation to refine the Mistral design has resulted in 27 changes to comply with the RAN's requirements under JP 2048.

The design modifies the basic Mistral Class design with options for development of an evolved variant rule out.

The existing 199 metre Mistral layout has proved sufficiently flexible for RAN needs to be met without the need to introduce hull plugs to provide additional space. There was some talk early in the project of extending the ship. That has proven not to be necessary, even though the design is flexible enough to be extended for other customers.

There was work done on various versions of the design but Australia has been able to settle on the original design, which minimises the design risk, particularly with the lessons learnt from constructing it twice for the French Navy.



Five French Army Super Puma helicopters on the deck of MISTRAL. The Mistral LHDs will be able to operate six similar sized helicopters simultaneously from its six landing spots. (Thales)

Key changes include the optimisation of elevators to allow lift of the Eurocopter MRH-90 and Tiger helicopters from the hanger decks to the flight deck with rotor blades unfolded. Some 1,800 square metres has been allocated for storage and maintenance facilities to support up to 16 helicopters per ship.

The vehicle decks provide a basic 1,000 metre lane however, this may vary depending on user requirements. The design incorporates a 750m<sup>2</sup> hospital facility.

Command and control spaces total 850m<sup>2</sup> with this comprising separate joint task force and landing force operations rooms. The spaces are expected to allow for fielding of up to 150 command personnel per ship.

Accommodation arrangements have been restructured from four berths per cabin with integrated ensuite in the French Navy version to a 6-8 berth per cabin arrangement with shared amenities for the RAN. The French accommodation arrangements are being driven by plans to keep marine personnel living aboard the vessels for six month periods, whereas RAN operational concepts envisage maximum accommodation periods of 45 days.



Taken on the 7 June 2006 the image shows the Spanish BPE LHD building in Spain. (Tenix)

One important note on the Mistral is that they are not designed with a ski-ramp to launch VSTOL aircraft such as the F-35 JSF (recently named Lightning II) or Harrier. This is intentional as it is felt the JSF and Harrier would take up too much valuable space in the hanger and detract from the primary mission of amphibious assault. Crew size would have to increase to accommodate the aircraft's pilots, maintenance personnel as well as an increase in fuel and weapons storage space. In fact, the ship's flight deck is unable to handle the weight or downward hot jet exhaust from these aircraft. Unfortunately, this will make 'cross decking' with US Marine Corps JSFs out of the question during multi-national operations.

The Mistral class will be crewed by 150+ personnel. Like the anticipated Hobart class AWD, the LHD's will have a smaller crew as outlined in the Defence White Paper. Minimal crews are essential for future operations as the RAN believes its recruiting base will get smaller over the coming decades.

Propulsion for the Mistral class is provided by four 6.2 MW diesel generators that will power two 7 MW podded electric motors. Each pod will drive a five-blade propeller. The pods are relatively new to Naval forces but have been used in the Merchant ship industry for some time. There are numerous advantages to the new propulsion system. As the electric motors are mounted outside of the ship long propeller shafts are no longer required saving space and weight. The diesel generators can also be placed anywhere in the ship thus



providing more space and flexibility to the design. They are able to swing through 360 degrees and thus provide increased manoeuvrability during operations.

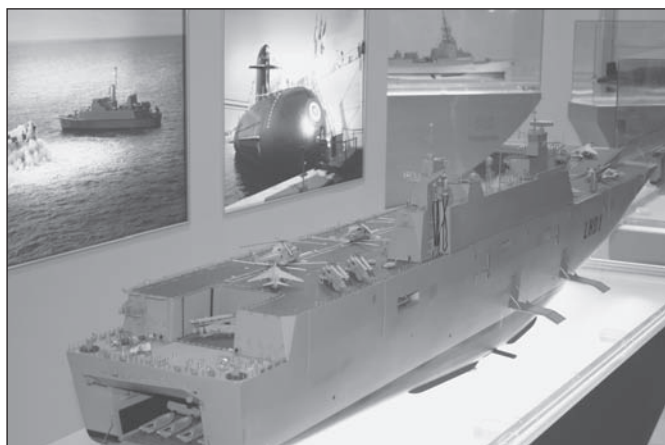
The Mistral class have a top speed of 20 knots with a range of 6,000 nautical miles at that speed. However, maximum range for the vessels is 11,000 nautical miles at 15 knots.

## BPE class (Tenix-Navantia LHD)

Tenix Defence has teamed up with Navantia to offer a modified version of the Spanish BPE (Tenix-Navantia LHD) or strategic projection ship. Currently Navantia is constructing the first and only vessel for the Spanish navy; completion of the ship will be some time in 2008.

Unlike the Mistral, the Tenix-Navantia LHD will be able to accommodate and transport, for up to 35 days, an embarked force of up to 1160 personnel. Most importantly the LHD will be equipped with 18 recreation rooms, two reading rooms, two gymnasiums, multiple laundries and significant deck space to sustain the combat fitness and well-being of embarked forces and crew.

There is a stark difference between the Tenix-Navantia LHD and Mistral class. The Tenix-Navantia LHD will have a displacement of 27,800 + tons, is 231 metres in length, with a beam of 32 metres.



A model of the Spanish BPE class LHD at last year's Pacific 2006 exhibition in Darling Harbour. The BPE displaces 27,800 tonnes full load and can accommodate up to 32 MRH-90 helicopters or four CH-47 Chinook helicopters in its hanger.

It will be capable of deploying up to four medium size landing craft (LCM) through a 1165m<sup>2</sup> floodable docking area aft. Only the Tenix-Navantia LHD is equipped with an inclined dock and central steel fender to ensure that docking operations can be safely and quickly executed in conditions up to and including Sea State 4. Like the Mistral it has an upper carrier style flight deck and will be able to operate six medium sized helicopters simultaneously, such as the MRH-90, Black Hawk, Seahawk and the Tiger attack helicopter. In addition, the Tenix-Navantia LHD will have four flight spots and hangar accommodation for four CH-47 Chinook helicopters. The Commonwealth has the option to retain or remove the port side aircraft ski-jump. One additional spot will be available to heavy and medium lift helicopters if the ski-jump is removed, however, as mentioned this would restrict cross decking with allies operating aircraft such as the STOVL F-35 JSF. The hangar for the Tenix-Navantia LHD is around 1,000m<sup>2</sup>, and is wider than the Mistral both on the flight deck and inside the main hangar.

Like the Mistral, helicopter access is via two elevators; one is located amidships, the other lies aft of the flight deck,



A model of the Spanish BPE class LHD at last year's Pacific 2006 exhibition in Darling Harbour depicting the flight deck.

however both Tenix-Navantia LHD elevators have a 27 tonne capacity.

The Tenix-Navantia LHD is designed with two large garage and cargo decks, which provide 1158 lane metres without including the hangar, the dock, vehicle manoeuvre areas, access and loading ramps or large troop assembly areas on each deck. The heavy vehicle garage is an impressive 1,410m<sup>2</sup> and is designed to accommodate heavyweight platforms such as the Army's new 65 ton M-1A1 tank, M-113 APCs and future self-propelled artillery systems. The second lightweight garage is even larger (1880m<sup>2</sup>) and accommodates vehicles up to 16 tonnes such as trucks, supply vehicles, bushmasters as well as towed artillery. In addition, the storerooms of the Tenix-Navantia LHD are again impressive with 616 cubic metres of space for an embarked force's combat supplies.

The propulsion system of the Tenix-Navantia LHD is similar to the Mistral but with more power. Propulsion is provided by a single 20MW GE LM-2500 gas turbine and two 7.7 MW diesel engines powering two electric propulsion pods similar to those on the Mistral. The Tenix-Navantia LHD will have a maximum speed greater than 20 knots. Depending on whether excess JP5 fuel tanks are converted for use by the propulsion system, the Tenix-Navantia LHD will have a range of between 7,050 and 10,900 nautical miles at 12 knots whilst maintaining 450 tonnes of fuel reserves for the use of the Embarked Force's vehicles and 50 tonnes for its watercraft.



An LCM 8 being gingerly lowered into the water from HMAS KANIMBLA. The LCM 8 are about to retire and have provided the RAN's LPAs and TOBRUK with the means to 'reach the beach'. The new LHDs have a floodable stern dock for the watercraft to drive into negating the need to lower or lift the watercraft. The dock also allows operations in much higher sea states. (RAN)



The Army's new watercraft built by Thales Australia on trials. The new watercraft have a bow and stern ramp and can be lifted aboard the LPAs and TOBRUK in the same manner as the LCM 8 craft. (Thales Australia)

### Phase 3

There has been much speculation as to what form of deployment platform will be utilised by the new class of amphibious vessels. The current fleet of LCM-8 landing craft are considered adequate to service the needs to ferry troops and vehicles ashore. However, these vessels are about to be retired and replaced with a new class of watercraft made by the then ADI (now Thales Australia).

The Army recently took delivery of six of these new watercraft. The craft are constructed from lightweight aluminium and are able to load and disembark vehicles from two ramps, one on the bow and the other the stern. They are powered by a water jet propulsion system and are designed to operate in shallow water and carry more weight than the current fleet of LCM-8. However, due to the fact they were ordered many years ago they will not be able to ferry the new M-1A1 tank ashore as a replacement to the Leopard was never envisaged during its service life.

One possible contender for Phase 3 is the Textron industries LCU(R), which is currently in development with the United States Navy/Marine Corps. A single LCU(R) will be able to transport 225 tons of equipment forward to the beach or Port. This means four will transport a staggering 900 tons of equipment, including troops, from the one LHD in a single deployment. Moreover, unlike the new Thales built Army watercraft, the LCU(R) is able to deploy three M-1A1 tanks ashore. This new vessel is considered extremely powerful and



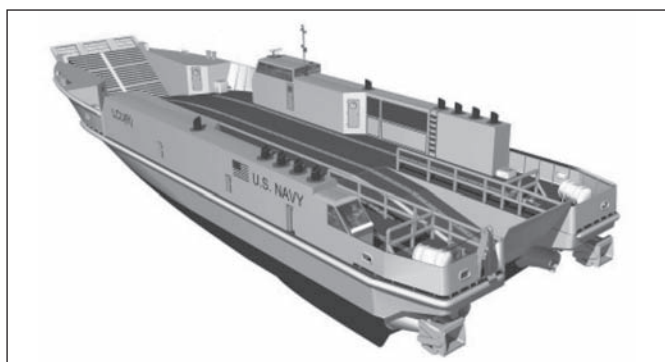
MISTRAL docked in Beirut evacuating French nationals during last year's Israel/Hezbollah fighting. Civilian evacuation operations like this are generally described as amphibious operations, only in reverse. The JP 2048 capability will prove invaluable for future Australian evacuation and disaster relief operations. (Thales Australia)

is designed to deploy over the horizon, meaning that it has the ability to deploy forces without putting the LHD in harm's way. The LCU(R) is able to maintain a maximum continuous deployment time of ten days before refuelling, or 1000 nautical miles making the platform one of the most advanced in the world.

By the time Australia's LHDs are constructed it is believed the LCU(R) may be in operational service with the USN.

### Conclusion

The ADF's new LHDs will deliver a capability to deploy and support a large contingent of troops and vehicles anywhere in the world. They will also have a valuable regional disaster relief function. With most of the natural disasters in our region of late one of the first infrastructure casualties are the local port facilities. An LHD, with its helicopters and watercraft, can still operate and evacuate survivors or provide medical services that no other type of ship can in the absence of a port. Evacuation operations of civilians in times of disaster or conflict has often been likened to an amphibious operation, only in reverse.



