



THE ROYAL AUSTRALIAN NAVY

Defence: Protecting Australia





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Defence Policy and the

Because Australia is an island nation, the Royal Australian Navy (RAN) will always play a vital role in Australia's defence.

For its security Australia relies upon:

- a national defence capacity to provide for the



self-reliant defence of Australia and its interests against threats that could arise in the region;

- the promotion of a "regional security community" in South East Asia and throughout the wider Asia-Pacific region;
- the continuation of an alliance relationship with the United States; and
- the maintenance of a high level of defence commitment to the United Nations (UN) and other multinational operations that contribute to a more secure global environment.

AUSTRALIA'S STRATEGIC SITUATION

Australia, as an island continent, maintains its primary defence focus on the sea and air approaches across which an adversary would have to project and sustain force to attack Australia. Our Navy's combined forces must be capable of conducting concurrent maritime operations, both defensive and offensive, across these maritime approaches and beyond if necessary. The sea-air gap between Australia and the archipelago to our north and north west is particularly significant, as this is where our approaches are shortest, thereby making it most likely that any attack will come from the north.

At present, Australia does not face any identifiable military

Royal Australian Navy

threat. As such, our defence planning priorities are determined largely by Australia's geography, the different forms of conflict to which we could be required to respond, and the timescales in which various levels of pressure could arise.

Particular attention is given to developing the capabilities required to respond to threats that could arise with little warning. An adversary's use of military force in the short warning context could take many forms, such as attacks on Australian assets and interests in the sea air gap; interference with our Sea Lines of Communication (SLOC); mining of maritime approaches; ports and shipping focal areas; harassment of remote settlements and offshore resource installations, and the sabotage of defence and civil installations.

Successful defence planning requires:

- timely warning of significant

developments in our strategic environment;

- a military force capable of defeating current or planned capabilities which could be used against us in short warning conflict; and
- flexibility to expand or redirect our defence and wider national effort in response to developments in regional capabilities and to more demanding forms of conflict which could emerge in the longer term.

We enjoy good relations with our neighbours, and in present circumstances threats at any level are not likely. Nevertheless, the end of the Cold War has removed a degree of stability and predictability from the global strategic arena and has increased the potential for major shifts in regional relationships.



Circumstances can change quickly and threats could develop if the present favourable strategic situation were to deteriorate.

We must maintain a certain level of readiness at all times, as was seen in the Australian Government's decision to send RAN ships to the Gulf War and to provide military support to UN peacekeeping operations in such diverse areas as Cambodia, Western Sahara, the Middle East and Somalia.

We ensure our readiness with a well trained and equipped Australian Defence Force (ADF) which comprises the Royal Australian Navy, the Australian Army and the Royal Australian Air Force.

Depth in Defence

Australia's defence posture is "Depth in Defence", which emphasises the importance of fully exploiting our geographic features, technological advantages, national support base resources and regional awareness to boost the effectiveness of our defence force. This means being able to detect and engage hostile forces with a layered series of military capabilities, ensuring that our technological strength is such that at every stage of an adversary's operations the adversary would be aware of our ability to detect and respond to those operations, and having a thorough knowledge of the region to give



us early warning of the emergence of hostile intentions and the development of more significant capabilities.

"Depth in Defence" also reflects the Defence Organisation's growing awareness of the importance of capitalising on all that our civil assets and capabilities offer us. This includes encouraging cooperation with local industry, reliance on broader national transport and telecommunications infrastructure, and commercial support for defence activities.

Essentially, by drawing on every dimension of our defence effort we will enhance the flexibility underlying our developing self reliant capabilities and maximise the efficiency and effectiveness of the ADF.

To achieve "Depth in Defence",

the ADF needs to be able to undertake the following key roles:

- command, control and communications;
- intelligence collection and evaluation;
- surveillance of maritime areas and northern Australia;
- maritime patrol and response;
- protection of shipping, offshore territories and resources;
- air defence in maritime areas and northern approaches;
- defeat of incursions on Australian territory;
- protection of important civil and defence assets, including infrastructure and population centres; and
- strategic strike.



Officer of the Watch takes a sunsight to find his ship's position during Exercise K95

Most of these roles have a distinct and prominent maritime element, reflecting the importance of Navy's contribution to the defence of Australia and Australia's interests.

However, the ADF's ability to achieve these roles depends on the existence of a strong civil infrastructure across the nation covering vital areas such as transport, facilities, and logistics support.

THE NAVY'S ROLE

Essentially, the Navy's role is to promote and protect Australia's interests at sea using a coordinated mix of ships, submarines and aircraft crewed by highly skilled personnel and equipped with appropriate sensors and weapons. This is a particularly important element of our overall defence strategy because, as an island nation with

numerous offshore territories, our area of primary strategic interest is dominated by the sea. The sea also dominates in an economic sense — the bulk of our trade goes by sea and we possess abundant natural offshore resources (oil, gas, minerals and marine life).

The RAN also promotes regional security and Australia's wider foreign policy and economic objectives through overseas deployments and participation in naval exercises and training activities with other countries.

