



Navy Today



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INTRODUCTION

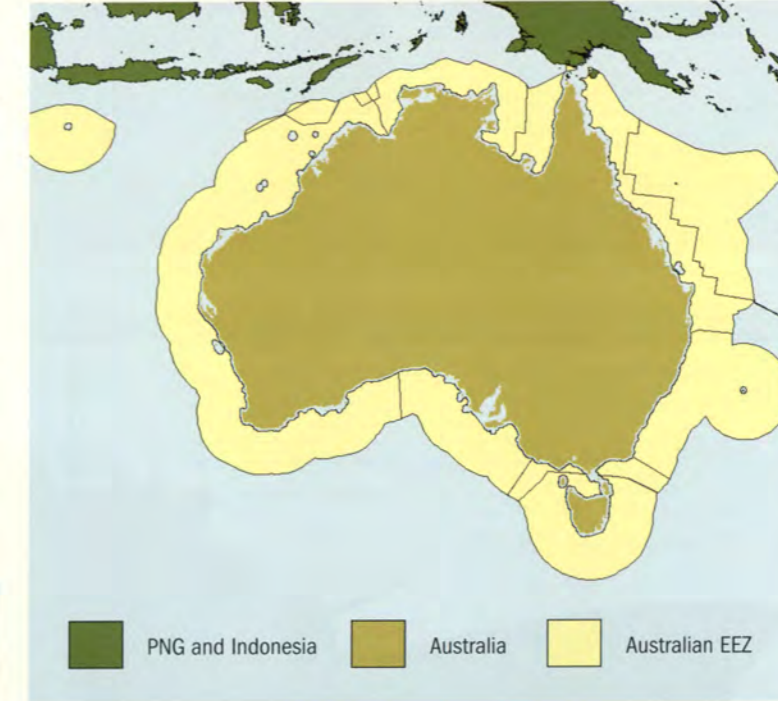
THE ROLE OF ROYAL AUSTRALIAN NAVY

The role of our Navy is diverse, complex and multifaceted. The greater part of Navy activities remain unobserved because they are performed at sea. The old adage of 'out of sight, out of mind' in most instances determines the nature, concept and understanding the average Australian has of its Navy.

Our Navy's primary role is to establish and maintain strategic control of all sea approaches to Australia.

THE ENVIRONMENT

Australia is an island continent with an extensive coastline of 36,735 Kilometres with an internationally declared, and accepted, 200 nautical mile Exclusive Economic Zone (EEZ). This covers an area of over 16 million square kilometres. From island territories (Thursday, Christmas and Cocos) in the tropics to the hazardous conditions of the Antarctic, Navy patrols a jurisdiction of almost 10% of the world's total surface area.



150 HMAS ANZAC

ANZAC CLASS FRIGATES (FFH)

Displacement:
3,600 tonnes

Length:
118 metres

Beam:
14.8 metres

Main Machinery:
1 x General Electric LM2500 gas turbine engine, 2 x MTU 12V 1163 diesels driving two controllable pitch propellers

Speed:
More than 27 knots

Armament:
1 x 5 inch (127mm) Mk45 Mod 2 automatic rapid fire gun
Sea Sparrow anti-air missile system

2 x Mk32 Mod 5 triple mounted torpedo tubes

6 x .50 calibre (12.7mm) machine guns

Aircraft:
1 x SH-2G(A) Super Seasprite, armed with 'Penguin' missiles

Ship's Company:
164



ANZAC CLASS FRIGATES (FFH)

The ANZAC Class is based on the German Meko 200 frigate design, with the ships built by Tenix Defence Systems at Williamstown in Victoria.

ANZACs are long-range escorts with roles including air defence, anti-submarine warfare, surveillance, reconnaissance and interdiction. The ships are capable of countering simultaneous threats from the air, surface and sub-surface.

ANZAC ships are powered by a combined diesel or gas (CODOG) propulsion plant that allows speeds in excess of 27 knots with an operational range of more than 6000 nautical miles.

They are fitted with an advanced package of air surveillance radars, omni-directional hull mounted sonar and electronic support measures which interface with a state-of-the-art combat data systems.

Main armament comprises one five inch (127mm) gun capable of firing 20 rounds per minute, ship launched torpedoes and a Mk 41 Vertical Launch System for the Sea Sparrow point defence anti air missile.

Kaman Seasprite helicopters will be embarked to enhance anti-surface and surveillance capabilities.



Name	No.	Builders	Laid down	Launched	Commissioned
ANZAC	150	Transfield, Williamstown, Williamstown, Aust.	5/11/93	16/9/94	13/5/96
ARUNTA	151	Transfield, Williamstown, Williamstown, Aust.	22/7/95	28/6/96	12/12/98
WARRAMUNGA	152	Tenix Defence Systems, Williamstown, Aust.	26/7/97	23/5/98	31/3/01
STUART	153	Tenix Defence Systems, Williamstown, Aust.	25/7/98	17/4/99	17/8/02
PARRAMATTA	154	Tenix Defence Systems, Williamstown, Aust.	5/6/99	17/6/00	6/03
BALLARAT	155	Tenix Defence Systems, Williamstown, Aust.	4/8/00	3/01	7/04
TOOWOOMBA	156	Tenix Defence Systems, Williamstown, Aust.	4/02	8/03	7/05
PERTH	157	Tenix Defence Systems, Williamstown, Aust.	2/03	8/03	3/06



06 HMAS NEWCASTLE

ADELAIDE CLASS GUIDED MISSILE FRIGATES (FFG)

Displacement:

4,100 tonnes

Length:

138 metres

Beam:

13.7 metres

Main Machinery:

2 x GE LM2500 gas turbines driving a single controllable pitch propeller

Speed:

More than 30 knots

Armament:

1 x Mk 13 Launcher Harpoon anti-ship missiles

1 x 76mm rapid fire gun

Standard surface to air missiles

1 x 20mm Vulcan Phalanx Mk15 close in weapons system

2 x Mk32 Mod 5 triple mounted torpedo tubes

Aircraft:

Able to carry

2 x S-70B-2 Seahawk helicopters

Ship's Company:

186 to 210 (with helicopter crews)



ADELAIDE CLASS GUIDED MISSILE FRIGATES (FFG)

Currently the Navy operates six *Adelaide* Class guided missile frigates (FFG) divided between its two main bases; Fleet Base East in Sydney and Fleet Base West in Perth.