A computer generated image of the US Navy/US Marine Corps proposed LCU(R). (Textron Marine)



## HMAS SYDNEY (II) survivor remains found

Recently, the RAN participated in another search of grave sites on Christmas Island in the Indian Ocean to find the remains of a sailor that washed ashore in 1942 in a Carley float. This sailor was thought to be from the World War II cruiser HMAS SYDNEY, which was sunk off the WA coast in an action with a German raider, KORMORAN. SYDNEY was lost with all hands. The body that washed ashore some months later was buried in an unmarked grave on the island and laid there for 60 years.

Recovery of the remains is believed by many to be able to shed more light on the fate of SYDNEY and her 645 crew.

The float the sailor washed up in is currently on display in the Australia War Memorial and was thought to be the only evidence left of SYDNEY's action.

However, evidence unearthed from an unmarked grave by the RAN-led expedition team appears to confirm that the body they were searching for, and found, is the one that was recovered from close inshore at Christmas Island in February 1942.

The evidence so far, such as the grave location in the Old European Cemetery on Christmas Island, the unusual coffin shape, position of the body, and initial age estimate, all suggests that the body is that found in a Carley float life-raft in February 1942 and subsequently buried.

The complete skeleton has been returned to Sydney for detailed analysis and possible identification, although the possibility, as with any undertaking of this type, is low.

The dental characteristics of the remains are very distinctive, including a number of fillings and missing or extracted teeth, which may assist with the identification process.

While the identification process is far from complete, preliminary analysis indicates the remains are reflective of a relatively young Caucasian male whose height was probably tall for the time.

"The most interesting find to date has been what appears to be a bullet wound in the skull and a small calibre round that is currently undergoing detailed analysis," the Team leader, Captain Jim Parsons said. "This round

appears to be from a low-velocity weapon, possibly a handgun".

Such a find, if confirmed to be a bullet, could lend more weight to one of the theories about SYDNEY's sinking and the total loss of her crew. The book *Who Sank the Sydney* by Michael Montgomery (son of SYDNEY (II) navigator and published in 1985) conjectures that SYDNEY happened upon the German raider inside Australian waters providing support to a surfaced Japanese submarine. On being found together the submarine is said to have dived and torpedoed SYDNEY after a brief surface action between SYDNEY and KORMORAN, which also sank the latter.

Mr Montgomery goes on to claim that after the sinking the submarine then surfaced and took some of SYDNEY's survivors as POWs and shot/machine gunned others to hide the fact that the Japanese were colluding with the Germans two-three weeks before their attack on Pearl Harbor. The shooting of crew members was also 'necessary' to hide the fact that a Japanese submarine was even in the area as it is claimed she was doing a covert reconnaissance of the WA coast for a Japanese invasion.

Inconsistencies in the stories produced by the German survivors also add an air of doubt to the action off the WA coast. Mr Montgomery's research and arguments are quite compelling.

Capt Parsons went on to say that "press-studs, one with what may be a fragment of cloth attached, have also been found, which are all consistent with the overalls the sailor was wearing when the body was recovered in 1942".

These items, as well as samples of timber and nails from the coffin, will be sent to the Australian War Memorial for further analysis and identification.

The Senate Committee report to Parliament in 1999 on the loss of HMAS SYDNEY (II) concluded that "...on the balance of probability, that the body and the Carley float found off the shore of Christmas Island in February 1942 were most likely from HMAS SYDNEY".

"We are becoming increasingly confident that the body we have recovered is the one that was buried in 1942," Captain Parsons said.

As with any undertaking of this type, the likelihood of positively identifying this unknown sailor is low.

## Third midget sub M24 found off Sydney

A RAN historian says he believes a group of scuba divers have found a missing World War II Japanese midget submarine off Sydney.

The scuba divers that found the wreck off Sydney's northern beaches asked the head of the Royal Australian Navy's heritage collection, CMDR Shane Moore, at Sydney's Garden Island to verify it.

Whilst viewing video footage of the wreck on the sea floor he told Channel Nine's *60 Minutes* programme it appears the divers had found the missing submarine.

"There is no doubt that that is a type of midget submarine of the Imperial Japanese Navy, and they only brought three to Australian waters according to their own war diaries," he said.

"Two of them were sunk in Sydney Harbour and the other one went missing. So it can only be the M24" he concluded.

The find comes after numerous searches and claims as to the whereabouts of the submarine. Earlier in 2006 a documentary went to air on Pay-TV claiming the wreck was off the mouth of the Hawkesbury River north of Sydney. Others have claimed it to be off Cronulla to the south.

On the night of 29 May 1942, five large Japanese submarines positioned themselves 56 kilometres north-east of Sydney Heads. Their aim was to mount an offensive with midget submarines on Sydney Harbour. Previously, five midget submarines were used to attack Pearl Harbor without success.

At 3.00am the next day one of the submarines launched a reconnaissance aircraft. After circling Sydney Harbour the aircraft returned, reporting the presence of battleships and cruisers moored in the harbour. The flotilla's commanding officer decided to attack the next night. The next day the five submarines approached to within 11 kilometres of Sydney Heads, and at about 4.30pm they released three midget submarines which then approached Sydney Harbour.

The outer-harbour defences detected the entry of the first midget submarine at about 8.00pm, but it was not

positively identified as a midget submarine until it became entangled in an anti-torpedo net that was suspended between George's Head and Green Point. Before HMAS YARROMA was able to open fire on the submarine its two crew destroyed their vessel with demolition charges, killing themselves in the process.

The second submarine entered the harbour at about 9.48pm and headed west towards the Harbour Bridge, causing a general alarm to be issued by the Naval Officer in Charge of Sydney. About 200 metres from Garden Island the submarine was fired on by the heavy cruiser USS CHICAGO. The submarine then fired its two torpedoes at the cruiser. Both missed. One torpedo ran ashore on Garden Island but failed to explode. The other passed under the Dutch submarine K9 and struck the harbour bed beneath the depot ship HMAS KUTTABUL where it exploded, killing 21 sailors (19 Royal Australian Navy and 2 Royal Navy). The sound of the explosion was heard all over Sydney's Harbour foreshore areas and caused great alarm among the population. The submarine then slipped out of the harbour, its mission complete.

The third submarine was sighted by HMAS YANDRA at the entrance to the harbour and was depth-charged. Some four hours later, having recovered, it entered the harbour but it was subsequently attacked with depth charges and sunk in Taylor Bay. Both members of the submarine's crew committed suicide.

The mother submarines were seen the next day waiting for the return of the midget subs, but like the previous use at Pearl Harbor, none returned.

The divers who found the wreck gave details of its location to Defence Minister Brendan Nelson in the hope that Navy will take charge and protect the site. Defence Minister Brendan Nelson has said that the find is an extremely important part of World War II history for both Australia and Japan.

He says the wreckage of the M24 will be protected from curious divers.

"Under no circumstances will anyone be able to go unlawfully near it, take anything from it or disturb it any way, shape or form," Dr Nelson said. Severe penalties for disturbing the wreck include hefty fines and/or gaol time.

## Plan to protect AE 2

The Australian Government will provide the Submarine Institute of Australia (SIA) with \$368,500 in funding for a project aimed to protect, preserve and tell the story of the Australian Submarine HMAS AE2, which played an important role during the Gallipoli campaign of 1915.

The Government's funding offer is based on the agreement that the Institute will match the contribution on a dollar-for-dollar basis. An amount of \$20,000 will also be provided to support a rehearsal dive survey in Port Phillip Bay in Victoria.

The AE2 was the first allied submarine to penetrate the Dardanelles as part of a successful submarine campaign which paralysed enemy shipping in the Sea of Marmara.

It was a perilous assignment after entering the straits of the Dardanelles on April 25, 1915, as the ANZACs landed on the beaches, HMAS AE2 penetrated the minefields, evaded the numerous patrol craft, survived the heavy shell fire from the many forts and successfully navigated the strong currents.

It also torpedoed the Turkish gunboat PEYKISEVKET and reached the Sea of Marmara, despite being hotly pursued by enemy surface vessels.

On April 30 the AE2 came under heavy attack from the Turkish torpedo boat SULTAN HISSAR, resulting in the crew losing control of the submarine and being ordered to abandon the stricken boat, without loss of life.

The AE2 then sank to the sea floor and has remained there until this day, 73 metres below the surface.

President of the SIA Rear Admiral Peter Briggs (Ret) welcomed the Australian Government funding offer and said the organisation would work in partnership with the Turkish Institute of Nautical Archaeology.

"All activities will be carried out with the agreement of both the Australian and Turkish Governments and in accordance with the best practices for the management of shipwrecks, including the relevant draft United Nations Educational, Scientific and Cultural Organisation (UNESCO) convention," RADM Briggs said.

"Following the dived survey, SIA will prepare a report and facilitate a joint Turkish-Australian workshop to agree on options and make recommendations on

the future management of the AE2. The work is being undertaken as a community service."

## CANBERRA headed for Victoria

Victoria is to be gifted the former Royal Australian Navy Guided Missile Frigate HMAS CANBERRA for sinking as a drive wreck. Victoria was the successful bidder for HMAS CANBERRA following her decommissioning in November 2005.

The Howard Government will contribute up to \$2.8 million in funding toward the costs of sinking.

The Victorian Government has advised the preferred location for the ex-HMAS CANBERRA is south of Barwon Heads on the Bellarine Peninsula.

New South Wales also stands to benefit, despite having been the unsuccessful bidder on this occasion for HMAS CANBERRA. The New South Wales Government will be offered first right to bid for HMAS ADELAIDE when she is decommissioned in late 2007. HMAS ADELAIDE is a ship of the same class as the ex-HMAS CANBERRA.

Tourism projects that have previously used former RAN warships to establish dive wrecks have reported annual revenues ranging from \$2.4 million to \$23 million flowing into local communities.

## FREEDOM christened

Thousands looked on Sept. 24 2006 as the US Navy christened and launched the first littoral combat ship, FREEDOM (LCS-1), at the Marinette Marine shipyard in the US.

"Just a little more than three years ago she was just an idea, now FREEDOM stands before us. And on this morning, we christen her, send her down the ways and get her ready to join the fleet next year," said Adm. Mike Mullen, Chief of Naval Operations. "It comes none too soon, because there are tough challenges out there that only she can handle."

The 125m FREEDOM is capable of speeds in excess of 40 knots and can operate in water less than 6m deep. The ship will act as a platform for launch and recovery of manned and unmanned vehicles. Its modular design will support interchangeable mission





The first littoral combat ship, FREEDOM (LCS-1) being launched at the Marinette Marine shipyard in the US. (USN)

packages, allowing the ship to be reconfigured for antisubmarine warfare, mine warfare, or surface warfare missions on an as-needed basis.

FREEDOM acknowledges the American communities which bear the name Freedom. States having towns named Freedom include California, Indiana, Maine, New Hampshire, New York, Oklahoma, Pennsylvania, Wisconsin and Wyoming. But, as Mullen made clear, FREEDOM also acknowledges new challenges faced by the Navy in the war on terror and will complement the vision of a global "1,000-ship navy" built upon ad hoc maritime partnerships.

"FREEDOM will know how to fight, but she can also be a friend," said Mullen. "I am convinced that if we pool

resources together, as partners and friends, we can best tackle many of the tough maritime problems we face. The Freedom class will fit perfectly into such partnerships. Her shallow draft and agility will allow her to go, when asked – deep into green and brown water – where we, our allies, and emerging partners face some of the most difficult challenges."

The christening ceremony included the traditional smashing of a champagne bottle across the ship's bow, performed by ship's sponsor Birgit Smith. The ship then made a dramatic side-launch into the Menominee River.

FREEDOM will be manned by one of two rotational crews, blue and gold, similar to the rotational crews assigned to Trident submarines. The crews will be

augmented by one of three mission package crews during focused mission assignments.