THE NAVY HELPS THE COMMUNITY

The RAN, like the other services, is always ready to respond to calls for help from the Australian community. Navy people, equipment and expertise have helped in times of natural disaster, such as fire, cyclone and flood; they have relocated

endangered marine life; and they have cleared navigation channels for Pacific Island nations.

The RAN is responsible for charting and surveying Australia's extensive waters and so navigation safety and environmental protection depend heavily on the Navy's efforts in this area. Navy also helps Australia fulfill its Search and Rescue responsibilities across more than one eighth of the world's surface.

The Navy works closely with the Australian Customs Service, the Departments of Immigration and Fisheries, the Australian Federal Police and Quarantine authorities to protect Australia from contraband, unlawful entry, unlicensed fishing' and the introduction of exotic diseases and plant and animal species.

The RAN also performs many other tasks such as patrolling and protecting the Australian Fishing Zone and monitoring the general marine environment.

A TRUE TWO OCEAN NAVY

Sydney Harbour — the traditional home of the RAN — is still the Navy's operational centre, but things are changing.

With the development through the 1980s and 1990s of HMAS *Stirling* in Western Australia, the RAN's combat forces have gained better access to our northern maritime approaches, particularly in the north-west. The RAN is moving towards

basing half of its fleet in the west and *Stirling*, also known as Fleet Base West, will become the principal base for the new Collins class submarines.

Smaller bases in Darwin and Cairns support the RAN's patrol boats and elements of the marine science and amphibious forces. Most patrol boat activity is along the northern coastline and is concerned mainly with the enforcement of Australian fisheries, quarantine, customs and immigration laws.

HOW THE NAVY IS ORGANISED

The average strength of the Royal Australian Navy is about 15 000 full-time Service men and women, some 4500 Reservists and nearly 5000 civilians.

In overall command (and responsible to the Minister for Defence and the Chief of the Defence Force) is the Chief of Naval Staff (CNS). CNS manages the Navy from Navy Office in Canberra with the help of a Deputy Chief, two Assistant Chiefs, and the Maritime, Support and Training Commanders, each of whom heads a Command responsible for certain aspects of naval policy and activity, ranging from personnel management through to the day-to-day running of the Fleet.

Each division is subdivided into branches or directorates and, in the case of the Maritime and Support Commands, ships and bases as well. The RAN works



Navy signallers at action stations on board HMAS *Newcastle* communicate with other ships via flashing light.

well as a flexible hierarchy in which every person can take pride in his or her professional role.

THE NAVY AS A PROVIDER OF SKILLS

Today's RAN uses some of the most advanced equipment in the country, making the training and education of members a very high priority.

The main training establishment is HMAS *Cerberus* at Westernport in Victoria, where sailors receive all basic training, specialist training and in service development training. Other training establishments are located at HMA Ships *Watson*, *Penguin* and *Creswell*.

Officers are educated in Canberra at the Australian Defence Force Academy (which is academically associated with the University of New South Wales) and then receive their naval training at HMAS *Creswell*, on Jervis Bay south of Sydney.

Officers can also be recruited under the Direct Entry Scheme which recognises tertiary qualifications and work experience gained outside Defence.

While many of the specialist careers in the Navy have no direct equivalent in civilian life, the RAN selects and trains its people to be resourceful and versatile. This enables them to continue a worthwhile contribution to society after completing full time service.

EQUAL OPPORTUNITY

The percentage of females in the Navy has doubled over the last six years and women may now be selected for service in any category other than Clearance Diving.

The racial and ethnic composition of the Navy is also changing as the numbers of Aborigines, Torres Strait Islanders, and people from non-English speaking backgrounds increase.

A BRIEF HISTORY OF THE RAN



The HMCS *Protector* approaches the coast of China during the Boxer rebellion of 1900.

The Royal Australian Navy succeeded the pre-Federation colonial navies of New South Wales, South Australia, Queensland and Victoria — a product of the push for a unified defence posture which was one of the driving forces behind Federation. It was officially established and named by Royal warrant in 1911. In those early days, many distinguished Royal Navy officers served in the RAN, passing on their traditions and expertise to their eager Australian colleagues. Even today, long after all formal ties have been

severed, the RAN and the RN share many traditions and practices.

Australian ships and sailors have sailed all of the world's oceans and have served with distinction in two World Wars, the Korean Conflict, the Malayan Confrontation and the Vietnam War.

More recently, Australian ships have served with a multinational force in the Persian Gulf and have been deployed in United Nations peacekeeping contingents to various parts of Asia and Africa.

The Assets of the Royal Australian Navy

By world standards our Navy is a medium-sized force in terms of both people and equipment. In our region, however, the RAN is a force to be reckoned with and a major contributor to regional stability.

The Fleet constantly changes over a cycle of 25 to 30 years, so that as some older ships are retired, others will be modernised and new ships commissioned.