The *Adelaide* Class frigates are based on the US Navy *Oliver Hazard Perry* design. The first four ships of the class were built in the USA with subsequent modifications undertaken in Australia. The last two were constructed in Australia with all modifications incorporated.

Each FFG is a long-range escort ship with roles including air defence, anti-submarine warfare, surveillance, interdiction and reconnaissance. The ship is capable of countering simultaneous threats from the air, surface and sub-surface.

They were the first RAN ships to be powered by gas turbine for the main propulsion and can be underway from cold in less than 30 minutes. Two forward mounted, retractable auxiliary propulsion units provide a secondary means of propulsion plus an excellent manoeuvrability in confined waters. They have a range of 4,500 nautical miles at 20 knots.

The FFG's principal weapons are the Standard medium range anti-aircraft missile and the Harpoon anti-ship missile, both of which are launched from the Mk 13 launcher on the forecastle. A 76mm gun to counter both anti-aircraft and anti-surface threats is fitted forward of the funnel and one 20mm Phalanx close-in-weapon system for anti-missile defence is located above the helicopter hangers.

For long range anti-submarine tasks, the FFG is equipped with flight deck and hangers for two S-70B-2 Seahawk helicopters. For close in anti-submarine defence, the ships are fitted with two Mk 32 triple torpedo tubes.

The FFG's sensor package includes long range radars for air and surface surveillance, electronic warfare surveillance sensors and the Australian designed and built Mulloka medium range sonar for the detection of submarines. A computer based command and control system processes information as well as target data received by data link from other ships and aircraft.



Name	No.	Builders	Laid down	Launched	Commissioned
ADELAIDE	01	Todd Pacific Shipyard Corporation, Seattle, USA	29/7/77	21/6/78	15/11/80
CANBERRA	02	Todd Pacific Shipyard Corporation, Seattle, USA	1/3/78	1/12/78	21/3/81
SYDNEY	03	Todd Pacific Shipyard Corporation, Seattle, USA	16/1/80	26/9/80	29/1/83
DARWIN	04	Todd Pacific Shipyard Corporation, Seattle, USA	3/7/81	26/3/82	21/7/84
MELBOURNE	05	Australian Marine Eng (Consolidated), Williamstown, Aust.	12/7/85	5/5/89	15/2/92
NEWCASTLE	06	Australian Marine Eng (Consolidated), Williamstown, Aust.	21/7/89	21/2/92	11/12/93

L 52 HMAS MANOORA

LANDING PLATFORM AMPHIBIOUS (LPA)

Displacement:
8,534 tonnes

Length:
159.2 metres

Beam:
21.2 metres

Main Machinery:
6 x 16v ALCO 251C diesel engines,
1000 RPM driving two shafts

Speed:
20 knots

Armament:
1 x 20mm Vulcan Phalanx close
in weapons system
.50 calibre (12.7mm) machine guns
SRBOC self-defence system

Cargo Capability:
2 x LCM8 landing craft
4 x Blackhawk or
3 x Westland Seaking helicopters

Ship's Company:
19 officers, 173 sailors,
20 ship's Army department,
450 embarked forces



LANDING PLATFORM AMPHIBIOUS (LPA)

HMAS *Manoora* and HMAS *Kanimbla* were built for the United States Navy as the USS *Fairfax County* and USS *Saginaw* respectively. Two of the 20 strong *Newport* Class of tank landing ships, *Fairfax County* and her sister ship *Saginaw* were acquired by the Royal Australian Navy in 1994.

Manoora and *Kanimbla* have undergone extensive modifications by the 'Forgacs' Dockyard in Newcastle, New South Wales, Australia, for their new roles as a helicopter capable amphibious transports.

Their primary roles are to transport, lodge ashore and support an Army contingent of 450 troops, their vehicles and equipment. *Kanimbla* and *Manoora* are fitted with helicopter hangers capable of supporting up to four Army Blackhawk helicopters or three of the larger Navy Seaking helicopters. Two helicopters can operate simultaneously from the aft flight deck,

while a third can operate from the flight deck located forward of the bridge.

Two Army LCM8 landing craft can also be carried on the forward flight deck to provide ship to shore transport.

They are lifted on and off by a 70 tonne crane. Accessed through a stern door, 810 square metres of storage space is available on the vehicle deck for Army vehicles and other large items of equipment.

For Navy and Army exercises the ships have additional operations and planning rooms that provide for both an Amphibious Group Commander and a Landing Force Commander.

A comprehensive and modern array of communications equipment is fitted to support these joint operations.

LPA's are fitted with the largest and most comprehensive medical facilities in the Fleet.

Name	No.	Builders	Laid down	Launched	Commissioned	Recommissioned
KANIMBLA (ex-Saginaw)	L 51 (ex-1188)	National Steel & Shipbuilding, USA	24/5/69	7/2/70	23/1/71	29/8/94
MANOORA (ex-Fairfax County)	L 52 (ex-1193)	National Steel & Shipbuilding, USA	28/3/70	19/12/70	16/10/71	25/11/94



OR 304 HMAS SUCCESS

AUXILIARY OILER REPLENISHMENT (AOR)

Displacement:
17,933 tonnes (full load)

Length:
157.2 metres

Beam:
21.2 metres

Main Machinery:
2 x independent propulsion systems, each consisting of a 16 PC 2-5V Pielstick on-reversing medium speed diesel engine, developing 7,640 kw at 520 RPM

Speed:
19 knots (full load)

Armament:
2 x 20mm Vulcan Phalanx close in weapon systems

4 x .50 calibre (12.7mm) machine guns

1 x utility helicopter

Aircraft:
Able to carry 2 x S-70B-2 Seahawk helicopters.