FREEDOM will continue to undergo outfitting and testing at Marinette Marine. The ship will be commissioned in 2007 and eventually homeported in San Diego, Ca.

The second LCS, named INDEPENDENCE, is currently under construction at Bath Iron Work in Bath, Maine. General Dynamics Corporation is building INDEPENDENCE to a different design than that of FREEDOM.

## 25th Anniversary of the Falklands Conflict

The 25th anniversary of the Falklands Campaign will be commemorated across 8,000 miles and four time zones, in London, Pangbourne and the Falkland Islands from 14 to 17 June 2007, UK Veterans' Minister Derek Twigg announced on 13 Nov 2006.

Speaking at the launch of the commemorations on HMS ILLUSTRIOUS, Mr Twigg said:

"The Falklands campaign was one of the most memorable events in post-war British history. The liberation of the Islands was a huge achievement by our Forces, operating in harsh conditions 8,000 miles away from home.

"The commemorations next year will provide us with an opportunity to reflect on the events of 25 years ago. We will take time to remember those who gave their lives to defend the freedom of the Falkland Islands.

"As well as the principal events in London, Pangbourne and Stanley, we anticipate that local communities and veterans groups around the country will organise smaller scale events."

The Falklands story is not just an historic one. Over the past 25 years a great many of our current generation of Service men and women have seen Service in the Falklands and have been moved by the memorials to the fallen they maintain around the Islands; the Armed Forces connection with the Falklands is therefore personal and current.

Commemorations will look too at what the Islanders themselves have achieved in the 25 years since the conflict, building a robust and thriving community worthy of the sacrifices made.

Official events begin on Liberation Day Thursday 14 June 2007 at the Falkland Islands Memorial Chapel in the grounds of Pangbourne 'nautical' College, Berkshire. This service of Commemoration and Remembrance is held annually on behalf of the Falklands Families Association, but will have special significance in 2007 when it will be attended by senior members of the Royal family, and carried live on BBC.

Later that day (UK time) attention will turn to the Falkland Islands and the first of a series of ambitious live link ups with the Islands. A service at Christchurch Cathedral, Stanley will be followed by an Act of Commemoration at the Falklands War Memorial, and British Forces currently based on the Islands will parade through Stanley exercising the Freedom of the City that was bestowed on them by the Falkland Islands Government in 2002.

The showpiece event of these commemorations will be on Sunday 17 June. This will consist of a high impact visual event on Horse Guards Parade followed by a march past of veterans and their modern day service counterparts up. The Mall to Buckingham Palace to witness a fly past of aircraft from the Falklands era as well as some of those flown by the same squadrons today. Central to the event will be the personal recollections of veterans and Islanders as they tell their stories in their own words.

## Two new Type 212A for Germany



A German Type 212 submarine on sea trials. The German Navy will acquire two more of these sophisticated submarines with AIP.

On September 22, 2006, the consortium "ARGE 2. Los 212A" and the German Federal Office of Defense Technology and Procurement signed a contract for the delivery of two additional type 212A class submarines. ARGE is made up of the companies Howaldtswerke-Deutsche Werft and

Nordseewerke, which belong to the ThyssenKrupp Marine Systems shipyard alliance.

Both vessels will be equipped with an air-independent propulsion system based on a hydrogen fuel cell. This 'second batch' for the German Navy will be constructed according to the already tried and tested general design for the first four submarines of the class and will likewise be built in non-magnetic steel.

The delivery date for the two submarines is fixed for 2012 and 2013.

## ADMIRAL KUZNETSOV rejoins Navy



A file image of the Russian carrier ADMIRAL KUZNETSOV at sea.

ADMIRAL KUZNETSOV, Russia's only aircraft carrier, has rejoined the Northern Fleet after a modernisation refit.

The ship, also known as Project 1143.5 heavy aircraft carrier, was commissioned in the Russian Navy in 1991 and became fully operational in 1995. But it was plagued by technical problems, including faulty arrestor gear, and was put into dock last year for a technical overhaul.

The vessel is capable of carrying up to 26 fixed-wing fighters and 24 helicopters.

Russia's military leadership is considering building several modern aircraft carriers after 2015.

## Successful integration of DDG-1000 dual Band radar

US Company Raytheon has successfully integrated the engineering development model, S-Band array with receiver, exciter and signal/data processing equipment for the Volume Search Radar (VSR) portion of the US

Navy's DDG-1000 destroyer's Dual Band Radar (DBR).

The company is developing DBR for the next-generation Zumwalt Class destroyer. The VSR equipment was successfully operated with the S-band array and Beam Steering Controller software provided by Raytheon subcontractor Lockheed Martin.

"The Dual Band Radar is a critical asset to the DDG-1000 mission and the safety of our sailors," said Captain James Syring, the US Navy's program manager for DDG-1000. "The radar project's schedule has been challenging, but achieving this critical milestone tangibly demonstrates the substantial progress being made on the program."

The DBR is an active, phased-array, multi-function radar system, which incorporates X- and S-band arrays in a complementary manner to provide surveillance, target tracking and engagement support capabilities superior to those of conventional single-band radars.

The successful integration of the S-band array demonstrates progress toward the operation of a fully integrated Volume Search Radar, which is the final component of the DBR. Previously, Raytheon had successfully developed and tested the X-band component of the DBR, known as the AN/SPY-3, and recently proved its performance in extensive at-sea testing.

Under Raytheon's leadership, the DBR integration of both the SPY-3 and VSR components has advanced on schedule, and the recently completed milestones bring the advanced DBR closer to deployment on the Zumwalt Class destroyers, the CVN-78 next generation aircraft carrier and other future US Navy ships.

Under the US Navy's DDG-1000 Detail Design and Integration contract awarded in 2005, Raytheon IDS serves as the prime mission systems equipment integrator for all electronic and combat systems for the DDG-1000 Zumwalt Class Destroyer program.

## Improved arresting gear system for USS RONALD REAGAN

A new type of aircraft arresting gear control system will be installed on the aircraft carrier USS RONALD REAGAN (CVN-76) in 2007 during the ship's next scheduled maintenance period.



The new arresting gear control system, the Advanced Recovery Control System (ARC), replaces the mechanical systems and their associated controls used today with a state-of-the-art arresting gear digital control system. "In this age of computers and digital technology, aircraft carrier arresting gear systems have remained strictly mechanical in nature. That scenario is about to change with the introduction of the ARC," said Capt. Stephen Rorke, the program manager for aircraft launch and recovery equipment. "ARC provides built-in diagnostics and arresting gear engine health monitoring capability, reduces supply and maintenance needs, and extends the life of the current arresting gear."

Two complete prototype systems were built and installed at Naval Air Systems Command Lakehurst, NJ, test sites. The environmental testing was done at the Naval Air Systems Command Lakehurst facilities, and cycle testing was conducted at Northrop Grumman facilities. More than 600 "simulated" arrested landings, using a deadload, were done at the Lakehurst Jet Car Track site in the development process, proving the new control system worked properly and was safe to use.

A deadload is basically a rolling weight used to simulate different aircraft for testing purposes.

After completing developmental testing at the Jet Car Test Site, aircraft compatibility developmental testing at the Lakehurst Runway Arrested Landing Site (RALS) began. Approximately 300 aircraft arrested landings, using T-45, F/A-18C/D, F/A-18E/F and EA-18G test-instrumented aircraft, were performed at the RALS to show that the new arresting gear control system could work seamlessly with different aircraft.

Feedback from the aircrews involved in the testing confirmed that the system worked during both normal arrested landings and in fail-safe operations. This was also the first time the ARC was operated by fleet Sailors who provided valuable feedback in determining the final control system configuration to be delivered to the fleet.

The ARC has a complete back-up emergency fail-safe system to ensure a safe landing in the event any one of a number of components failed during an arrested landing. The systems configuration was changed during the

test program to withstand the unique vibration environment aboard an aircraft carrier and to better package the entire unit. The remaining hardware is to be completed and delivered within the next five years.

## Launch of first NZ OPV

The first of the Royal New Zealand Navy's new Offshore Patrol Vessels was launched on 18 November 2006 by the New Zealand Governor General, Dame Silvia Cartwright.

The ship, to be commissioned into the RNZN as HMNZS OTAGO, was launched at the Tenix shipyard, Williamstown, Victoria. The NZ Minister of Defence, Phil Goff, was also in attendance at the launch.

OTAGO is one of two 85m long Offshore Patrol Vessels that the RNZN has acquired under Project Protector. "The ships provide an enhanced capability and capacity to the Navy in a variety of roles," said RNZN Chief, Rear Admiral David Ledson.

"They provide to the Defence Force, a Navy with greater versatility and enable us to work more effectively with a range of other Government agencies within our EEZ, and throughout the South Pacific beyond. Importantly, too, they will give us an increased presence around New Zealand and so will make it possible for more New Zealanders to see the Navy making its contribution to the country's prosperity and security".

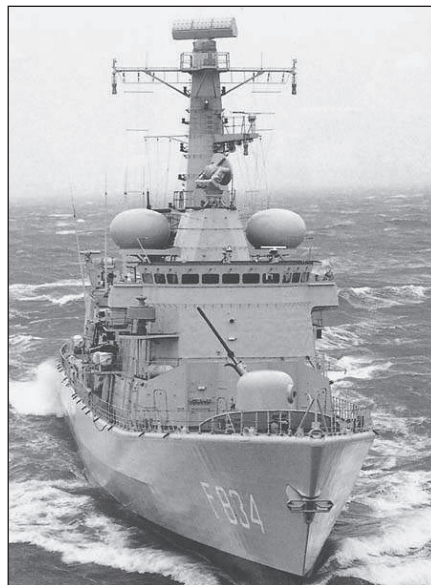
OTAGO will be affiliated to the Otago and Southland regions, incorporating the ports of Dunedin, Invercargill and Bluff.

## Portugal signs frigate deal

Portugal has formally signed for two Karel Doorman-class frigates from the Royal Netherlands Navy (RNLN).

The EUR240 million (AUD\$413.9 million) contract includes the vessel transfer and a training package and will see the HrMs VAN NES and HrMs VAN GALEN handed over to the Portuguese Navy on 1 December 2008 and 1 November 2009, respectively.

The RNLN is rapidly disposing of its Karel Doorman-class frigates, with two previously sold to Chile and another two to Belgium. The navy will continue to operate two of the ships, which were commissioned during the late 1980s and early 1990s.



HrMs VAN GALEN in Dutch service but soon to be handed over to the Portuguese Navy.



The first of the Royal New Zealand Navy's new Offshore Patrol Vessels, OTAGO, seen here launching at the Tenix shipyard, Williamstown, Victoria. (Kevin Dunn/Fleetline)

## USS SALT LAKE CITY & HONOLULU decommission

The Los Angeles-class nuclear powered submarines USS SALT LAKE CITY and USS HONOLULU have been officially stricken from the US Navy's fleet for disposal by submarine recycling.

The nuclear powered SALT LAKE CITY was commissioned in 1984 and commenced its stand-down period on 26 October 2005.

The 21-year-old HONOLULU was commissioned in 1985.



The Los Angeles class SSN USS SALT LAKE CITY on the surface during her career in the USN. (USN)

## HMCS CHICOUTIMI taken out of water

The Canadian Victoria-class submarine (formerly the RN Upholder class) damaged by fire in October 2004, HMCS CHICOUTIMI, has been taken out of the water at the Royal Canadian Navy's (RCN's) east coast maintenance facility, Cape Scott.

The submarine will remain on the synchro-lift until 2010, when the RCN intends to make repairs brought about by the fire.