The RAN is now in the middle of a major Fleet expansion which includes:

- eight ANZAC class frigates, programmed to start entering service in 1996;
- six advanced diesel electric submarines of the Collins class which will replace the Oberon class submarines through to the end of the 1990s;
- two Training and Helicopter support Ships (THSSs) —

former USN amphibious assault ships — commissioned in 1994 for conversion to the dual helicopter support and sea training role;

- six Huon class coastal minehunters are being built through the 1990s; and
- two hydrographic ships dedicated to charting Australian waters which will join the fleet during the 1990s.



Guided Missile Destroyers (DDGs)

The RAN's three guided missile destroyers, HMA Ships *Perth*, *Hobart* and *Brisbane* were built in the United States in the 1960s and are based on the Charles F. Adams design.

The Australian ships differ from their US counterparts externally by a large deckhouse between the funnels which previously housed the Ikara anti-submarine missile system and its associated magazine. This system was removed from the DDGs in the early 1990s.

All three ships saw service in the Vietnam conflict and HMAS *Brisbane* was part of the Australian contingent in the Gulf war.

These ships are multi-role escorts with capabilities in air, surface and anti-submarine warfare.

They were the first ships in RAN service to be fitted with an automated combat data system and have the capacity to provide command and control functions.

The DDGs were the first ships in RAN service to be equipped with the medium range surface to air SM1 Standard missile.

All ships have been modernised several times to improve their sensor and weapons performance and to enable them to remain capable platforms even though their basic design is now some 40 years old.

The ship's principal weapon systems are the SM1 missile system, two 127 mm guns and two Mk 32 anti-submarine torpedo tubes for launching Mk 46 torpedoes.



HMAS *Melbourne* displays its capabilities

Guided Missile Destroyers (DDG)



<i>Ships</i>	Perth (38) Hobart (39) Brisbane (41)		torpedoes. Fitted for two Vulcan Phalanx close in weapons systems. Two SRBOC decoy launchers.
<i>Builder</i>	Defoe Shipbuilding Co., USA		
<i>Displacement</i>	4270 tonnes	<i>Main Machinery</i>	Two General Electric geared steam turbines driving two shafts.
<i>Length</i>	133.2 metres	<i>Speed</i>	More than 30 knots (55 km/h).
<i>Beam</i>	14.3 metres	<i>Ship's Complement</i>	Typically 310 officers and sailors.
<i>Armament</i>	Two 127 mm (5 inch) automatic rapid fire guns. Standard surface to air missile system. Two triple anti-submarine torpedo tubes for Mk 32		

Guided Missile Frigates (FFGs)

The RAN operates six guided missile frigates of the Oliver Hazard Perry or FFG 7 class. This is the largest class of major surface combatant built in peacetime since the end of the Second World War. About 70 ships of this basic class have been built or are under construction around the world.

The first four ships, HMA Ships *Adelaide*, *Canberra*, *Sydney* and *Darwin* were built in the US, whilst the last two ships, *Melbourne* and *Newcastle*, were built at Williamstown in Victoria.

These ships introduced the minimum manning concept into the RAN and as such have a high degree of automation in their systems. Much of the maintenance of the ship's

systems is done ashore rather than by the ship's company.

These ships are multi-role escorts with capabilities in air, surface and anti-submarine warfare (ASW). They were the first RAN escort ships to be equipped with a helicopter, as well as being the first RAN ships to be fitted with the Phalanx close in air defence weapon system, the Harpoon anti-shiping missile and gas turbine propulsion.

The ship's principal weapon systems are the SM1 missile system, 76 mm gun and two Mk 32 anti-submarine torpedo tubes for launching Mk 46 torpedoes. Each ship is also capable of embarking two Seahawk helicopters for ASW, surveillance and weapon targeting tasks.

Guided Missile Frigates (FFG)



<i>Ships in Service</i>	Adelaide (01) Canberra (02) Sydney (03) Darwin (04) Melbourne (05) Newcastle (06)	<i>Main Machinery</i>	Vulcan Phalanx close in weapons system. Two triple anti-submarine torpedo tubes for Mk 32 torpedoes. Up to two Seahawk helicopters.
<i>Builders</i>			
<i>Ship No.s 01-04</i>	Todd Pacific, USA		Two General Electric LM 2500 gas turbines driving a single controllable pitch propeller.
<i>No.s 05-06</i>	Transfield Defence Systems, Williamstown, Vic.		
<i>Displacement</i>	3680 tonnes	<i>Speed</i>	More than 30 knots.
<i>Length</i>	138 metres	<i>Ship's Complement</i>	Typically 186 (not including aircraft complement).
<i>Beam</i>	13.7 metres		
<i>Armament</i>	Harpoon 76mm rapid fire gun. Harpoon anti-ship missiles. Standard surface to air missiles.		

Destroyer Escorts (DEs)

The RAN is operating the last two of six Australian-built River class destroyer escorts. The highly successful British Type 12 frigates, versions of which have served in navies throughout the world for more than four decades, provided the design basis for our ships, although the two DEs currently in service — HMA Ships *Swan* and *Torrens* — were built to a design independently developed in Australia.