Ship's Company:
220



AUXILIARY OILER REPLENISHMENT (AOR)

The Royal Australian Navy's afloat support capability is provided by the underway replenishment ships HMAS *Success* and HMAS *Westralia*. The Afloat Support Force provides operational support for the rest of the fleet by providing fuel, food, stores and ammunition, thus significantly extending the RAN's operational reach and endurance at sea. It can also provide limited support to deployed Army and Air force units.

HMAS *Success* is based on the *French Durance* Class design. She was built by Cockatoo Island Dockyard Pty Ltd in Sydney and was the largest ship constructed at this facility.

The ship is capable of day and night replenishment to ships at sea and concurrently by her embarked helicopter to other ships in company. Four main Replenishment at Sea (RAS) stations are fitted, two of which have dual functions and can be used to transfer either fuel or solids. The RAS system is designed to cope with extreme demands caused by ships motion.

Success saw active service in the Gulf War as part of the Multi-National Naval Force conducting operations in support of Kuwait. She also provided valuable logistic support to INTERFET operations in East Timor.

Success is the second RAN ship to carry the name. *Success 1* was an 'S' Class destroyer in service during the 1920s and '30s.



Name	No.	Builders	Laid down	Launched	Commissioned
SUCCESS	OR 304	Cockatoo Island Dockyard, NSW, Australia	9/8/80	3/3/84	23/4/86



O 195 HMAS WESTRALIA

UNDERWAY REPLENISHMENT SHIP (AO)

Displacement:

40,870 tonnes (full load)

Length:

171 metres

Beam:

26 metres

Main Machinery:

2 x SEMT-Pielstick 14 PC2-2 V400 diesel engines; one shaft

Speed:

16 knots

Armament:

2 x .50 calibre (12.7mm) machine guns

Fuel capacity:

25,000 tonnes of diesel and aviation fuel

Ship's Company:

96



UNDERWAY REPLENISHMENT SHIP (AO)

The Royal Australian Navy's afloat support capability is provided by the underway replenishment ships HMAS *Success* and HMAS *Westralia*. The Afloat Support Force provides operational support for the rest of the fleet by providing fuel, food, stores and ammunition, thus significantly extending the RAN's operational reach and endurance at sea. *Westralia* can also provide limited support to deployed Army and Air force units.

HMAS *Westralia* was built as a *Stat 32* Class petroleum tanker and modified for underway replenishment in 1979 with the British Royal Fleet Auxiliary as HMS *Appleleaf*. Originally leased by the RAN in 1989, *Westralia* was purchased outright in 1994 and underwent further modification including the fitting of a flight deck for helicopter operations.

The ship can carry over 25,000 tonnes of fuel including several thousand tonnes of aviation fuel for use by RAN helicopters. *Westralia* can replenish ships at sea day or night, and is capable of replenishing two ships at a time. She has transfer points for fuel, water and stores.

Westralia saw active service in the Gulf War as part of the Multi-National Naval Force conducting operations in support of Kuwait. She also provided valuable logistic support to INTERFET operations in East Timor.

Westralia is the second RAN ship to carry the name. *Westralia 1* was a passenger liner requisitioned for naval service during World War II.



Name	No.	Builders	Laid down	Launched	Commissioned
WESTRALIA	O 195	Cammell Laird,	1974	24/7/75	11/79 (RN)
ex HMS Appleleaf	(ex-A 79)	Birkenhead, UK			9/10/89 (RAN)

L 50 HMAS TOBRUK

LANDING SHIP HEAVY (LSH)

Displacement:
5,800 tonnes

Length:
126 metres

Beam:
18 metres

Main Machinery:
2 x diesels

Speed:
16 knots

Armament:
2 x 40/00 BOFORS

2 x .50 calibre (12.7mm)
machine guns

Troops:
Up to 520

Landing Craft:
2 x LCVP on davits

2 x LCM-8s as deck cargo

Aircraft:
In support of Amphibious
Operations

Ship's Company:
145



LANDING SHIP HEAVY (LSH)

HMAS *Tobruk* was commissioned into the RAN on 23 April 1981, providing the Australian Defence Force with an amphibious ship with a heavy lift capability. Constructed by Carrington Slipways Pty Ltd at Tomago, near Newcastle, her design is an update of the proven Royal Navy *Sir Bedivere* Class Logistic Landing Ship (LSL).

Essentially the ship is a multi purpose troop and roll-on/roll-off, heavy vehicle carrier. The design includes facilities for bow and stern loading, a drive through capacity and inter-deck transfers via ramps.

Tobruk is capable of transporting 18 Leopard Main Battle Tanks in the Tank Deck and 40 Armoured Personnel Carriers on the Vehicle Deck. The Vehicle Deck has been reinforced to enable the transportation of two Landing Craft Mechanical-8 (LCM-8) on specially designed cradles. In addition, davits on either side of the superstructure secure two Landing Craft Vehicular Personnel (LCVP) units.

There are also facilities for helicopter and landing craft operations and a 70-ton capacity derrick. The upper deck forward of the bridge and the after deck can serve as helicopter flight decks. Up to two Seaking helicopters can be embarked.

The landing force carried by HMAS *Tobruk* can vary with a capacity to accommodate up to 315 troops for extended duration. In an overload state, the ship can provide accommodation for up to 520 troops for short periods of time.