While in dry dock, the navy will undertake necessary preservative and preventative measures to prevent deterioration of the submarine and its systems, and at the same time use CHICOUTIMI as a back-up source of spares for its other three Victoria-class boats. Although there had been some discussion over not repairing the submarine, that option has been rejected.

## SM-1 still flying

The US Navy's (USN's) Naval Sea Systems Command awarded a USD\$31.9 million contract to Raytheon to support the Standard Missile-1 (SM-1) users around the world.

This award will provide Mk-56 Dual Thrust Rocket Motor Regrain Production and SM-1 Block VIA missile assembly, testing and delivery.

Through the Foreign Military Sales programme, the governments to benefit from this programme include France; Japan; Turkey; Bahrain; Poland; Italy; and Chile. Australia has opted out of the SM-1 and will replace it with SM-2 on its FFGs.

to begin the IAC's construction after the state-owned Steel Authority of India (SAIL) was unable to supply them.

Powered by four General Electric LM 2500 gas turbines acquired through Hindustan Aeronautics Limited (HAL) at Bangalore in southern India, the IAC will operate a mix of 30 fighters comprising 12 MiG-29K multirole fighters, upgraded Sea Harrier FRS Mk-51s and the locally designed light-combat aircraft. A 10-helicopter compliment will comprise Russian Kamov Ka 31s and the indigenous advanced light helicopter.

The propulsion system is based on that of the Italian carrier CAVOUR and Italy's Fincantieri SpA will provide designs to integrate the propulsion system, engine room layouts and overall validation of systems as well as conducting sea trials.

## FORBIN gets set for combat system trials

DCN of France has begun combat system integration activities aboard Forbin, the first of two new Horizon-class anti-air warfare frigates for the French Navy.

Displacing 7,000 tonnes, FORBIN and sister ship CHEVALIER PAUL, launched on 12 July 2006, have been built at DCN's Lorient yard under the Franco-Italian Horizon programme. Two more ships, ANDREA DORIA and CAIO DUILIO, are being built by Fincantieri for the Italian Navy.

According to DCN, combat system setting-to-work began aboard FORBIN in September, with a first phase of combat system trials at sea due to commence in January 2007. All major combat systems have now been installed aboard the ship.

## Pakistan decommissions final ex-UK Leander-class frigate

The Pakistan Navy formally decommissioned its final ex-UK Royal Navy (RN) Leander-class frigate on 28 October 2006.

PNS ZULFIQUAR was commissioned into the RN in 1972 and transferred to Pakistan 16 years later. It

## India begins work on Project 71 aircraft carrier

India has begun work on its 37,500 ton Project 71 aircraft carrier and will begin formally constructing it by the end of November 2006.

The ship will be built at the Cochin Shipyard Limited (CSL) in southern Kerala state using modular building compartment blocks.

The government has so far sanctioned INR32.61 billion (USD724 million) for the programme, which has been re-designated the Indigenous Aircraft Carrier (IAC) from Air Defence Ship.

Despite this funding, it is reported that the project has been delayed by around two years to 2014 owing to steel acquisition problems.

This difficulty was recently resolved with the import from Russia of around 1,000 tons of steel 'bulb' bars essential



was retired from service earlier last year in the face of increasingly high support and maintenance costs.

The navy plans to re-use the name ZULFIQUAR in the new class of F-22P frigates on order from the People's Republic of China.

## Empara wins Navy League Geoff Evans Cup

The 2006 race for the Navy League, Navy Week Yacht Race for the Geoffrey Evans Cup was sailed on 28th October, with a 1400 hrs start. It was run in good conditions with a fresh south-westerly wind and the 14 competitors were well spread with 50 minutes between first and last boats at the finish of the two and a half hour race.

First past the post was *Executive Decision* skippered by Mr A. Stevens, but on handicap times, the winner was *Empara* skippered by Mr Peter Abrahams, with an elapsed time of 156 minutes, corrected time of 128 minutes. Second was *Irish Logic*, Mr G. Fell and third was *Fabulous Action*, Mr A. Brown.

In the late 1970s, the then president of the Navy League in Victoria, became aware that the League had no involvement in Navy Week and together with a member of the executive, who was also a member of the Royal Yacht Club of Victoria (The Royals), endeavoured to find a role for the League. A yacht race seemed to be a good idea and given the presence in Victoria of the longest serving Federal President of the League, it seemed natural to honour him in the process. And so was born the Navy League, Navy Week Yacht Race for the Geoffrey Evans Cup, to be run annually at Williamstown.

The first attempt in 1979 was cancelled due to very inclement weather and the inaugural race was run in October 1980. It was an evening race and sailing the final northerly leg up Port Philip Bay, with the lights of the city in the background was quite an emotional experience. The presentation was made at a formal dinner thereafter



Mr Peter Abrahams (left) accepting the Navy League's Geoff Evans Cup from Senior Naval Officer Victoria CAPT David Garnock.

in the presence of competitors, being the Commodore and members of the Club, the League, Navy and Naval Cadets and others and the event was and still is a most successful venture. Over the years, yachts from HMAS CERBERUS have taken part successfully and the Cup has been presented by The Naval Officer Commanding Victoria and other notable

Navy people. Participants have from time to time included crews of ships refitting or working up in Williamstown.

The Royals have been extremely generous in their support of the Race and the League is most grateful for their participation.

*By Mr John Bird, Federal Vice President Navy League of Australia.*



NUSHIP DIPONEGORO, the first Sigma class corvette for Indonesia about to start sea trials. Launched at the Dutch shipyard Schelde Naval Shipbuilding she is the first of four corvettes for the Indonesian Navy. According to the shipbuilder, the four new corvettes are designed for patrolling Indonesia's Exclusive Economic Zone and for counter-piracy operations in the region. The ships have a length of 91m and a displacement of 1,700 tonnes.



(Above) US President George W. Bush, Former US President George H. Bush and President of Northrop Grumman Newport News Shipyard Mr. Mike Petters, look on as ship's Sponsor, Doro Bush Koch, smashes the obligatory bottle of 'sparkling' to christen the US Navy's newest aircraft carrier, the GEORGE H. BUSH. (Below) Also seen in this sequence, the GEORGE H. BUSH receiving final fit out before launch. (USN)





# Observations

By Geoff Evans

## Problems for futuristic American Destroyer

'Observations' in the April-June 2005 issue of THE NAVY noted developments in a planned new super – indeed revolutionary – destroyer for the USN known at the time as the DD(X) project. Initially planned in the mid-nineties as a surface combatant to operate in both a blue-water and coastal environment, the DD(X) or DD-21 as it was originally called, had developed into a very sophisticated ship with a number of technologically advanced features.

An article in the September 2006 issue of the US Naval Institute's *PROCEEDINGS* reporting on the ship, now designated DDG-1000, illustrates a problem most navies, including the RAN, face in this day and age. The author of the article, Art Pine, a former naval officer and military affairs writer for a number of major American newspapers, raises the question of cost. Quoting an original \$US750 million per ship – "relatively inexpensive for a ship of its size" – the cost has grown "to between \$2.8 billion and \$3.8 billion a vessel – almost three times the current price of the Arleigh Burke (DDG-51) class destroyers introduced in 1991". Congress has authorised expenditure for only two of the largely experimental ships so far.

To summarise, published features of the DDG-1000 include:

- A new hull-form (below and above the waterline)
- An integrated power system providing electric power for all the ship's needs including propulsion and a new networked computer system
- New weaponry
- A new fire fighting system
- Reduced crew requirements – 142 compared to 314 for an Arleigh Burke – and
- Improved habitability.

It is not surprising the DDG-1000 has become so expensive. If it proves successful the USN contemplates a new class of cruiser to follow with similar features – although at a reported 14,000 tons the destroyer could already be regarded as a cruiser.

Cost is not the only hurdle facing the new destroyer's supporters, the project has been caught up in discussion concerning the future of the US Navy. Apropos the DDG-1000 project, a US Congressional Budget Office is quoted as stating "although the ship's centrepiece, its two advanced gun systems, would give the Navy the ability to provide sustained, high-volume fire support to troops ashore, that capability has not been in demand in the United States' past several conflicts" (Afghanistan and Iraq are quoted as examples).

Despite cost and need criticism it seems certain the DDG-1000 project will proceed but not in the numbers the USN originally wanted – 32 subsequently reduced to between 16 and 24. Whether or not all the capabilities will be retained remains to be seen.

## Australia's destroyer project

For over 100 years destroyers, 'maids-of-all-work', have been an invaluable part of all worthwhile navies: The exploits of the RAN's 10th destroyer flotilla in the Mediterranean during WW II, ranging from battlefleet escorts to 'solo' operations, are part of Australia's maritime history.

The RAN's last 'true' destroyers – lean, fast and well-armed for combat – were the American-built guided-missile destroyers PERTH, HOBART and BRISBANE, all laid-down and commissioned in the nineteen-sixties. They were acquired for conventional destroyer duties, all served in the Vietnam

War and all have now been decommissioned.

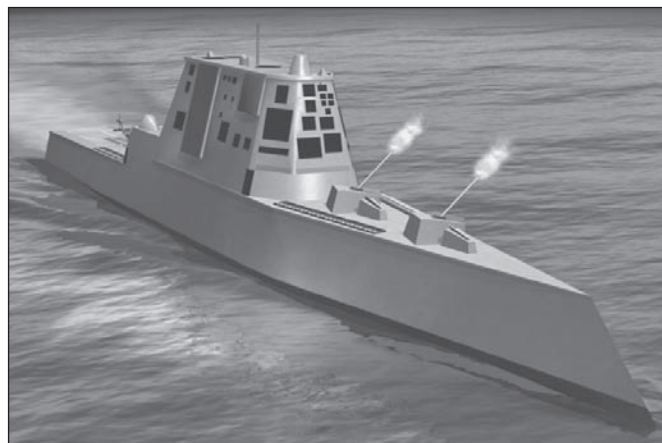
Given the proliferation of ever more capable anti-ship missiles in the region, the government in "Defence 2000 – Our Future Defence Force" outlined plans for the acquisition of three Air Warfare Destroyers (AWD) for the RAN: A little later they were also seen as possible assets if Australia became involved in a Ballistic Missile Defence scheme.

With previous naval acquisition projects, once the financial criteria had been satisfied Navy got on with the job and built the ship(s) locally or made an 'off the shelf' purchase. The process was relatively straight-forward, but not any more. One major problem however, has persisted for 100 years – whether to buy overseas or build locally. In "Australian Naval Administration 1900-1939" the author, Robert Hyslop, traces the first parliamentary debate to 1907, when the Senator representing the Minister for Defence said "it is the policy of the Government to give preference to Australian manufacturers, and nothing will be imported that can reasonably be produced locally". In a chapter on building and maintenance of ships Hyslop refers in considerable detail to the debates that took place whenever the subject of important naval acquisitions arose and whether the additional cost of local shipbuilding was justified. The subject continues to be argued.

The AWD acquisition is a rather complex arrangement. In October 2004 decisions were announced to the effect that the ships would be built in Australia and equipped with an Aegis Air Warfare System; a shipbuilder would be sought by tender and one of three ships – an American, a German and a Spanish warship – would be selected as the prototype for the Australian AWD.

In 2005 the shipbuilder was selected (the part Government-owned ASC – Australian Submarine Corporation) and later in the same year a preferred ship designer (the American firm Gibbs & Cox) in a competitive process. Gibbs & Cox will now compete with the designer of an Australian version of the Spanish F100 ship.

In August 2006, in a process described as 'unique', an Air Warfare Systems Centre was established in South Australia to bring together the various parties involved – Defence Materiel Organisation, ASC Shipbuilder, Raytheon as Combat System Engineer and the two ship designers; they will work together and (hopefully) enable the Government to approve a design for the new destroyers in mid-2007. Whether this is the most cost-effective way of providing the RAN with ships remains to be seen.