These ships perform escort, patrol and surveillance duties, and also provide a significant portion of at-sea training for Seamen, Engineering and Supply Officers.

The most recently retired DE (HMAS *Derwent* in August 1994) was the first RAN ship to fire a guided missile. In their present configuration they are armed with guns and two triple torpedo tubes.

Destroyer Escorts



<i>Ships in Service</i>	Swan (50) Torrens (53)	<i>Armament</i>	One twin 4.5 in gun turret controlled by digital fire control radar and computer. Two triple torpedo tubes for Mk 32 torpedoes.
<i>Builders</i>	Williamstown Naval Dockyard, Vic.	<i>Main Machinery</i>	22 379 kW geared steam turbines.
<i>Ship No.s 50</i>	Cockatoo Island Dockyard, NSW.	<i>Speed</i>	More than 30 knots.
<i>No.53</i>		<i>Ship's Complement</i>	Up to 230.
<i>Displacement</i>	2 750 tonnes		
<i>Length</i>	112.8 metres (overall) 169.8 metres (waterline)		
<i>Beam</i>	12.5 metres		

Submarines

The RAN's submarine force — currently comprising British-designed and built Oberon class submarines — is vital to the ADF's overall ability to respond effectively to maritime contingencies. Although the RAN has been operating the Oberons for more than a quarter of a century and they are approaching the end of their operational life, the remaining three boats (of six bought) are still highly capable.

Submarines have an important role in intelligence gathering, surveillance, anti-submarine

warfare and maritime strike and interdiction. Difficult to detect and boasting high endurance and long range characteristics, submarines are a valuable deterrent against potential aggressors and are also ideal for conducting covert operations in a hostile maritime environment.

The Oberon class submarines are equipped with weapons tubes capable of launching Mk 48 long range torpedoes and Harpoon anti-ship missiles.

Submarines



<i>Ships in Service</i>	Onslow (60) Orion (61) Otama (62)	<i>Main Machinery</i>	Two English Electric main propulsion motors with two Admiralty standard range diesel generators.
<i>Builders</i>	Scotts Shipbuilding, Greenock, UK	<i>Speed</i>	More than 15 knots (more than 27 km/h) submerged.
<i>Displacement</i>	2 070 tonnes submerged.	<i>Ship's Complement</i>	64
<i>Length</i>	89.9 metres		
<i>Beam</i>	8.1 metres		
<i>Armament</i>	Six bow tubes capable of launching either torpedoes or missiles.		

Patrol Boats

Fremantle Class Patrol Boats (FCPBs) perform one of the more visible of the Navy's tasks — patrolling Australia's extensive coastline and Economic Exclusion Zone.

HMAS *Fremantle*, the first of class, was built in the UK while the other 14 were built in Cairns, close to their primary

area of operation, by North Queensland Engineers and Agents (NQEA).

The RAN is now considering options for the eventual replacement of the FCPBs, which were commissioned between 1980 and 1984.

Patrol Boats



<i>Ships</i>	Fremantle (203) Warrnambool (204) Townsville (205) Wollongong (206) Launceston (207) Whyalla (208) Ipswich (209) Cessnock (210) Bendigo (211) Gawler (212) Geraldton (213) Dubbo (214) Geelong (215) Gladstone (216) Bunbury (217)	<i>Length</i>	42 metres
		<i>Beam</i>	7.15 metres
		<i>Armament</i>	One general purpose 40/60 mm Bofors gun. One 81 mm mortar. Two .5 inch/50 cal Browning machine guns.
		<i>Main Machinery</i>	Two MTU 16-cylinder diesel main propulsion engines generating 6140 hp(m) sustained. One Dorman 12-cylinder auxiliary propulsion engine. Three shafts.
<i>Builder</i> (HMAS <i>Fremantle</i>)	Brooke Marine, UK.		
<i>(remainder)</i>	NQEA Ltd, Cairns.		
<i>Displacement</i>	220 tonnes (245 tonnes full load).	<i>Speed</i>	About 30 knots.
		<i>Ship's Complement</i>	22

Mine Countermeasures Vessels

As a maritime nation, Australia is vulnerable to mine warfare. An unfriendly power could disrupt our trade merely by claiming that a particular area had been mined. It is most important, therefore, that Australia maintains a force able to locate and neutralise mines and declare an area mine-free with an acceptable degree of certainty.

The RAN has a variety of vessels available for mine countermeasures, ranging from specialised Inshore Minehunters (the Bay class) to non-commissioned vessels of various types. The specialist

minehunters detect, using sonar, and neutralise mines that might be laid, while the other vessels carry sweeping equipment to deal with contact, magnetic or acoustic influence mines.

Auxiliary minesweeper vessels include two former tug boats, two trawlers and a lighthouse tender.

For the relatively straightforward task of minesweeping the RAN uses equipment that can be installed on any suitable vessel (craft of opportunity) to tow devices that can detonate mines by simulating their targets' magnetic or acoustic signatures.