Name	No.	Builders	Laid down	Launched	Commissioned
TOBRUK	L 50	Carrington Slipways Pty Ltd	7/2/78	1/3/80	23/4/81



76 HMAS DECHANEUX

COLLINS CLASS SUBMARINES (SSG)

Displacement:
3,350 tonnes (submerged)

Length:
77.8 metres

Beam:
7.8 metres

Main Machinery:
Diesel Electric. 1 x 5.4 MW Jeumont Schneider main motor; 3 x Hedemora VB 210 18 Cylinder diesels; 3 x Jeumont Schneider generators; single shaft

Speed:
In excess of 20 knots (submerged)

In excess of 10 knots (Surfaced or snorkling)

Armament:
6 x forward tubes for Mk48 wireguided torpedoes and Sub Harpoon missiles

Ship's Company:
45 (9 officers and 36 sailors) plus trainees



COLLINS CLASS SUBMARINES (SSG)

The operational characteristics and range of *Collins* Class submarines have been tailored specifically for its defence and two-ocean surveillance role in the Royal Australian Navy.

Designed to be as quiet as advanced technology can achieve, *Collins* Class submarines have been developed from five generations of submarines designed and built by the Swedish Navy.

Australia has one of the largest coastlines in the world, and practically all trade to and from this island continent is by sea. Some form of insurance is therefore necessary and the submarine with its ability to deploy unseen for long periods provides this insurance.

One of the first submarines to be totally designed by computers, the *Collins* Class boasts a vast range of features. They include a high performance hull form, highly automated controls, low indiscretion rates, high shock resistance, optimal noise suppression, efficient weapons handling and discharge, and an optional air-independent propulsion system.

This single propeller submarine will move silently on electric power supplied to the propulsion motor by banks of new-technology lead-free batteries. The batteries are charged by three on-board diesel generator sets.

The sophisticated combat system, which gathers its intelligence from its sensors, computes the input and then launches and directs weapons, is an advance on any system currently available.

Based at HMAS *Stirling* in Western Australia, the Australian Submarine Squadron is a formidable element in Australia's defence capability.

Name	No.	Builders	Laid down	Launched	Commissioned
COLLINS	73	Australian Submarine Corp, Adelaide, Aust.	14/2/90	28/8/93	27/7/96
FARNCOMB	74	Australian Submarine Corp, Adelaide, Aust.	1/3/91	15/12/95	31/1/98
WALLER	75	Australian Submarine Corp, Adelaide, Aust.	19/3/92	14/3/97	10/7/99
DECHANEUX	76	Australian Submarine Corp, Adelaide, Aust.	4/3/93	12/3/98	24/2/01
SHEEAN	77	Australian Submarine Corp, Adelaide, Aust.	17/2/94	3/5/99	24/2/01
RANKIN	78	Australian Submarine Corp, Adelaide, Aust.	12/5/95	5/00	6/01



215 HMAS GEELONG

FREMANTLE CLASS PATROL BOATS (FCPB)

Displacement:
220 tonnes

Length:
42 metres

Beam:
7.15 metres

Main Machinery:
2 x MTU 538 series 16 cylinder main propulsion engines

1 x Dorman 12 cylinder auxiliary propulsion engine

Speed:
30 knots

Armament:
40/60mm Bofors general purpose gun

2 x .50 calibre (12.7mm) machine guns

Ship's Company:
24



FREMANTLE CLASS PATROL BOATS (FCPB)

Navy's 15 *Fremantle Class* Patrol Boats (FCPB) provide the capability of Patrol Boat operations. The boats predominantly patrol the northern waters of Australia and are based in Darwin and Cairns. The *Fremantle Class* Patrol Boats carry the names of the *Bathurst Class* Australian Minesweepers which served during and after World War II.

FCPBs are the Navy's principal contribution to the national task of fisheries protection and immigration, customs and drug law enforcement operations. The vessels work hand-in-hand with other Government agencies and each year they provide up to 1800 patrol days as part of the Coastwatch-managed national surveillance effort.

In the event of war they would be tasked to control the waters close to the Australian mainland. The vessels are well prepared for their patrol duties and other operational requirements.

In addition FCPBs are central to Australia's engagement with countries in the South West Pacific region and they deploy throughout Southeast Asia and the Pacific in support of Australia's strategic interests. Patrol Boats also support Special Forces operations and provide a useful transport capability, particularly in disaster relief and humanitarian assistance operations.

FCPBs are equipped with high definition navigational radar, high and ultra high frequency communications equipment, gyro-compasses and echo sounder. They are also fitted with a satellite navigation system, which enables the ship's position to be determined with great accuracy.

Fremantle Class Patrol Boats have a range of 2,360 nautical miles at 12 knots and a maximum speed of almost 30 knots.



Name	No.	Builders	Laid down	Launched	Commissioned
FREMANTLE	203	Brooke Marine, Lowestoft, UK.	11/11/77	16/2/79	17/3/80
WARRNAMBOOL	204	NQEA Australia, Cairns, Aust.	30/9/78	25/10/80	14/3/81
TOWNSVILLE	205	NQEA Australia, Cairns, Aust.	5/3/79	16/5/81	18/7/81
WOLLONGONG	206	NQEA Australia, Cairns, Aust.	9/79	17/10/81	28/11/81
LAUNCESTON	207	NQEA Australia, Cairns, Aust.	11/79	23/1/81	1/3/82
WHYALLA	208	NQEA Australia, Cairns, Aust.	6/80	22/5/82	3/7/82
IPSWICH	209	NQEA Australia, Cairns, Aust.	20/10/80	23/9/82	13/11/82
CESSNOCK	210	NQEA Australia, Cairns, Aust.	2/81	15/1/83	5/3/83
BENDIGO	211	NQEA Australia, Cairns, Aust.	7/81	9/4/83	28/5/83
GAWLER	212	NQEA Australia, Cairns, Aust.	18/1/82	9/7/83	2/8/83
GERALDTON	213	NQEA Australia, Cairns, Aust.	3/82	22/10/83	10/12/83
DUBBO	214	NQEA Australia, Cairns, Aust.	9/8/82	21/1/84	10/3/84
GEELONG	215	NQEA Australia, Cairns, Aust.	15/11/82	14/4/84	2/6/84
GLADSTONE	216	NQEA Australia, Cairns, Aust.	7/83	28/7/84	8/9/84
BUNBURY	217	NQEA Australia, Cairns, Aust.	13/6/83	3/11/84	15/12/84