A computer generated image of the new DDG-1000 Zumwalt class destroyer.



# NAVY LEAGUE INTELLIGENCE DOSSIER

## The Talwar class Frigate

*Compiled By Intelligence Analysts Ian Johnson and George Kaplan*

**Recently an example of the IN's (Indian Navy's) latest class of frigate, INS TABAR, visited Australian waters, demonstrating both the technological sophistication of the IN and its strategic reach. These ships represent the future of the IN and an intelligence assessment of these interesting ships is thus required.**



The IN Talwar class frigate INS TABAR leaving Sydney Harbour. (John Mortimer)

INS TABAR, the last of a class of three Talwar class frigates (TALWAR, TRISHUL and TABAR), undertook a goodwill cruise to the South Pacific, including visits to Sydney and Fremantle in June 2006. TABAR also visited New Zealand and Tonga before visiting Fiji. While in Fiji TABAR conducted a series of exercises in Suva harbour with the Republic of Fiji patrol boats RFNS KULA (201) and RFNS KIRO (203). TABAR's last ports of call were Papua New Guinea and Singapore before returning to Mumbai in September 2006. Commanded by Captain Harish Bisht IN, TABAR is manned by 259 officers and crew. The ship's name means 'Battle Axe' in Sanskrit and her motto is 'Guts and Glory'.

TABAR is assigned to IN's Western Naval Command, Headquartered in Mumbai.

### Background

The most modern ships in the IN, the 4,000 ton Talwar class represent a return to India's previous policy of purchasing ships direct from Russian shipyards over construction of new vessels in indigenous shipyards. Project

1135.6, or as it became known, the Talwar class, was the sixth modification of the Severnoye Design Bureau's (SDU) Krivak class frigate built for the Soviet Navy, some 35 of which entered service from 1970.

In late 1997 SDU began design modifications of three ships to Indian requirements. Shipbuilder Baltisky Zavod of St. Petersburg began construction on TALWAR on 10 March 1999. The name ship, TALWAR was launched in 2000.

Integrating Indian and Russian systems was problematic as TALWAR discovered during sea trials in November 2001. A wide range of defects, ranging from hull, engine, equipment integration, and the failure of the Shtil-1 SAM system to engage airborne targets, forced the shipbuilder to delay TALWAR's May 2002 delivery. After 13 months nearly all the problems were fixed as INS TALWAR commissioned as part of the IN on 18 June 2003. TRISHUL commissioned a week later, having benefited from experience gained from TALWAR's completion, with TABAR commissioning in April 2004.

TABAR's 28 officers and 232 sailors living conditions are similar to those on the RAN's Adelaide class frigates.





The single-rail MS-196 launcher for the Shtil (SA-N-7) SAM. 24 missiles are stored below deck in the launcher's ready to use magazine. (Ian Johnson)

The most obvious differences from the Krivak baseline to the Talwar class is the incorporation of a degree of RCS (Radar Cross Section) reduction through the introduction of sloped superstructure sides from the vertical. Unfortunately, the typical plethora of bulky Russian radars and lattice masts may offset much of the RCS reduction.

Some design elements of the one-off Russian Neustrashimyy class frigate can be detected in the Talwar design, in particular the low, almost flush funnel, the high degree of weapons system automation and integration and a new emphasis in vertical launch systems over the typically Russian practice of large individual launch tubes located about the upper decks.

The Talwar class takes these elements one step further and incorporates a variety of weapon systems to allow them to operate across the spectrum of naval operations.

## Armament and Systems

The primary offensive capability of the Talwar class rests in its eight Novator SS-N-27 (NATO: SIZZLER) surface to surface missiles mounted in vertical launch tubes forward of the bridge. The SS-N-27 cruises at subsonic speed to the target much like a cruise missile with large wings to provide lift. Upon detecting its target it drops a 'dart warhead' which accelerates to 2.9 times the speed of sound for the final attack run. The 'dart warhead' can be programmed to weave or pop up before impact to confuse shipboard defences. Its 450 kg warhead is almost twice the size of the regional standard SSM, Harpoon, and would wreak havoc on a frigate sized target if hit. The high terminal velocity would also add a kinetic effect to the damage.

To derive maximum benefit from the SS-N-27's stated range of 220 kilometres it requires a separate

surveillance/targeting platform, either a maritime patrol aircraft or the frigate's own embarked helicopter with secure data-links to coordinate targeting. For her deployment, TABAR embarked a KA-31 Helix-B AEW (Airborne Early Warning) helicopter from Indian Naval Air Squadron 339 'Falcons' Squadron in Mumbai.

With a flight crew of three-four, the AEW KA-31 has a speed of 143 knots and a maximum ceiling of 6,000 metres. Its range is 540 nautical miles and can remain airborne for 4.5 hours. The KA-31's airborne early warning radar is the E-801M Oko (Eye), a 6x1 metre planar array located beneath the fuselage. The radar unfolds during flight and rotates through 360 degrees. It has the ability to detect up to 200 targets while simultaneously tracking up to 20 airborne or surface threats from a range of 115 km from an altitude of 10,000 ft. Information gathered can be transmitted via a secure data-link to a ship or shore command post. It is not known if this type of helicopter is usually embarked.

For self defence the Talwar class are armed with an array of weaponry, all of Russian design. Local area air defence is provided one single-rail MS-196 launcher mounted just aft of the gun turret for the Shtil-1 (NATO SA-7) surface to air missile (better known to Western readers by its NATO reporting name of GADFLY).

Shtil is a local area SAM (Surface to Air Missile), having a range of some 30 kilometres at Mach 3 and being guided to the target by semi-active radar homing with a mid-course data link to a commandable auto-pilot. This enables the ship to engage multiple targets with the one fire control illuminator using the 3D air search radar for cueing information to the auto-pilot until the final few seconds when the target is illuminated for terminal interception. Much like the Aegis/SPY-1 – SM-2 configuration in the USN's air warfare ships. 24 missiles are carried in the magazine located below the single arm launcher mount.

One area in which the Talwar and her sisters are particularly capable in is the provision of multiple fire control channels for the SAM system. Most Western frigates have one or two SAM channels, with many destroyers having two-three. The Talwar class mounts four separate fire control radars (NATO: FRONT DOME). Each uses a C-band phased array reflector. Each FRONT DOME can track two targets simultaneously if they are reasonably close together.



The A-190 (E) Dual Purpose 100mm gun mounted forward on the bow. The gun is capable of engaging aircraft, other ships or shore targets. It has its own separate fire control radar, the Puma 5P-10E 'Monument' mounted above the bridge. (Ian Johnson)

To deal with air threats that may leak past the SAMs, the Talwar class have three more lines of hard-kill defence. The first is an A-190 (E) Dual Purpose 100mm gun mounted forward on the bow. The gun also has its own separate fire control radar, the Puma 5P-10E 'Monument', to allow it to engage targets without degrading the ship's ability to engage targets with the Shtil SAM system.

The Puma 5P-10E 'Monument' sits above the bridge and is a flat faced phased array flanked by a pair of electro-optical sensors. Atop the array is a small radome for a high scan rate short range radar. It can lock onto and track four targets within its field of view and engage two simultaneously.

Needless to say the gun also has a useful anti-ship and naval gunfire support capability, delivering a 16kg shell out to 21 kilometres at a rate of 60-80 rounds per minute.

The second layer of active defence is provided by two CADS-N-1 Kashtan combined gun / missile launchers, one mounted each side of the helicopter hangar. Kashtan combines the extended range of a point defence missile system with the short-range radar-guided "wall of lead" provided by a dual Gatling gun system. Each mount comprises twin 30mm GSh-30k Gatling guns (with an effective range of 1.5 kilometres) and eight 9M-311 Grison (NATO: SA-N-11) missiles (with a range of some eight kilometres). Each mounting has its own radar / optronic director which directs both guns and missiles. There are 64 Grison reloads (32 each mount) with a package of four missiles taking less than two minutes to load.

The Kashtans are fed target information by a Positiv ME-1 (NATO: CROSS DOME) air and surface search radar enclosed in a radome above the helicopter hangar. The radar has a range of approx 100kms and can track approx 40 targets.

The third and final layer of air defence consists of two four-round pedestal mounted Igla-1E (NATO: SA-16) air defence missiles for short-range threats. The SA-16 is a fire and forget heat seeking missile normally found in a man-portable single shot shoulder launched version.

Taken together, the four separate weapon systems (each with its own dedicated fire control and/or guidance systems) mean the Talwar class can engage incoming missiles and aircraft with a multi-layered air defence array out to 30 kilometres that would be hard to beat.

For air search the Talwar class use a Fregat M2EM (NATO: TOP PLATE) 2D-3D (two dimensional and three dimensional) radar. The radar consists of two canted back to back arrays. One covering 2D for long range and the other a 3D radar covering the medium to short range. The M2EM system features continuous scanned arrays along with providing targeting information for the Shtil-1 missile system.



The eight cell Vertical Launch System (VLS) for the SS-N-27 SIZZLER anti-ship cruise missiles.



The 12-round RBU-6000 anti-submarine warfare rocket launcher. It can fire either Splav-90R rockets or RGB-60 depth charges. (Ian Johnson)

One 3Ts-25E Garpun-B radar unit is utilised for long-range surface search and target acquisition for the SS-N-27 SIZZLER anti-ship missiles. This is mounted just above the bridge in line with the bridge windows.

The Talwar class are fitted with two MR-212 (NATO: PALM FROND) surface search radars either side of the forward mast above the bridge.

For electronic surveillance and countermeasures the Talwar class use the Russian TK-25E-5 electronic warfare suite and 120mm chaff and infrared decoy rounds fired by four KT-216 launchers.

The TK-25E-5 system consists of two nodes fitted either side of the ship just abaft and below the bridge as well as consisting of two radomes on either side of the main radar mast above the bridge. The system supports both surveillance, jamming and decoy employment. Its passive frequency coverage is said to be P – Ku band (.4 – 20 GHz). Bearing accuracy is 2-5 degrees at S – Ku band and 5-7 degrees at P – L bands. Active jammer coverage is X – Ku bands (8 – 20 GHz). Jamming power is 8kw barrage masking and 80kw imitation (false target). It can jam in two directions simultaneously.

The KT-216 is a lightweight 10-tube 120mm launcher that can fire up to 80 rounds at once. The four KT-216 launchers on the Talwar class can fire chaff, IR decoys or a combination chaff/IR decoy. Russia is also working on different payloads which include smoke to mask the IR signature of the ships from IR guided weapons such as the RAN's Penguin, and another to block lasers from designating the ship.

The Talwar class is fitted with two on-board anti-submarine warfare systems in addition to the capabilities of its embarked helicopter. Forward of the bridge and aft of the VLS is one 12-round RBU-6000 anti-submarine warfare rocket launcher that can fire either Splav-90R rockets or RGB-60 depth charges. The effectiveness of the RBU is open to some question in deep ocean waters but should prove effective against submarines in shallow water.

Two pairs of fixed 533-mm DTA-53 torpedo tubes are located port and starboard midships. Both can launch either SET-65E anti-submarine and 53-65KE anti-ship torpedoes.

The Talwar class is fitted with the BEL APSOH (Advanced Panoramic Sonar Hull) hull-mounted sonar. The APSOH sonar has active ranging, passive listening, and auto tracking of targets.