Inshore Minehunters

	Rushcutter (M80) Shoalwater (M81)	<i>machine guns can be carried.</i>	Two PAP 104 remote control mine disposal vehicles.
<i>Builder</i>	Carrington Slipways, NSW	<i>Main Machinery</i>	Two Poyaud diesel engines driving two independent Schottel propulsion/steering units.
<i>Displacement</i>	170 tonnes		
<i>Length</i>	30.9 metres	<i>Speed</i>	10 knots (18 km/h)
<i>Beam</i>	9 metres	<i>Ship's Complement</i>	13
<i>Armament</i>	Two .5 inch/50 cal		

Auxiliary Minesweepers (Large)

	Bandicoot (Y298) Wallaroo (Y299)	<i>Main Machinery</i>	2 Stork Werkspoor diesel engines generating 2400hp(m). 2 shafts.
<i>Displacement</i> (load).	412 tonnes (full load).		
<i>Length</i>	29.6 metres	<i>Speed</i>	11 knots
<i>Beam</i>	8.5 metres	<i>Ship's Complement</i>	10

Auxiliary Minesweepers (Small)

	Brolga (1102) Koraaga (1185) Bermagui (1121)	No. 1185	1 Caterpillar 8-cylinder diesel engine generating 480 hp. 1 shaft. generating 480hp;
<i>Respective Displacements</i>	188t/ 144t/ 120t	No. 1121	1 12-cylinder 71 series engine. 1 shaft.
<i>Respective Lengths</i>	28.4m / 21.9m / 19.7m		
<i>Respective Beams</i>	8.1m/6.5m/6.0m	<i>Respective Speeds</i>	10.5 knots / 11 knots / 10 knots
<i>Main Machinery</i> <i>Ship No. 1102</i>	1 Mirrlees Blackstone diesel engine generating 540 hp. 1 shaft.	<i>Respective Ship's Complements</i>	10/8/8

Amphibious Forces

Training/Helicopter Support Ships (THSS)

Two former US Navy tank landing ships (*Fairfax County* and *Saginaw*) were commissioned into the RAN in 1994 to replace HMAS *Jervis Bay* (recently decommissioned) and HMAS *Tobruk*.

The RAN plans to convert its latest acquisitions — renamed *Kanimbla* and *Manoora* — for the dual roles of helicopter support and sea training. Modification of the ships will begin in early 1996 and the ships should enter operational service in the second half of 1997.

Each ship will be able to transport 450 troops, a number of vehicles and landing craft (in addition to its own complement of about 180 Naval personnel and four Army Black Hawk helicopters) over long distances. The THSS will also be capable of performing other tasks such as providing facilities for the command, control, communication, electronic warfare and intelligence needs of a deployable Joint Force Headquarters and assisting in evacuation and disaster relief operations.

<i>Ships</i>	Kanimbla (51) Manoora (52)	<i>Armament</i>	One 20mm Vulcan Phalanx Mk 15 (CIWS). 4 Black Hawk helicopters. .5 inch/50 cal machine guns. SRBOC self-defence system.
<i>Displacement</i>	8450 tonnes (full load)		
<i>Length</i>	159.2 metres		
<i>Beam</i>	21.2 metres		
<i>Main Machinery</i>	6 ARCO 16-251 diesel engines generating 16500 hp sustained. 2 shafts.	<i>Speed</i>	20 knots
		<i>Ship's Complement</i>	approx. 180

Landing Ship Heavy

The amphibious heavy landing ship HMAS *Tobruk* was the first purpose-built major amphibious ship in the RAN and provides the ADF with a heavy lift capability.

Tobruk was designed to carry troops, stores and vehicles and

put them ashore with or without the aid of port facilities. If no port facilities are available, it can beach itself and lower its bow ramp onto a beach, causeway or onto pontoons, landing craft or amphibious craft.



<i>Builder</i>	Carrington Slipways, NSW	<i>Speed</i>	17 knots
<i>Displacement</i>	5800 tonnes	<i>Ship's Complement</i>	144
<i>Length</i>	126 metres	<i>Landing craft</i>	Two LCVPs on davits. Two LCM8s can be carried as deck cargo.
<i>Beam</i>	18 metres	<i>Helicopters</i>	In support of amphibious operations.
<i>Armament</i>	Two 40/60 mm Bofors guns	<i>Troops</i>	350-500
<i>Main Machinery</i>	Two Mirrlees Blackstone diesel engines generating 9600 hp. 2 shafts.		

Landing Craft Heavy

The RAN has five of these versatile sea-going small ships operational from a group of eight built in the early 1970s.

Of the remaining three, two were transferred to the Papua New Guinea Defence Force in 1974 and one, *Wewak*, is laid up in Cairns.

The LCH was designed primarily as an amphibious warfare ship.

The first of the class, HMAS *Balikpapan*, was an Army vessel until it was commissioned into the RAN in September 1974.

As well as landing craft, the ships have served as survey vessels, freighters, diving tenders, reserve training ships and have assisted civilian organisations, such as the Great Barrier Reef Marine Park, in conservation work.