MHC 86 DIAMANTINA

HUON CLASS COASTAL MINEHUNTERS (MHC)

Displacement:

720 tonnes (full load)

Length:

52.5 metres

Beam:

9.9 metres

Main Machinery:

2 x GE LM2500 gas turbines driving a single controllable pitch propeller

Speed:

14 knots

Armament:

2 x .50 calibre (12.7mm) machine guns

1 x 30mm Rapid Fire Cannon

Mine Disposal System:

SUTEC Double-Eagle Mk 2 mine disposal Vehicle (MDV), with DAMDIC mine disposal charge

ADI double Orepesa mechanical sweep Sonar: GEC – Marconi Type 2093 VDS

Ship's Company:

38 (6 officers)

plus 11 spare/training bunks



HUON CLASS COASTAL MINEHUNTERS (MHC)

In 1998, the RAN accepted delivery of the first of six *Huon* Class Minehunter Coastals (MHC). The principal task of the MHCs is to keep the nation's focal points for trade, the harbours and ports, free from the threat of mines.

Originally designed in Italy as the *Gaeta* Class for the Italian Navy, the RAN *Huon* Class has been modified to suit Australian conditions, including improved accommodation and mine hunting capabilities.

The *Huon* Class, feature a unique hull design, outstanding shock resistance and an inherently low magnetic signature, allowing the ships to operate in hostile mine environments. Each single skin monocoque hull has been designed with no ribs, frames or stiffeners, avoiding local stress points that could cause separation under shock conditions.

To protect the power plant and provide an enhanced resistance to shock damage, all machinery is mounted on cradles, suspended from the bulkheads and deckheads.

For their mine countermeasure operations, the *Huon* Class is fitted with the 2093 Variable Depth Sonar (VDS) capable of detection ranges in excess of 1,000 metres ahead of the ship. When a mine is detected in a water column or on the seabed, the ship will "hover" about 200 metres from the contact. A mine disposal vehicle or clearance divers will then be sent to investigate and neutralise the mine threat.

Each of the *Huon* Class are fitted with a pair of electrically powered Bofors Underwater Systems Double Eagle mine disposal vehicles (MDVs) equipped with a searchlight, closed-circuit low light television camera and an on-board close range identification sonar. To control the Double Eagle, commands are relayed via a fibre optic link inside the vehicle's tether, which also relays sensor images for display on the ship's multifunction console, located in the operations room.

To counter hostile mines, each Double Eagle vehicle is fitted with either a disposal charge slung beneath or an explosive or mechanical cutter designed to sever the wire rope or chain holding moored mines.

Name	No.	Builders	Laid down	Launched	Commissioned
HUON	M82	Australian Defence Industries, Newcastle, Aust.	8/95	25/7/97	15/5/99
HAWKESBURY	M83	Australian Defence Industries, Newcastle, Aust.	12/9/95	24/4/98	12/2/00
NORMAN	M84	Australian Defence Industries, Newcastle, Aust.	16/9/96	1/5/99	26/8/00
GASCOYNE	M85	Australian Defence Industries, Newcastle, Aust.	13/9/97	11/3/00	2/6/01
DIAMANTINA	M86	Australian Defence Industries, Newcastle, Aust.	4/8/98	2/12/00	4/5/02
YARRA	M87	Australian Defence Industries, Newcastle, Aust.	12/6/99	29 /9/01	1/3/03



A 245 HMAS LEEUWIN

LEEWIN CLASS HYDROGRAPHIC SURVEY SHIPS (AGS)

Displacement:
2,550 tonnes

Length:
71.1 metres

Beam:
15.2 metres

Main Machinery:
4 x Ruston diesel generators
2 x electric propulsion motors

Cruising Speed:
More than 12 knots

Aircraft:
1 x AS 350BA Squirrel helicopter

Ship's Company:
46 officers and sailors



HYDROGRAPHIC SURVEY SHIPS (AGS)

The RAN Hydrographic Service has the 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.

Around Australia, less than half of the area has been surveyed to acceptable standards, however the two *Leeuwin* Class ships, with multi-beam echo sounders, will greatly reduce this figure, making passage of vessels safer and further protect Australia's ocean environment.

Navy's hydrographic operations are provided by two Hydrographic Survey ships (HS) HMAS *Leeuwin* and HMAS *Melville*. Both ships were built in Cairns and are now based in Cairns.

HMA Ships *Leeuwin* and *Melville* operate independently, supported by the three Survey Motor Boats (SMB) carried on each ship. These ships are fitted with the latest multi-beam and single beam echo sounders plus towed and forward-looking sonars. Satellite and terrestrial position fixing equipment plus other navigation and survey sensors are integrated to form a complex hydrographic survey system in each ship.

Their operational range is around 8,000 nautical miles. Each designed to operate for up to 300 days a year at sea, carrying out operation surveying tasks. To maximise the productivity of the vessels, the RAN operates the ships with three crews, rotating through the two ships.



Name	No.	Builders	Laid down	Launched	Commissioned
LEEWIN	A 245	NQEA, Cairns, Aust.	8/96	19/7/97	27/5/00
MELVILLE	A 246	NQEA, Cairns, Aust.	5/97	23/6/98	27/5/00

A 01 HMAS PALUMA

PALUMA CLASS SURVEY MOTOR LAUNCH (SML)

Displacement:
320 tonnes (full load)

Length:
36.6 metres

Beam:
13.7 metres

Main Machinery:
Twin Detroit V12 diesels

Speed:
11 knots

Ship's Company:
14



PALUMA CLASS SURVEY MOTOR LAUNCH (SML)

The science of Hydrography originated in the need for the production of maps specifically designed for use by the mariner. Nothing has been more important to the foundation and expansion of seaborne trade among the nations than the production of such charts – the end result of the hydrographic surveyor's work.