One of the two pairs of fixed 533-mm DTA-53 torpedo tubes located midships on either beam. These tubes can launch either SET-65E anti-submarine or the Type 53-65KE anti-ship torpedoes. (Ian Johnson)

The class are currently slated to be fitted with a variable depth active sonar system in the future. VDS (Variable Depth Sonars) are less effective than a passive towed array sonar in deep waters, but in shallow waters where confused current noise can make passive sonar operations difficult, the ability of the VDS to actively search above or below thermal layers will prove effective.

Controlling this array of weapons is the Russian Trebovaniye-M combat information and control system that can control all of the ship's weapons as well as using situation analysis to generate combat missions. The combat system can transmit data and process information from up to 250 sources. It consists of eight workstations and three central servers built around a fast Ethernet. The system can host 10 workstations if needed. The computers are Commercial-Off-The-Shelf (COTS) devices with ruggedized boards. Time to solve an air defence problem is said to be one second.

The Talwar class has seven workstations below decks: Captain, air defence, surface warfare, ASW, EW, helicopter operations and system monitor. There is also a workstation on the bridge as an alternate for the Captain. Each workstation has two 19-inch LCD screens, a keyboard, a 15-inch LCD touchpad and trackball.

## Aviation

The Talwar class are fitted with a flight deck and a single hangar for an embarked helicopter. A Kamov KA-28 or KA-31 Helix is normally embarked however, it is intended to see the class fully equipped with the indigenous Dhruv helicopter. Both are capable of deploying ant-submarine homing torpedoes or air-to surface missiles and providing targeting information for the ship's SS-N-27 anti-ship missiles.

## Powerplant

The Talwar class are powered by a Zorya/Mashproekt M7N-1E Combined Gas and Gas turbine system (COGOG) consisting of two sets of two gas turbines. Two DS-71 cruise turbines (each rated up to 9000 hp) and two DT-59 boost turbines which are clutched in for when high speed is required. The power is delivered via two shafts and can drive the ship at up to 32 knots. A maximum range of almost 5,000 nautical miles is possible at 14 knots, dropping to some 600 nautical miles at 32 knots.

## Operational

The Talwars will replace the older vessels of the Nilgiri class providing a significant upgrade in capability over the older vessels. In particular the vastly more capable SAM and ASM systems will provide the IN with a more versatile and survivable combatant able to integrate into a carrier task force or operate independently as required.

The six ships of the Nilgiri class are now quite elderly and are due to be decommissioned in the next few years. A modified version of the British Leander class frigate as operated by the UK and various other Commonwealth Navies, they lack a ASM capability and their Sea Cat SAM system is obsolete. The Talwar class represents a generational change in capability for the IN over the Nilgiri's.

As highly capable combatants it is unlikely that TABAR and her sisters would be used for low level operations, their multi-layered air defence capability would prove valuable to defending high value targets such the IN's aircraft carrier VIRAAT or elements of India's amphibious squadron. They could also form a core component of a surface action group in conjunction with the Delhi class destroyers.

## Comparison with Similar Regional Vessels

India shares an intense regional rivalry with Pakistan and it is instructive to compare the Talwar class to the Pakistan Navy's most equivalent vessel, the six ships of the Babur class (formerly the UK Royal Navy's Type 21 class frigates).

The Babur's are the Pakistan Navy's front line surface combatants and as such are the most likely potential opponents of the Talwar class.

The ships were acquired by Pakistan from the UK in 1993/94, having served for some 15+ years with the Royal Navy, most notably in the Falklands War where two of the class were lost. Modernisation and upgrades to the class since their acquisition have been modest and in most areas the Talwar class are clearly more capable, reflecting the three decades difference in design and weaponry.

Formerly fitted with Exocet ASMs and Sea Cat in RN service, today three of the Babur class are fitted with Harpoon ASMs and the other three with the Chinese LY-60 (N) SAM. All have a Phalanx close in weapon system for anti-missile defence above the hangar in place of the Sea Cat launcher.



One of the two TK-25E-5 ESM system nodes. Also just visible above it on the main mast are two smaller radomes thought to be part of the active jamming element. (Ian Johnson)



A CADS-N-1 Kashtan combined gun/missile launcher. Kashtan combines the twin 30mm GSh-30k Gatling guns with eight 9M-311 Grison (NATO: SA-N-11) missiles. Missing are the SA-N-11 launchers normally fitted outside of the guns. The large radome off to the right and behind the Kashtan is the Positiv ME-1 (NATO: CROSS DOME) air and surface search radar used by the Kashtans. (Ian Johnson)

The Pakistani Navy is aware of the deficiencies of the Babur and it has recently been reported that they are seeking to acquire four ex-Netherlands Navy Kortenaer class frigates from their current operator, the Greek Navy. These ships will increase the size of the Pakistani Navy but are some 20 years old and cannot be considered a modern warship design.

While the Talwar class displays some efforts at RCS reduction (commonly called "stealth" design) they do not match the capabilities in this area of modern Western designs in service in the region such as the Valour, Formidable and Lekiu classes. Further work to reduce the RCS of the many radar systems and the lattice masts would be required to see a meaningful reduction in RCS achieved.

Of course the most meaningful comparison is not one that can be achieved by comparing weapon systems. The true test is in how well the ships sensors and weapons are integrated and the quality of the ships combat system to support the ships command team in understanding the overall "picture" and fighting the ship in the most effective way.

In this area the questions will linger around the Russian designed Trebovaniye-M combat data system. Russia has lagged behind in this increasingly sophisticated and costly area, a reflection on the less well developed information technology capabilities of Russia's military computer and software industry.

It is no doubt an area of concern to the IN and they will be certainly working with their own capable software industry to improve on the capabilities of the Talwar's combat data system software.

Another area that will be a cause for some concern is the mutual electronic interference issues that delayed the commissioning of the TALWAR and her sisters. The ever increasing plethora of search and fire control radar's, communications antennas, electronic surveillance and countermeasures, satellite and data links provides a real test of ship design.

Issues with mutual interference between the ship's satellite communications channels on one hand and the air search radar and electronic warfare systems on the other contributed to the loss of HMS SHEFFIELD in the Falklands War.

Again India is no doubt working actively to measure the effects and undertake remedial action where possible to minimise the possible interference.

## Summary

The delivery of the three Talwar class frigates to India, taken together with the indigenous construction of the Delhi class destroyers, signals a renewed desire on the part of India to revitalize the surface fleet after a period of concentration on the submarine arm. Incorporating a very capable surface to surface missile and a degree of self protection capabilities unmatched in the Indian fleet, the Talwar class are a formidable addition to India's naval capabilities.

Like the Delhi class, perhaps their biggest limitation is the small number in service, however, just as India is planning to supplement the Delhi class with the new Type 15 destroyers under construction, the IN has recently exercised an option for an additional three Talwar class frigates.

Taken together, the additional ships signal the IN's intention to ensure the continued renewal and growth of the surface fleet. The Talwar class in service and on order will lead that renewal into the future.

Note: The Authors would like to thank Captain Harish Bisht (CO INS TABAR) Captain Sudarshan Shikhande IN (Indian Defence Attaché, Canberra) Lt Hanumani Gupta IN, (Gunnery Officer INS TABAR) and the officers & crew of INS TABAR for their assistance in this article. Additional information sourced from 'The Naval Institute Guide to World Naval Weapon Systems' (see previous edition's Product Review Section).



Two of the aft facing FRONT DOME SAM guidance radars. The Talwars have four each covering a full 360 degrees. Each can track two targets simultaneously (depending on proximity to each other).





An impressive set of electronics. As numbered: 1. The MR-212 FRONT DOME fire control radars; 2. The 3Ts-25E Garpun-B surface search and target acquisition radar; 3. The Puma 5P-10E 'Monument'; 4. A civilian type Navigation radar; 5. Starboard side PALM FROND radar; 6. The Fregat M2EM (NATO: Top Plate); 7. Starboard side TK-25E-5 ESM/ECM system. (Ian Johnson)

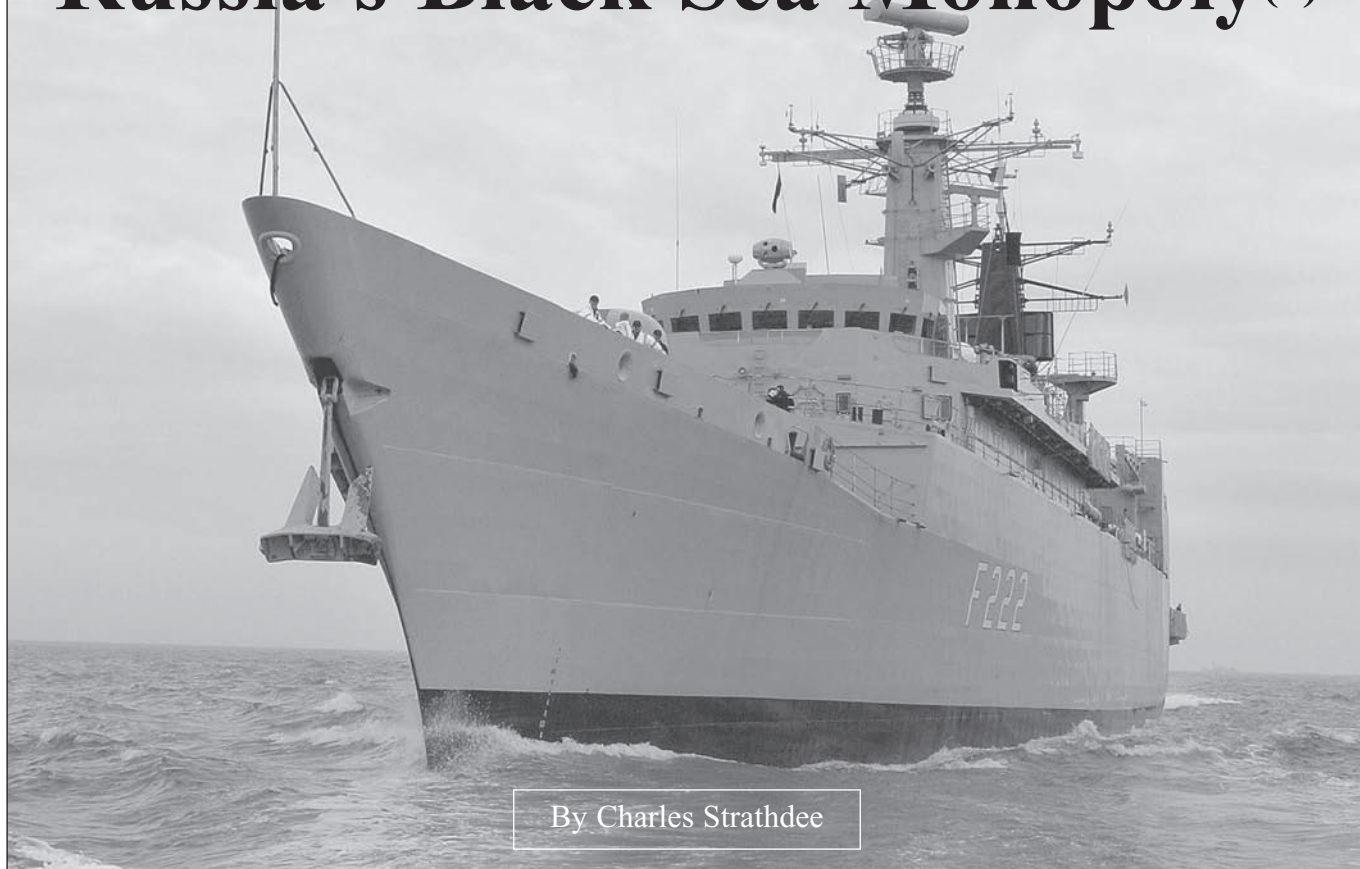


TABAR's embarked KA-31 Helix-B AEW (Airborne Early Warning) helicopter. Apart from targeting information for the SS-N-27 ASM the AEW capability can warn of approaching aircraft and missiles. (Ian Johnson)



The KA-31 AEW helicopter with its radar deployed.