<i>Ships</i>	Balikpapan (L126) Brunei (L127) Labuan (L128) Tarakan (L129) Wewak (L130) Betano (L133)	<i>Beam</i>	10.1 metres
<i>Builder</i>	Walkers Ltd, Maryborough, Qld.	<i>Armament</i>	Two .5 inch/50 cal machine guns
<i>Displacement</i>	316 tonnes	<i>Main Machinery</i>	Two General Electric diesel engines generating 348hp (sustained). 2 shafts.
<i>Length</i>	44.5 metres	<i>Speed</i>	More than 9 knots.
		<i>Ship's Complement</i>	13

SURVEY SHIPS

The RAN Hydrographic Service has responsibility for charting more than one-eighth of the world's surface and Australia's more than 30 000 kilometres of coastline, including approaches to ports frequented by some of the world's largest and deepest draft ships, the bulk ore carriers. The nautical charts developed from data gathered by the Hydrographic Service are essential for safe navigation at sea. Accurate charting protects human life, valuable cargo and our precious marine environment, and provides our naval forces with freedom of operation when conducting patrol, surveillance and interdiction duties in the waters that surround us.

The RAN has six ships engaged in this vital job. The largest, the 2340 tonne HMAS *Moresby*, which was the RAN's first

specifically designed survey ship, carries its own helicopter and electronic surveying equipment and is based in Western Australia. The rest of the survey force (the 765 tonne HMAS *Flinders* and the four 305 tonne Survey Motor Launches, HMA Ships *Paluma*, *Mermaid*, *Benalla* and *Shepparton*) operate out of Cairns. HMA Ships *Moresby* and *Flinders* will be decommissioned in early 1997 and 1998 respectively, but will be replaced by two new highly capable survey ships.

The charting process is now being augmented by the Australian invented and developed Laser Airborne Depth Sounder, which uses laser beams to take spot depths in waters up to 50 metres deep. This system is capable of gathering data much more quickly than can be achieved by traditional methods.



<i>Ship</i>	Moresby (A73)	<i>Beam</i>	12.8 metres
<i>Builder</i>	State Dockyard, Newcastle.	<i>Main Machinery</i>	Diesel-electric 3 diesel generators 3990 hp 2 shafts
<i>Displacement</i>	1714 standard (2351 full load).	<i>Speed</i>	19 knots
<i>Length</i>	95.7 metres	<i>Complement</i>	138

<i>Ship</i>	Flinders (A312)	<i>Main Machinery</i>	2 Paxman 8YJCM diesel engines generating 2000hp sustained. 2 shafts.
<i>Builder</i>	HMA Naval Dockyard, Williamstown.	<i>Speed</i>	13.5 knots
<i>Displacement</i>	750 tonnes	<i>Complement</i>	43
<i>Length</i>	49.1 metres		
<i>Beam</i>	10 metres		



Survey Motor Launches

	Paluma (A01) Mermaid (A02) Shepparton (A03) Benalla (A04)	<i>Beam</i>	13.8 metres.
<i>Builder</i>	Eglo Engineering, Adelaide.	<i>Main Machinery</i>	2 Detroit 12V-92TA diesels. 1020 hp sustained. 2 shafts.
<i>Displacement</i>	320 tonne (full load).	<i>Speed</i>	12 knots
<i>Length</i>	36.6 metres.	<i>Complement</i>	12

Replenishment Ships

With a coastline as long and an area of interest as large as Australia's, our ships have to be able to stay at sea for relatively long periods. In fact, it has become standard practice in modern naval operations for combatants to be fuelled and replenished while at sea.

During replenishment operations, the receiving ship is

joined to the replenisher by one or more tensioned highlines. Solid loads of up to two tonnes can be sent along the highlines and, during liquid transfer, hoses are slung from the highlines.

Australia has two ships to carry out this vital function: HMAS *Success* and HMAS *Westralia*, based at Fleet Bases East and West, respectively.

HMAS *Success*

Built in Sydney to a modified French design, *Success* is capable of providing fuel and other supplies, including ammunition, to ships alongside through four main

Replenishment at Sea (RAS) stations, two of which are able to transfer both fuels and solids. HMAS *Success* also carries a helicopter and has a well-equipped medical centre.



<i>Ship</i>	Success (OR304)	<i>Main Machinery</i>	2 SEMT-Pielstick diesel engines generating 20 800 hp(m) sustained. 2 shafts.
<i>Builder</i>	Cockatoo Island Dockyard, NSW	<i>Refuelling Points</i>	4 abeam (2 with heavy transfer capability).
<i>Displacement</i>	17 933 tonnes	<i>Speed</i>	19 knots
<i>Length</i>	157.2 metres	<i>Ship's Complement</i>	205
<i>Beam</i>	21.2 metres		
<i>Armament</i>	Three 40/60 mm Bofors guns. Four .5 inch/50 cal Browning machine guns.		

HMAS *Westralia*

Originally built as a commercial tanker, it was modified for its role with Britain's Royal Fleet Auxiliary in 1979 and saw service in the Falklands War in 1982. The ship was leased by the RAN in 1989 and

further modified with the addition of a hospital and a vertical replenishment deck.