By any standards the task facing the Australian Hydrographic Service is a daunting one. The Australian area of charting responsibility covers some 11.5 million square nautical miles of oceans and seas, including the waters of Papua New Guinea. Between 1945 and 2001 only 30% of the continental shelf had been surveyed to an adequate standard, with a further 20% to a temporarily adequate standard. The remaining area accounts for much of the Navy's current survey work.

The Survey Motor Launches (SML) are examples of the resources devoted to this enormous task by the Royal Australian Navy. HMA Ships *Paluma*, *Mermaid*, *Shepparton* and *Benalla*, are based on the 'Prince' Class of roll-on/roll-off passenger ferries.

The SML's generally operate in pairs, and are designed for operations in the shallow waters of northern Australia. Their twin hulls, with bulbous bows and raked transom, provide good stability in heavy conditions, along with good living room and space below the main deck. In addition, the catamaran hull sits well out of the water, the ship drawing only 2.2 metres a favourable characteristic in shoaling and reef waters where the ships are required to operate.

Each SML carries the latest in survey and computerised hydrographic data processing equipment. The Class is also fitted with the latest navigation aids. SMLs have a range of 3,500 nautical miles. The SMLs are based in Cairns, Queensland and have been deployed to Timor and Bougainville in support of Australian Defence Force and UN operations. They have demonstrated an ongoing capability to contribute to both peacetime and operational activities.



Name	No.	Builders	Laid down	Launched	Commissioned
PALUMA	A 01	Eglo, Adelaide, Aust.	2/88	1989/90	27/2/89
MERMAID	A 02	Eglo, Adelaide, Aust.	10/88	28/9/89	4/12/89
SHEPPARTON	A 03	Eglo, Adelaide, Aust.	11/88	5/12/89	24/1/90
BENALLA	A 04	Eglo, Adelaide, Aust.	2/89	31/1/90	20/3/90

L 127 HMAS BRUNEI

LANDING CRAFT HEAVY (LCH)

Displacement:
316 tonnes

Length:
44.5 metres

Beam:
10.1 metres

Main Machinery:
2 x GE diesels

Speed:
More than 9 knots

Armament:
2 x .50 calibre (12.7mm)
machine guns

Ship's Company:
2 officers, 11 sailors



LANDING CRAFT HEAVY (LCH)

The Royal Australian Navy Heavy Landing Craft (LCH) is an extremely important vessel, capable of moving large amounts of cargo, personnel and equipment from larger ships such as a LSH (HMAS *Tobruk*) or a LPA (HMA Ships *Kanimbla* and *Manoora*), or from civilian ships to shore. A very shallow draft allows LCHs to deliver troops and equipment to areas otherwise unreachable.

Six LCHs form part of the Royal Australian Navy today. HMAS *Brunei* commissioned into the Fleet in January 1973 while HMAS *Balikpapan*, the prototype LCH, was originally operated by Army Water Transport. She transferred to the RAN in September 1974.

The LCH is an all-welded twin-screw vessel, able to transfer cargo and supplies from ships lying offshore to water terminals or across the beach. Maximum cargo load is governed by the load-fuel balance and varies between 140 and 180 tonnes. A typical load of 175 tonnes gives the LCH a range of 1300 nautical miles, increasing to 2280 nautical miles for a load of 150 tonnes.

Usual Army equipment lift can comprise three battle tanks, twenty-three quarter-tonne trucks or thirteen armored personnel carriers.

All six LCHs are currently active, with one based in Darwin, three in Cairns and two in Sydney.



Name	No.	Builders	Laid down	Launched	Commissioned
BALIKPAPAN	L 126	Walker Ltd, Maryborough, Queensland, Aust.	5/71	15/8/71	27/9/74
BRUNEI	L 127	Walker Ltd, Maryborough, Queensland, Aust.	7/71	15/10/71	5/1/73
LABUAN	L 128	Walker Ltd, Maryborough, Queensland, Aust.	10/71	29/12/71	9/3/73
TARAKAN	L 129	Walker Ltd, Maryborough, Queensland, Aust.	12/71	16/3/72	15/6/73
WEWAK	L 130	Walker Ltd, Maryborough, Queensland, Aust.	3/72	18/5/72	10/8/73
BETANO	L 133	Walker Ltd, Maryborough, Queensland, Aust.	9/72	5/12/72	8/2/74

SH-2G(A) SUPER SEASPRITE

SH-2G(A) SUPER SEASPRITE

In service:
11

Length:
16.0 metres

Height:
4.09 metres

Width:
3.53 metres

Weight:
6115 kg

Engines:
2 x 1723 shp GE T-700 Turboshaft

Speed:
250 kph

Range:
830 km

Armament:
2 x Kongsberg Penguin Mk2 Mod 7
(AGM119B-20) Anti-ship Missile

2 x Raytheon Mk46 Torpedo

1 x MAG58 7.62mm
machine gun (GSMG)

Crew:
2 (Pilot, TACCO)

Passengers:
5



805 SQUADRON SH-2G(A) SUPER SEASPRITE

805 Squadron has a long and illustrious history in the RAN, flying fixed wing aircraft including the Sea Fury FB II, Sea Venom FAW 53 and Skyhawk A4G.

On 28 February 2001, 805 Squadron was commissioned for the fourth time in Australian service as an attack helicopter squadron. The squadron will be equipped with eleven Kaman SH-2G(A) 'Super Seasprite' helicopters for embarked operations, primarily in the Navy's ANZAC Class frigates.

With a highly sophisticated software driven flight and tactical suite and armed with the lethal Kongsberg 'Penguin' AGM-119 anti-ship missile, the Super Seasprite is a very capable aircraft and formidable weapon platform.