# New NATO Navies Break Russia's Black Sea Monopoly(\*)



By Charles Stratthdee

The Romanian frigate REGINA MARIA (former HMS LONDON) enters Portsmouth after trials off the UK prior to sailing for the Black Sea. (BAE Systems)

**Charles Stratthdee considers the growing influence of the US Military in the Black Sea, which was once a preserve of the USSR. He discovers that former Warsaw Pact countries are far more enthusiastic supporters of American security objectives than older allies.**

The Black Sea was once considered a 'Soviet lake', but in recent years Russia has stood aside as NATO's new member states have slowly begun to intrude into its traditional sphere of influence. Notably, Commander US Naval Forces Europe/Commander US Sixth Fleet has been increasing cooperation with regional partners in the Black Sea. During February 2006 the USN guided missile destroyer USS PORTER deployed there to train alongside the Romanian and Ukrainian navies. "This is my second time in the Black Sea in the past nine months and the third time we have had ships operating here," said Captain Tom Rowden, Commander Task Force 65 and senior officer aboard the PORTER. "The Ukrainian and Romanian navies are both emerging partners in the US European Command theatre and I have seen significant progress in our ability to operate with them." The training with the Romanian Navy comes on the heels of a recent basing agreement.

Romania has become the first former Warsaw Pact country to officially host an American military base. In December 2005 US Secretary of State, Condoleezza Rice, signed a deal formally granting Washington access to Romanian military facilities and under the agreement, the US military will continue to use Mihail Kogalniceanu air base, in south-east Romania, just inland from the Black Sea.

About 7,000 US troops transited through Kogalniceanu during Operation Iraqi Freedom in 2003 and in return America spent US \$4 million improving it, including almost \$1 million on the base's security fence. Other possible sites for US bases include Babadag near the Danube delta, plus the Black Sea port of Constanta and Fetesti, some 200 kms east of Bucharest.

Romania joined NATO just three years ago, but is keen to be seen as an active member and is investing in its naval forces. In an interview published on his internet website, Romanian President Traian Basescu said his government has finalised negotiations "regarding US military facilities on the Black Sea coast and maybe in other areas of Romania". These bases are seen as key to Romania's drive to secure more foreign investment in order to close the enormous wealth gap separating it from the European Union, which it wants to join as early as this year.

The hope is that thousands of American troops could inject much needed funds into the Black Sea resort region, which is currently over-reliant on the summer holiday season.

In Washington's eyes the Black Sea provides an ideal power projection location toward the Greater Middle East (an arc from North Africa to Pakistan). It is also a vital energy hub connecting Caspian Sea oil and gas with the eastern





The Arleigh Burke class destroyer USS PORTER making a port visit to Greece prior to her arrival in the Black Sea to exercise with the Romanian Navy. (USN)

Mediterranean plus Romania and Bulgaria sit astride major shipping routes. Some 150 ships a day passed through the Turkish Straits in 2004, up from only 65 ships on a comparable day in 2001. In 2004 55,000 ships, flying the flags of 85 different nations, transited the Turkish Straits, carrying 450 million tons of cargo. This included 25 tankers on average every day, a total of over 9,000 tankers carrying 145 million tons of petroleum.

The Romanian Navy is currently seeking to bring itself up to NATO standards. For example, training with the USS PORTER included Visit, Board, Search and Seizure (VBSS) procedures as well as fire-fighting.

Romania is also in the process of integrating two recently acquired former Royal Navy Type 22 Batch 2 frigates. The REGELE FERDINAND (ex-HMS COVENTRY) and the Regina Maria (ex-HMS LONDON) arrived at their new base at Constanta in December 2004 and July 2005 respectively.

Both are now in commission and while the initial BAE Systems contract included an element of support work, discussions continue on the details of future assistance.

During training aboard his ship, the USS PORTER's Captain Rowden noted that the Romanian Navy had shown a particular interest in naval flight operations, specifically landing helicopters aboard ship. According to Romanian defence sources pilot training for the helicopters that will operate off their frigates has commenced at the School of Air Applications Aurel Vlaicu in Boboc, Buzau County and the Romanian Marine Aviation base Siutghiol Lake, in the northern part of Constanta.

The Romanian Navy operates the IAR-316B Alouette III as its shipborne Anti-Submarine Warfare helicopter. The REGELE FERDINAND conducted the Romanian Navy's very first NATO mission between October 15 and December 15, 2005, when she served under NATO operational command, participating in *Operation Active Endeavour*, the alliance's maritime contribution to the War on Terrorism. Afterwards the frigate stopped off in Taranto Bay, Italy, and Rear Admiral Dr. Gheorghe Marin, Chief of the Romanian Navy Staff met with Rear-Admiral Roberto Cesaretti, NATO Maritime Component Commander Joint Allied Command, Naples, who was responsible for planning and co-ordinating *Active Endeavour*. Members of the Romanian Navy also attended a Maritime Tactical Schools Meeting in the UK in October and Romania currently has almost 1,000 troops serving alongside Coalition forces in Iraq. It has assured Washington, that it has no immediate plans to withdraw the latter.

Meanwhile, America has also been pursuing access to Bulgarian military bases, including the Bezmer airfield and the Novo Selo firing range, which are near the southern border with Turkey.

Both Bulgaria and Romania are much closer to trouble spots in the Middle East than traditional NATO bases and provide a cheaper option than maintaining costly facilities in Western Europe. NATO's military commander, US Marine Corps General James Jones, has hinted that Washington may seek access for the US fleet to Bulgarian naval bases at Burgas and Varna.

General Jones has toured both countries but was at pains to clarify during his visit to Bulgaria that the bases the Pentagon seeks will not replace the US military presence elsewhere.

"The type of facilities that we hope to be able to partner with Bulgaria will affect the US Navy, the US Air Force, US Army, the US Marines, and hopefully some facilities where we can pre-position equipment," he said.

The Bulgarians are certainly keen to be ever tighter embraced by NATO and more particularly the US military. In November 2005 Bulgaria hosted a NATO conference on strengthening Black Sea maritime security and throughout last September the Bulgarian frigate SMELI took part in *Operation Active Endeavour*.

It was the first time Bulgaria had contributed forces towards such a counter-terrorism mission. Commander of Allied Joint Force Command Naples, Admiral H. G. Ulrich III, US Navy visited the Smeli in Souda Bay, Greece on September 24 2005.

The deployment added to the development of inter-operability needed to make the Bulgarian Navy more familiar with NATO standards and capable of further contributing to *Active Endeavour*.

SMELI was subsequently due a communications upgrade to make her NATO-compatible.

Both Bulgaria and Romania have been vigorously pursuing better military ties with America ever since *Operation Iraqi Freedom*. In light of France and Germany's hostility to American military plans, Washington sought long-term strategic co-operation from other European countries such as the Black Sea states.

However, American military interests have been somewhat hampered by the Ukraine's slower than expected Western reorientation and Turkey has been less than co-operative.



The Bulgarian corvette SMELI during her deployment with a NATO counter-terror naval task force. (NATO)



Part of the current Russian Black Sea Fleet. (from L to R) The Ropucha II class tank landing ship BDK-11 and the Slava class cruiser MOSKVA (ex- SLAVA). (Italian Navy)

This left Bulgaria, Romania and Georgia as the most amenable candidates for the basing of US forces. However, Georgia has continued to suffer instability making Bulgaria and Romania the more viable options.

NATO and US overtures to Georgia have resulted in an offer of transit rights through the port of Batumi and Tbilisi airport to support NATO operations in Afghanistan. Washington's ultimate goal is for a stable Georgia as a conduit for Caspian Sea and Central Asian oil supplies, which will help diminish Washington's reliance on the Middle East. While US-Georgian relations remain problematic because of Moscow's continuing interest in the region, Georgian-Russian relations remain at an all time low.

Despite the May 2005 agreement to close the remaining Russian Army bases on Georgian soil there has been little in the way of political breakthroughs. Additionally, the conflicts in Georgia's breakaway regions of Abkhazia and South Ossetia continue to be a source of trouble between the two.

Although Russian peacekeepers are supposed to ensure regional stability, Georgia accuses Moscow of supporting the separatist leaders' ambitions for independence.

The consolidation of an American military presence in both Bulgaria and Romania is likely to have ramifications for US-Russian relations and the European Union.

The Pentagon argues that these moves are in fact part of its wider global strategy to gain access to small flexible bases that can be called upon on as and when they are needed, rather than the permanent Cold War style facilities which have been such a drain on US defence spending. The traditional US military footprint in Europe covered Germany, Italy, Turkey and the UK. However, with the demise of the Soviet Union and the end of the Cold War these facilities no longer meet ongoing US strategic requirements.

The problem is that Moscow does not usually welcome American intrusions in its own backyard and the new US military presence in the Black Sea region may well prove to be a source of instability in itself.

Nonetheless, the Russian Navy began training in February 2006 with NATO to take an active role in the anti-terrorism patrols in the Mediterranean. This decision by Russia to contribute naval forces from the Black Sea Fleet to the War on Terror may herald a new spirit of co-operation rather than confrontation.

(\*) This article first appeared in the UK based magazine WARSHIPS IFR and is reprinted with kind permission of its Editor.



During one venture into the Black Sea the US Navy met some resistance. Here the Soviet Krivak I class frigate BEZZAVETNY deliberately rams the Ticonderoga class cruiser USS YORKTOWN while another ship, USS CARON, conducted a "freedom of navigation" mission in the Black Sea during 1988. The Soviet Union, much like the modern day Russia, objected to a US presence in the Black Sea. (USN)



# HATCH, MATCH & DISPATCH

## MATCH

### MAITLAND & ARARAT

Two more Armidale class patrol boats have joined the ranks of the RAN. NUSHIPS MAITLAND and ARARAT now bear the prefix HMAS.

ARARAT's commissioning ceremony took place at Docklands Melbourne on Friday, 10 November 2006.

Mrs Jennifer O'Malley of Tooramina, NSW was the Guest of Honour for ARARAT's commissioning. Mrs O'Malley is the daughter of the late Lieutenant Commander Norman Muzzel, who was Commanding Officer of the first HMAS ARARAT throughout World War II.

The previous HMAS ARARAT was one of sixty Australian Minesweepers built during World War II.

ARARAT (I) commissioned at Brisbane on 16 June 1943 and commenced her operational duty during the first week of August 1943 as a convoy escort vessel on the east coast of Australia.

By 1944 ARARAT was still escorting and conducting patrol duties between Queensland and New Guinea until March when she transferred to Langemak, New Guinea. On 11 August she transferred to the operational control of the United States naval command at Manus Island. Based there until the close of 1944 she was almost constantly at sea on escort and patrol to the forward areas of the rapidly developing Allied offensive.

On 22 July 1945, less than a month before the end of hostilities, ARARAT's war service came to an end when she departed Langemak en route for Adelaide to refit.

On 22 October 1945 ARARAT joined the 20th Minesweeping Flotilla (led by HMAS SWAN) for post war mine clearance operations. As a minesweeper, she operated first in Australian waters (October 1945 to April 1946) and then, until November 1946, in the waters of New Britain, New Ireland and the Solomon Islands.



The newly commissioned Armidale class patrol boat HMAS ARARAT.  
(Kevin Dunn/Fleetline)



Crew members of the newly commissioned Armidale class patrol boat HMAS MAITLAND give three cheers for the newly commissioned ship in Newcastle Harbour. (RAN)

On 13 November she arrived at Sydney from Rabaul, her work with the 20th Minesweeping Flotilla completed and her seagoing career ended. She had steamed 109,000 miles. ARARAT paid off into the Reserve Fleet at Sydney on 11 April 1947. After a lengthy period in Reserve, ARARAT was sold on 6 January 1961 to Burns Philp & Co Ltd, Darwin. She was later resold to Japanese interests. Under that ownership she carried out salvage operations in Darwin Harbour.