HMAS *Westralia* became the property of the Commonwealth of Australia in 1993.



<i>Ship</i>	Westralia (0195)	<i>Main Machinery</i>	2 SEMT-Pielstick diesel engines. 1 shaft.
<i>Builders</i>	Cammell Laird (UK)	<i>Fuel capacity</i>	More than 20 000 tonnes of diesel and aviation fuel.
<i>Length</i>	171 metres	<i>Refuelling points</i>	2 abeam
<i>Beam</i>	26 metres	<i>Speed</i>	16 knots
<i>Draft max.</i>	11.9 metres	<i>Ship's Complement</i>	60
<i>Displacement</i>	40 870 tonnes (full load).		
<i>Armament</i>	two .5 inch/50 cal Browning machine guns.		

Trials and Support Ship

HMAS *Protector*, a former National Safety Council of Australia vessel, was commissioned in November 1990 to support contractor's sea trials

of the Collins class submarines and assist with mine warfare trials and diving operations. The ship has been based at HMAS *Stirling* since November 1993.



Builder	Stirling Marine Services, WA.	Main Machinery	2 Detroit 12-cylinder diesel engines generating 1020 hp sustained.
Displacement	670 tonnes	Speed	11.5 knots
Length	42.7 metres	Ship's Complement	13
Beam	9.5 metres		

Other Naval Vessels

While the most visible part of the Navy is the Fleet (the commissioned ships with HMAS before their names) there are many smaller ships, boats and support craft without which the Fleet could not function.

Some of these are operational vessels which range from tugs

and lighters (craft from which ships can be loaded with fuel and stores) to torpedo recovery vessels.

In 1993, the RAN also accepted into service three diving tenders. *Shark* is based at Fleet Base West, while *Porpoise* and *Seal* are based in Sydney.

The Navy still sails

Nothing instills a sense of oneness with the sea as much as making passage under sail. The Navy makes a point of owning a number of sailing yachts at any given time and currently runs five Swarbick S111 cruising/racing yachts designed and built in Australia and named after the ships of the First Fleet.

Possibly the most well-known of

the RAN's sailing vessels is the STS *Young Endeavour*.

The brigantine was Britain's Bicentennial gift to Australia and the RAN now operates the ship on behalf of the Young Endeavour Youth Scheme, which encourages young men and women to participate in voyages on the *Young Endeavour*.



Length	44 metres	Displacement	200 tonnes
Beam	7.8 metres	Crew	9 RAN members who conduct training and are responsible for safe and efficient operation of the ship.
Draft	4 metres		

The Navy in the Air

When the RAN's last aircraft carrier, HMAS Melbourne, was decommissioned in 1983, the

S-70B-2 (Seahawk)

The RAN's front-line ship-embarked combat helicopter is the Sikorsky S-70B-2 Seahawk.

The RAN owns 16 of these technologically advanced aircraft, which are equipped to extend the combat radius of the ships from which they operate by finding surface or submarine targets and joining their

focus of naval aviation shifted to helicopters operating from a range of ships.

electronics systems with those of their ship to guide weapons accurately to their targets.

The Seahawk is an integral part of the FFG's weapons and sensor systems. Seahawks have been embarked on five FFGs and the remaining FFG, HMAS *Newcastle*, should be equipped with a Seahawk by early 1996.



<i>Builder</i>	Sikorsky	<i>Weapons</i>	CAE Magnetic Anomaly Detector Set controlled by a Tactical Display/Management System.
<i>Operational Speed</i>	135 knots		
<i>Service Ceiling</i>	3810 metres		
<i>Sensors</i>	MEL surface surveillance radar. CDC Sonobuoy Processor and Barra Side Processor.		2 Mk 46 Mod 5 torpedoes. 2 Mag 58 machine guns.

Mk 50A (Sea King)

The Westland Sea King Mk 50As are employed in the heavy utility role and in search and rescue work, while retaining a limited anti-submarine capability.



<i>Builder</i>	Westland
<i>Operational Speed</i>	125 knots
<i>Service Ceiling</i>	3 200m
<i>Sensors</i>	MEL 5955 radar.

AS350B (Squirrel)

Six Aerospatiale Squirrel AS350B helicopters are currently employed in light utility and training tasks.



<i>Builder</i>	Aerospatiale
<i>Operational Speed</i>	125 knots
<i>Service Ceiling</i>	3 050 metres
<i>Weapons</i>	Two Mag 58 machine guns

Other Aircraft

The Navy also operates three Bell 206B Kiowa helicopters which are used in communications and survey support operations aboard HMAS *Moresby*.

The only fixed-wing aircraft in Naval service are two Hawker

Siddeley HS748s, used to train all three Services in electronic warfare techniques.

The Australian-designed and built Jindivik pilotless drone is operated by the RAN for missile practice for all three Services.

THE RAN TOWARDS 2000

Collins Class Submarines

The RAN is beginning the process of replacing the Oberon class submarine with the Collins class submarine, modelled on one of Sweden's most successful boats and considered to be the most advanced non-nuclear submarine in the world.