Embarked aircraft will be required to fulfil the following roles:

- Surface Surveillance
- Surface Attack
- Anti-Submarine Weapons Carrier
- Visit, Board, Search and Seize Operations
- Naval Gunfire Support Missions
- Search and Rescue Operations
- Utility (winching and load lifting) Operations



S-70B-2 SEAHAWK

S-70B-2 SEAHAWK

In service:
16

Length:
19.8 metres (rotors spread)

Height:
5.2 metres

Width:
16.4 metres (rotors spread)

Weight:
9,947 kg

Engines:
2 x T700-GE-401C front drive turboshaft delivering up to 1940 SHP

Speed:
135 knots (cruise)

180 knots (maximum)
(330km per hour)

Range:
700 nautical miles (1,295km)

Armament:
2 x MK 46 torpedoes and
1 x MAG 58 machine gun

Crew:
3 (Pilot, Tactical Coordinator and Sensor Operator)



816 SQUADRON S-70B-2 SEAHAWK

816 Squadron operates 16 Sikorsky S-70B-2 Seahawk helicopters with the primary roles of anti-submarine warfare and anti-surface surveillance. The Seahawk is an integral part of the ship's weapons and sensor systems. With its unique sensor suite and integrated weapons systems the helicopter extends the combat radius of the ship by finding, localising and attacking where appropriate, surface or submarine targets either independently or in conjunction with other forces.

A typical Seahawk mission involves up to three hours of low level operations over the sea, by day or night, in all weather, often recovering to a ship's deck which pitches and rolls dramatically in heavy seas, and is generally wet with spray.

The Seahawk carries a highly capable navigation, communication and sensor suite making it a formidable helicopter in anti-submarine and anti-surface warfare. The sensors include: the Super Searcher radar, magnetic anomaly detector and sonics processing for both active and passive sonobuoys. Both forward-looking infra-red and electronic support measures are also to be fitted. The Seahawk's main weapon is the MK46 anti-submarine torpedo. A 7.62mm general purpose machine gun that can be door mounted for tactical operations can also be carried.

The aircraft has a crew of three. The pilot is the aircraft captain and is responsible for its safe operation. The tactical coordinator (TACCO) is an observer who is responsible for the effective tactical employment of the aircraft. The third crew member is the sensor operator (SENSO), an aircrewman responsible for the operation of the aircraft sensor equipment.



WESTLAND SEAKING

817 SQUADRON WESTLAND SEAKING

WESTLAND SEAKING

In service:

7

Length:

22.15 metres (rotors spread)

Height:

5.13 metres

Width:

18.9 metres (rotors spread)

Weight:

9525 kg

Engines:

2 x Rolls Royce Gnome H1400-1 gas turbines

Speed:

120 knots

100 knots

Range:

925 km (500 nautical miles)

Armament:

2 x Mk 46 torpedoes or
2 x Mk 11 depth charges

1 x door mounted general service machine gun

Crew:

4 (2 Pilots, 1 Tactical Coordinator/
Navigator and 1 Air-crewman)

Troops:

23



817 Squadron, part of the RAN's Aviation Force Element Group, is based at the RAN Air Station, Nowra, NSW. The squadron has been serving the Australian public since it commissioned on 25 April 1950. From the Squadron's earliest days it has been sent overseas to protect Australia's interests by supporting Australian Defence Force (ADF) operations. The Squadron's first experience was being sent to Korea in 1950 shortly after the Squadron commissioned. 817 Squadron has continued that proud tradition and has battle honours from Korea and Vietnam.

In more recent times, the Squadron has deployed Seaking helicopters on board RAN ships as part of the ADF's contribution to United Nations missions in Somalia in 1993, Bougainville in 1995 and 1997, East Timor in 1999 and the Solomon Islands in 2000/01. The Squadron is also regularly called upon to directly support the Australian

community. Recent examples of support to disaster relief and search and rescue are the Nyngan floods in 1990, Sydney's bush fires in 1993/94 as well as the Sydney to Hobart yacht race rescues in 1998.

817 Squadron's job is to: move people and provisions between ships and from ships to the shore, conduct search and rescue day and night in all weather conditions, detect and report hostile shipping, deliver torpedos and depth charges and support the Army when it moves from ships to the shore.

The Seaking helicopter is an excellent aircraft to do these jobs. The Seaking is a Sikorsky designed helicopter, produced under licence by the British aircraft manufacturer GKN Westland Helicopters. The aircraft entered service with 817 Squadron on 2 February 1976 and to the end of the year 2002 had flown approximately 47,000 flying hours.

The aircraft is a large and very versatile helicopter. With a cabin and the ability to pick up loads heavier than a Land Rover, the aircraft is the workhorse of the RAN's fleet. Powered by two Rolls Royce Gnome H1400-1 jet engines each producing a maximum of 1650 shaft horsepower, the Seaking is crewed by two pilots, one observer (tactical coordinator/navigator) and one aircrewman. The aircraft can operate day and night, in good weather and bad at low level over the sea and over land.

The Seaking can operate from the supply ship HMAS *Success*, the landing ship HMAS *Tobruk* and the amphibious transport ships HMAS *Manoora* and *Kanimbla*. The introduction of the amphibious ships saw 817 Squadron and the Seaking's tasks grow in supporting ADF operations from ships to the shore. The aircraft was heavily involved in this way in East Timor.



AS 350BA SQUIRREL

AS 350BA SQUIRREL

In service:
12

Length:
12.99 metres

Height:
3.5 metres

Width:
10.69 metres (rotors spread)

Weight:
2,100 kg

Engines:
Aerospatiale Trubomeca Arriel 1B

Speed:
147 knots

Range:
300 nautical miles (555km)

Crew:
2 to 4



723 SQUADRON AS 350BA SQUIRREL

723 Squadron currently operates twelve AS350BA Squirrel helicopters, purchased in 1982 to provide an interim aviation capability for the RAN's Guided Missile Frigates. 723 Squadron Squirrels served with all helicopter capable RAN ships during the 1991 Gulf War. The aircraft, fitted with updated avionics and a door mounted machine gun, were used for shipping surveillance, top cover for merchant ship boardings, mine searches and light logistics support.