The vessel left Darwin on 20 July 1961, under the control of the Fujita Salvage Company of Japan, towing a floating crane.

HMAS MAITLAND is the first ship to be named after the NSW town and was commissioned on 30 September 2006.

## SIRIUS

NUSHIP SIRIUS became HMAS SIRIUS at her commissioning on 16 September 2006. SIRIUS is the first ship of the RAN to bear the name. She is named after the first fleet flagship and supply vessel HMS SIRIUS that provided logistical support to the new colony of Australia between 1788-90.



Crew members march aboard the support ship HMAS SIRIUS for the first time. (RAN)

HMAS SIRIUS has enhanced aviation facilities with a full flight deck capable of landing all RAN helicopters, including the Sea King replacement, the Maritime Support Helicopter (MRH-90). HMAS SIRIUS is fitted with state-of-the-art equipment ensuring that she is able to fully integrate with RAN and Allied ships. Importantly she is a double-hulled environmentally friendly tanker and meets International Maritime Organisation standards.



HMAS SIRIUS at sea conducting replenishment trials with the Anzac class frigate HMAS TOOWOOMBA. (RAN)

## DISPATCH

### HMAS GERALDTON

In a centuries old tradition, the Royal Australian Navy's Fremantle Class Patrol Boat (FCPB), HMAS GERALDTON lowered her Australian White Ensign for the last time as the ship was decommissioned in a traditional ceremony in her homeport of Darwin on 7 October 2006. HMAS GERALDTON had contributed 23 years of valuable service.

HMAS GERALDTON was the eleventh FCPB to be decommissioned with the introduction of the Navy's 14 state-of-the-art Armidale Class Patrol Boats (ACPB).

### HMAS LAUNCESTON

The Fremantle Class Patrol Boat HMAS LAUNCESTON decommissioned in her homeport of Darwin on 8 September 2006 after 24 years of valuable service to the RAN. She is the ninth FCPB to be decommissioned.

At HMAS LAUNCESTON's decommissioning, her Commissioning Lady, Jocelyn Newman, a former Senator and Minister of the Crown attended. She had been Commissioning Lady 24 years earlier and brought with her a gift, given on that occasion, by the patrol boat; a dinner gong made up of brass shell casings, to be returned to the boat. MCAUST RADM Davyd Thomas accepted the gift, to be held in safekeeping, until NUSHIP LAUNCESTON commissions later this year.

LAUNCESTON is the second RAN ship to bear this name. The first HMAS LAUNCESTON, a 'Bathurst Class' Corvette of 650 tons commissioned into the RAN on 9 April 1942. She served on escort duties in the Pacific and Indian Oceans and was involved with the capture and surrender of Okinawa (Japan). The ship was decommissioned in April 1946 and the following month recommissioned in the Royal Navy prior to being transferred to the Turkish Navy. She was eventually withdrawn from service in 1965.

### HMAS BENDIGO

HMAS BENDIGO was decommissioned in September 2006 in the boat shed at HMAS CAIRNS. Mrs Mona Lynam, her Commissioning and Decommissioning Lady attended, with her husband RADM (Ret'd) Lynam accompanying her.

HMAS BENDIGO was in service for 23 years under 17 different commanding officers.

### HMAS WESTRALIA

The Navy's Underway Replenishment ship, HMAS WESTRALIA departed naval service in a historic ceremony at Fleet Base West on 16 September 2006. The ceremony was held in conjunction with the commissioning of the Navy's newest ship, HMAS SIRIUS.

Maritime Commander Australia Rear Admiral Davyd Thomas AM CSC RAN and the Commanding Officer of HMAS WESTRALIA, Commander Tim Crawford RAN and the Ship's Company of both WESTRALIA and SIRIUS took part in a joint decommissioning and commissioning ceremony. Senator Judith Adams representing the Minister for Defence and the Chief of Navy, Vice Admiral Russ Shalders AO CSC RAN joined family and friends of the Ship's Company.

"HMAS WESTRALIA has provided 17 years of dedicated underway replenishment support to the Fleet through provision of fuel, food and stores, thus significantly extending its operational reach and endurance at sea. She has provided sterling service and will be fondly remembered by Ship's Company both past and present", said Commander Crawford.

She was the second RAN warship to bear the name of WESTRALIA, named after the State of Western Australia. WESTRALIA saw active service in the Gulf War as part of a Multi-National Naval Force conducting operations in support of the liberation Kuwait. She has also participated in operations in the Southern Ocean and deployed throughout South East Asia on numerous occasions.



Crew members march off the support ship HMAS WESTRALIA for the last time. (RAN)



# PRODUCT REVIEW

## No Higher Honor

Hardcover

275 pages

Naval Institute Press (July 1, 2006)

ISBN: 1591146615

Reviewed by Steve Bennet.

Like its World War II namesake of Leyte Gulf fame, USS SAMUEL B. ROBERTS (FFG-58) was a small combatant built for escort duty. She was an Oliver Hazard Perry class frigate almost identical to the RAN's Adelaide class FFGs. Still a very new ship with a new crew she was sent into the Persian Gulf at the height of the Iran-Iraq War during 1988 to escort US flagged tankers through the 'Exocet alley' of the Persian Gulf. Forbidden to fire unless fired upon, her Captain Paul Rinn and his crew sailed amid the chaos in the Gulf for two months, relying on wit and nerve to face down Iranian and

Iraqi fighter jets and warships bent on the destruction of civilian vessels. Their sternest test came when an Iranian mine ripped open the ship's engine room, ignited fires on four decks, and plunged the ship into darkness on 14 April 1988. The crew's bravery and cool competence was credited with keeping the ship afloat, and its actions have become part of US Navy lore and a staple of naval leadership courses ever since.

This is the first book to record the ROBERTS' extraordinary tale and details a segment of the 'Tanker Wars' in the Persian Gulf. This war saw such notable events as the Iraqi Exocet attack on the SAMUEL B. ROBERTS' sister ship STARK and the downing of an Iranian civilian airliner by the Ticonderoga class cruiser USS VINCENNES.

After years of research and interviews with crewmembers, journalist Bradley Peniston chronicles the crew's heroic efforts to save the ship as they fought flames and flooding well into

the night. The author also describes the frigate's origins, its operational history, and the crew's training. Peniston's personal approach to the subject not only breathes life into the historical narrative but gives readers an opportunity to get to know the individuals involved and understand the U.S. retaliation to the mining and the battle that evolved, setting the stage for conflicts to come. The author Bradley Peniston is managing editor of the weekly newspaper Defense News. He has covered the U.S. military in more than a dozen countries and spent time aboard more than fifty warships. His work has appeared in the New York Times, Washington Post, Moscow Times, Naval Institute Proceedings, and elsewhere. He is also the author of *Around the World with the U.S. Navy*.

# No Higher Honor

*Saving the USS Samuel B. Roberts  
in the Persian Gulf*

**BRADLEY PENISTON**

Foreword by Adm. William J. Crowe Jr., USN (Ret.)

# STATEMENT of POLICY

Navy League of Australia

The strategic background to Australia's security has changed in recent decades and in some respects become more uncertain. The League believes it is essential that Australia develops the capability to defend itself, paying particular attention to maritime defence. Australia is, of geographical necessity, a maritime nation whose prosperity strength and safety depend to a great extent on the security of the surrounding ocean and island areas, and on seaborne trade.

The Navy League:

- Believes Australia can be defended against attack by other than a super or major maritime power and that the prime requirement of our defence is an evident ability to control the sea and air space around us and to contribute to defending essential lines of sea and air communication to our allies.
- Supports the ANZUS Treaty and the future reintegration of New Zealand as a full partner.
- Urges a close relationship with the nearer ASEAN countries, PNG and the Island States of the South Pacific.
- Advocates the acquisition of the most modern armaments, surveillance systems and sensors to ensure that the ADF maintains some technological advantages over forces in our general area.
- Supports the acquisition of unmanned aircraft such as the GLOBAL HAWK and UCAVs.
- Believes there must be a significant deterrent element in the ADF capable of powerful retaliation at considerable distances from Australia.
- Believes the ADF must have the capability to protect essential shipping at considerable distances from Australia, as well as in coastal waters.
- Supports the concept of a strong modern Air Force and highly mobile Army, capable of island and jungle warfare as well as the defence of Northern Australia and with the requisite skills and equipment to play its part in combating terrorism.
- Advocates that a proportion of the projected new fighters for the ADF be of the STOVL version to enable operation from suitable ships and minor airfields to support overseas deployments.
- Supports the development of amphibious forces to ensure the security of our offshore territories and to enable assistance to be provided by sea as well as by air to friendly island states in our area and to allies.
- Endorses the control of Coastal Surveillance by the defence force and the development of the capability for patrol and surveillance of the ocean areas all around the Australian coast and island territories, including the Southern Ocean.
- Advocates measures to foster a build-up of Australian-owned shipping to ensure the carriage of essential cargoes in war.

As to the RAN, the League:

- Supports the concept of a Navy capable of effective action off both East and West coasts simultaneously and advocates a gradual build up of the Fleet and its afloat support ships to ensure that, in conjunction

with the RAAF, this can be achieved against any force which could be deployed in our general area.

- Is concerned that the offensive and defensive capability of the RAN has decreased markedly in recent decades and that with the paying-off of the DDGs, the Fleet lacks area air defence and has a reduced capability for support of ground forces.
- Advocates the very early acquisition of the projected Air Warfare Destroyers.
- Advocates the acquisition of long-range precision weapons and the capability of applying long-range precision fire to increase the present limited power projection, support and deterrent capability of the RAN.
- Advocates the acquisition at an early date of integrated air power in the fleet to ensure that ADF deployments can be fully defended and supported from the sea.
- Advocates that all Australian warships should be equipped with some form of defence against missiles.
- Advocates the future build up of submarine strength to at least 8 vessels.
- Advocates that in any future submarine construction program all forms of propulsion be examined with a view to selecting the most advantageous operationally.
- Supports the maintenance and continuing development of a balanced fleet including a mine-countermeasures force, a hydrographic/oceanographic element, a patrol boat force capable of operating in severe sea states, and adequate afloat support vessels.
- Supports the development of defence industry supported by strong research and design organisations capable of constructing and supporting all needed types of warships and support vessels.
- Advocates the retention in a Reserve Fleet of Naval vessels of potential value in defence emergency.
- Supports the maintenance of a strong Naval Reserve to help crew vessels and aircraft in reserve, or taken up for service, and for specialised tasks in time of defence emergency.
- Supports the maintenance of a strong Australian Navy Cadets organisation.

The League:

- Calls for a bipartisan political approach to national defence with a commitment to a steady long-term build-up in our national defence capability including the required industrial infrastructure.
- While recognising budgetary constraints, believes that, given leadership by successive governments, Australia can defend itself in the longer term within acceptable financial, economic and manpower parameters.



The RNLN air defence ship TROMP seen here in Pearl Harbor during her round the world voyage. TROMP is due in Australia Dec 2006 – Jan 2007. (USN)



The South Korean KDX-II class destroyer DAE JO YEONG. South Korea has just commissioned its sixth KDX-II destroyer with a new KDX-III design with Aegis and SPY-1 radars due to start entering service in the next few years. (USN)





HMAS TOOWOOMBA seen here accepting fuel from the RAN's newest ship HMAS SIRIUS. (RAN)