The Collins class submarine boasts greater stealth, speed and durability than the Oberon and will be equipped with sensors and highly capable weapons such as Mk 48 torpedoes. This will boost the RAN's capacity for maritime surveillance, patrol and response, anti-submarine warfare, anti-surface warfare, long range strike and other important tasks.



HMAS *Collins*, the first of the class, was launched on 28 August 1993 and is expected to enter naval service in early 1996. The remaining five, currently under construction in Adelaide, will be brought into service at regular intervals during this decade.

All six will be homeported at the new submarine base at Fleet Base West in accordance with the Government's Two Ocean Basing policy. Transfer of the submarine squadron to the new base has been completed and the old base at Neutral Bay on Sydney Harbour will be phased out as the Oberons leave service.

Collins Class Submarines



<i>Submarines</i>	Collins (71) Farncomb (72) Waller (73) Dechaineux (74) Sheehan (75) Rankin (76)	<i>Armament</i>	Sub diesel engines generating 6020 hp. 1 shaft.
<i>Builder</i>	Australian Submarine Corporation, Adelaide		1 Sub Harpoon submarine to surface missile. Six 21 inch (533mm) torpedo tubes capable of firing missiles and Mk 48 Mod 4 torpedoes.
<i>Displacement</i>	3051 tonnes (surfaced) 3353 tonnes (submerged).	<i>Speed</i>	10 knots (surfaced; "snorting"). 20 knots (submerged).
<i>Main Machinery</i>	Diesel-electric. 3 Hedemora/Garden Island Type V18B/14	<i>Ship's Company</i>	42

ANZAC Ships

Eight new frigates — the ANZAC class — are being built for the RAN and two for the Royal New Zealand Navy in the joint Australia-New Zealand ANZAC Ship Project. The ships, derived from the German Meko 200 design, are being constructed by Transfield Shipbuilding at Melbourne's Williamstown dockyard.

The first of class, to be commissioned into the RAN as HMAS *Anzac*, was launched on 16 September 1994. Delivery of this new class of ship will be complete by the middle of the next decade.

The phasing out of the older Destroyer Escorts (DEs) and DDGs from the Australian

fleet will continue as the ANZAC ships are brought into service.

The ANZAC ships, which will be employed in the escort, surveillance and patrol roles, will significantly enhance our surface combatant force.

Although the ships are designed to be capable of supporting a Seahawk-size helicopter, they are to be equipped with a new class of intermediate helicopter with a surveillance and maritime strike capability.

The ships will also be fitted with an advanced package of air surveillance radars, hull-mounted sonar and electronic support systems.



The first of the ANZAC class frigates is launched.

ANZAC Ships



<i>Ships</i>	Anzac (150) Arunta (151) Warramunga (152) Stuart (153) Parramatta (154) Ballarat (155) Toowoomba (156) Perth (157)	<i>Main Machinery</i>	Mod 2 gun. Mk41 Mod 5 octuple vertical launcher firing Sea Sparrow surface to air missiles. Two triple anti-submarine torpedo tubes firing Mk 32 torpedo tubes. Two 12.7mm machine guns.
<i>Builder</i>	Transfield Defence Systems, Williamstown		1 General Electric LM2500 gas-turbine generating 30 172 hp sustained. 2 MTU 12- cylinder diesels. 8 840hp(m) sustained. 2 shafts.
<i>Displacement</i>	3600 tonnes		
<i>Length</i>	118 metres (overall) 109 metres (waterline).		
<i>Beam</i>	14.8 metres	<i>Speed</i>	27 knots
<i>Weapons</i>	One 5 inch (127mm)/54 Mk 45	<i>Complement</i>	163

Minehunter Coastal

A contract has been negotiated by the Department of Defence with Australian Defence Industries to build six Italian designed Gaeta coastal minehunters — to be known as the Huon class — at

Newcastle. These ships, to be commissioned from mid 1998 to 2002, will complement existing assets and will improve the Navy's overall ability to detect and neutralise mines.



<i>Ships</i>	Huon (82) Hawkesbury (83) Norman (84) Gascoyne (85) Diamantina (86) Yarra (87)	<i>Beam</i>	9.9 metres
<i>Builders</i>	Ship No 82 ADI/ Intermarine (hull only). 83 87 ADI.	<i>Armament</i>	One 30 mm DS30B gun. AWADI Prism ESM and Super Barricade decoys.
<i>Displacement</i>	720 tonnes (full load).	<i>Main Machinery</i>	One 1460 kW main propulsion diesel. One shaft. Three 124 kW electro hydraulic motors driving retractable APUs for minehunting.
<i>Length</i>	52.5 metres		

Today's Royal Australian Navy is moving smoothly into tomorrow, adopting new technologies, equipment and methods, and continuing to develop forward thinking, professional people. Change is constant, but Australia will always be a maritime nation. Through the Royal Australian Navy, we will maintain our presence and continue to promote our interests in the region.







THE ROYAL AUSTRALIAN NAVY

Defence: Protecting Australia