The Squirrels were upgraded to AS350BA models in 1995 providing capability and performance improvements. Replaced by the more capable S-70B-2 Seahawk aboard the frigates in 1997, the Squirrel ceased dedicated embarked operations, however, was retained in 723 Squadron at NAS (Naval Air Station) Nowra to conduct the new role of lead in helicopter training, where pilots are prepared for the rigors of operational flying. During September 1999 and AS350BA was again embarked at sea, this time on HMAS *Anzac* as part of the Navy's contingent for the East Timor crisis.

Today, the Squadron's primary focus is on training. This includes the conversion of all RAN pilots to rotary wing flying, preparation of pilots for operational flying and flying observers and aircrewmen for their basic utility training. The aircraft also provides training support for ship's flight deck teams. Squirrel helicopters are currently embarked in hydrographic ships.



CLEARANCE DIVING TEAMS



CLEARANCE DIVING TEAMS

The RAN established its Clearance Diving Branch in 1951 and adopted the motto: UNITED and UNDAUNTED. However, the introduction of the Clearance Diving Breathing Apparatus (CDBA) in 1955 marked the true beginning of the clearance diver and the start of an era for the new branch. Since then the RAN Clearance Diving Branch has kept up with world diving technology. The equipment used is state of the art and their techniques are regarded as world leading.

The RAN has two operational Australian Clearance Diving Teams (AUSCDTs) which incorporate local Australian Naval Reserve (ANR) divers. AUSCDT ONE is based at HMAS *Waterhen* in Sydney and AUSCDT FOUR is based at HMAS *Stirling* in Western Australia.

The AUSCDT's are under the operational command of the Maritime Commander Australia. Administrative control is delegated to Commander Australian Navy Mine Warfare and Clearance Diving Group (COMAUSNAVWCDGRP).

AUSCDT's ONE and FOUR have an identical structure that is organised into four Task Elements capable of deploying separately or in combination with the other elements.

AUSCDT HEADQUARTERS (AUSCDT HQ) ELEMENT

The AUSCDT HQ comprises of Command, Communications, Support, Logistics and maintenance personnel and, depending upon the nature of the deployment or operation, will consist of approximately ten personnel and can be staged ashore or from a suitable surface platform.

MINE COUNTER MEASURES (MCM) ELEMENT

MCM Operations include:

- Location and disposal of sea mines in shallow waters
- Rendering safe and recovering enemy mines
- The search for and disposal of ordnance below the high water mark
- Clearance of surface ordnance in port or on naval facilities

MARITIME TACTICAL OPERATIONS (MTO)

The (MTO) element Very Shallow Water Mine Countermeasures missions include:

- Clandestine hydrographic survey of beaches intended for amphibious landings
- Clandestine clearance or demolition of sea/land mines and/or obstacles
- Clandestine placing of charges, demolitions for the purpose of diversion or demonstration



UNDERWATER BATTLE DAMAGE REPAIR (UBDR)

UBDR Element's wartime role is to effect temporary underwater repairs to Fleet units utilising patching, plugging, and a limited underwater cutting and welding capability. UBDR Elements train for their wartime role by performing Fleet support tasks that include underwater fitting, stabiliser and propeller maintenance/replacement and a limited salvage capability.

EXPLOSIVE ORDNANCE DISPOSAL (EOD)

Rendering safe and the disposal of all explosive ordnance including Improvised Explosive Devices is a core skill across all AUSCDT Elements.



YOUNG ENDEAVOUR

SAIL TRAINING SHIP

Displacement:

239 tonnes

Length:

44 metres (overall)

Length on deck 35 metres

Beam:

7.8 metres

Rig:

Brigantine

Total sail area:

740.6 square metres

Main Machinery:

2 x 215 h.p turbo-charged diesel engines, twin fixed pitch 0.8 m diameter propellers

2 x 40 KVA diesel generators

Speed:

Under sail 14 knots maximum

Under power 10 knots maximum

8 knots cruising

Ships Company:

9 RAN members and 24 trainees



SAIL TRAINING SHIP (STS)

STS Young Endeavour is an impressive 44m-long tall ship purpose-built for sail training, with modern technology and world-standard safety and navigation equipment.

Young Endeavour is fully capable of sailing any ocean on earth and staffed by an expert Navy crew.

The *Young Endeavour* Youth Scheme, funded by the Commonwealth Government, manages the program with the operational support of the Royal Australian Navy.

The brigantine *Young Endeavour* was the United Kingdom's Bicentennial gift to Australia, being accepted by the Prime Minister of Australia on 25 January 1988. Operated by the Royal Australian Navy on behalf of the *Young Endeavour* Youth Scheme, the ship has a Navy crew of nine who conduct the training program and who are responsible for the safety and efficiency of operations.

Voyages on *Young Endeavour* are open to young men and women between the ages of 16 and 23. Many young Australians have already experienced this unique and rewarding challenge. This brigantine conducts an average of 20 days sailing training voyages annually.

Designed specifically for sail training by British naval architect and yacht designer Colin Mudie, *Young Endeavour* has a fully welded steel hull with plywood decks covered in teak. With a cut-away external ballast keel and a separate skeg mounted rudder, the ship has a yacht-like form underwater. Her aluminium masts are more than 30 metres high and can carry a total sail area of 740.6 square metres or 7,547 square feet, giving a maximum speed under sail of 14 knots.

www.youngendeavour.gov.au

Name	Builders	Laid down	Launched	Commissioned
YOUNG ENDEAVOUR	Brooke Yachts, Lowestoft, UK.	5/86	2/6/87	25/1/88





For more information www.navy.gov.au

