NAVY TODAY

SHIPS OF THE ROYAL AUSTRALIAN NAVY

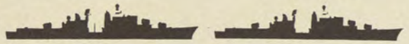
Flagship

MELBOURNE

First Australian Destroyer Squadron

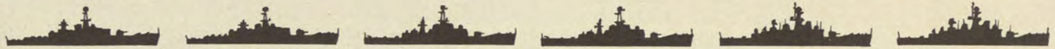
PERTH HOBART BRISBANE

Second Australian Destroyer Squadron



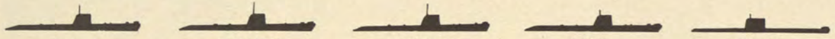
VENDETTA VAMPIRE

Third Australian Destroyer Squadron



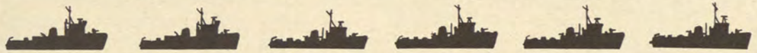
YARRA PARRAMATTA STUART DERWENT SWAN TORRENS

First Australian Submarine Squadron



OXLEY OTWAY ONSLOW OVENS ODIN

First Australian Mine Countermeasures Squadron



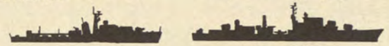
SNIPE CURLEW HAWK TEAL GULL IBIS

First Australian Patrol Boat Squadron

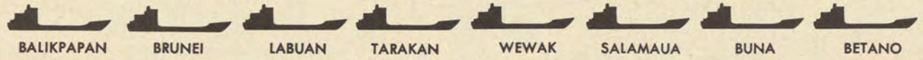
ACUTE ADROIT ARCHER ARDENT ATTACK AWARE BARRICADE BAYONET LADAVA LAE

ADVANCE ARROW BANDOLIER BOMBARD MADANG AITAPE ASSAIL BARBETTE BUCCANEER SAMARAI

First Australian Training Squadron



ANZAC DUCHESS

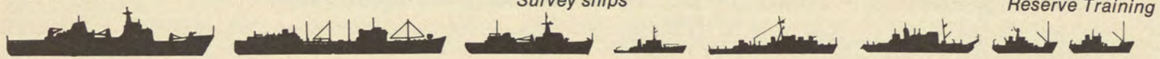


BALIKPAPAN BRUNEI LABUAN TARAKAN WEWAK SALAMAUA BUNA BETANO

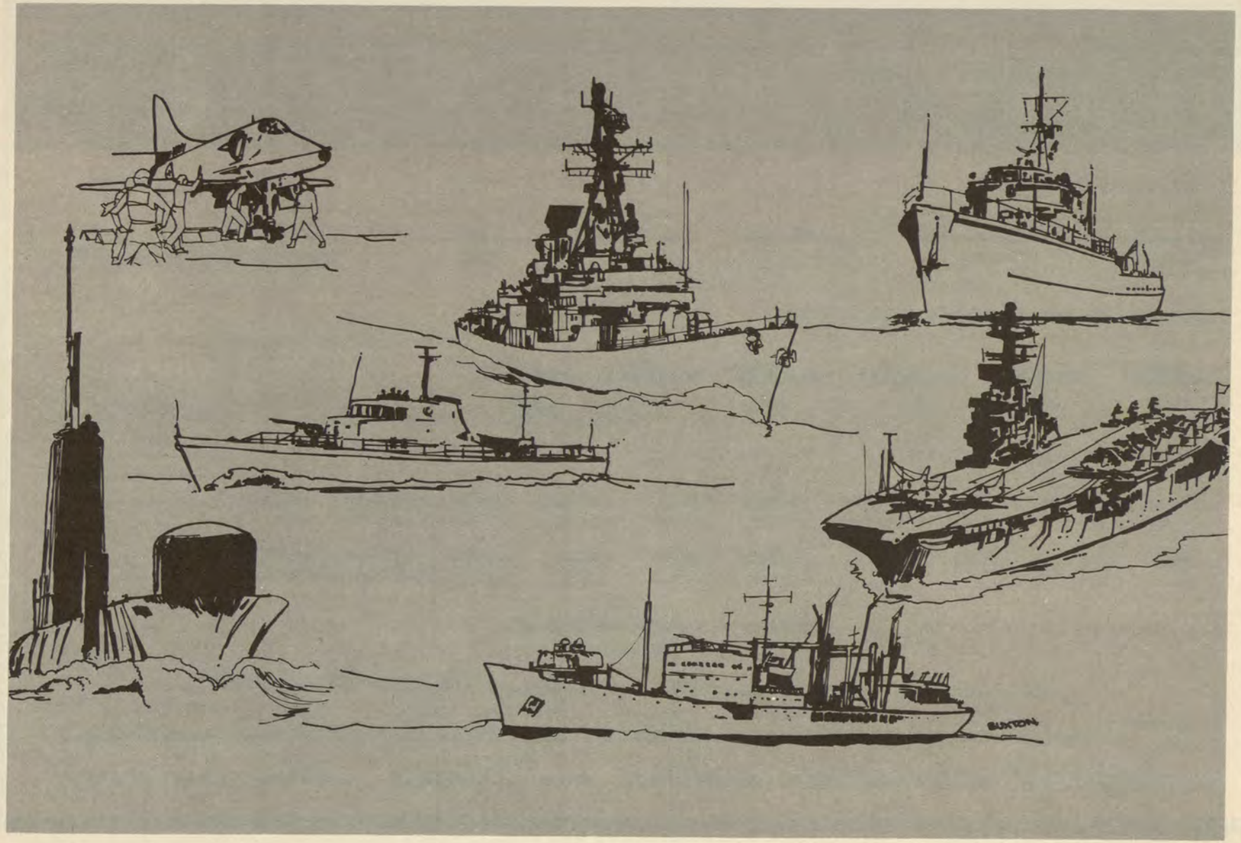
Support ships

Survey ships

Reserve Training



STALWART SUPPLY MORESBY **FLINDERS** DIAMANTINA KIMBLA BASS BANKS



A modern Navy

Although not large, the Royal Australian Navy compares well with the navies of other middle powers. It is well armed, well trained, is technically advanced and possesses a wide range of capabilities.

The main objective is to maintain a balanced naval capability best suited to meet possible future operational situations. To this end naval planning has been, and will continue to be, directed to effect a change from an anti-submarine warfare oriented force to one with a more general-purpose capability. This is reflected in the present Fleet, which has capabilities in all facets of naval operations such as interdiction, surface and anti-submarine warfare, naval air operations, surveillance and patrol and support to the other Services including naval gunfire support.

Briefly, the Navy's role in time of war or conflict is:

- To organise, train and equip naval forces, including naval aircraft, for timely and sustained combat operations at sea;
- To provide naval support for land operations;
- To provide military sea transport support for the Australian Services; and
- To provide seaward defence of ports and anchorages.

In peacetime, the primary role is to maintain operational effectiveness of the capabilities required in the above roles, including the maintaining of an effective standard for joint operations with the Army and the RAAF and, in addition, wherever possible, to contribute to national development and to assist the civil population.

The ships and aircraft required to perform these tasks are described on the following pages.

Name	*No.*	*Builder*	*Laid Down*	*Launched*	*First Commissioned*
MELBOURNE	21	Vickers-Armstrong Barrow-in-Furness	15/4/43	28/2/45	28/10/55

Displacement	20,000 tons
Length	701.5 ft
Beam	80.2 ft
Armament	12 (4 twin, 4 single) 40/60 mm Bofors
Machinery	Parsons single reduction geared turbines, 4 Admiralty 3-drum type boilers
Speed	More than 20 knots
Ship's Company	1,335 (includes 347 Carrier Air Group personnel)
Aircraft	Douglas Skyhawk A4G jet fighter-bombers
	Grumman Tracker S2E ASW aircraft
	Westland Wessex ASW helicopters
	Westland Wessex SAR helicopters

Aircraft carrier

The light aircraft carrier HMAS *Melbourne* is the Royal Australian Navy's flagship.

With her Skyhawk, Tracker and Wessex aircraft, *Melbourne* combines aerial defence of the Fleet with her anti-submarine role.

She also has a formidable strike capacity which was strengthened with the recent purchase of additional Skyhawk aircraft.

When carrying extra Skyhawks the carrier will control a significant strike force which can be directed against either maritime or shore targets and can give ground support to the Army.

Melbourne embarked her present generation of aircraft in 1969 after an extended refit which included modifications to aid flying and aircraft handling.

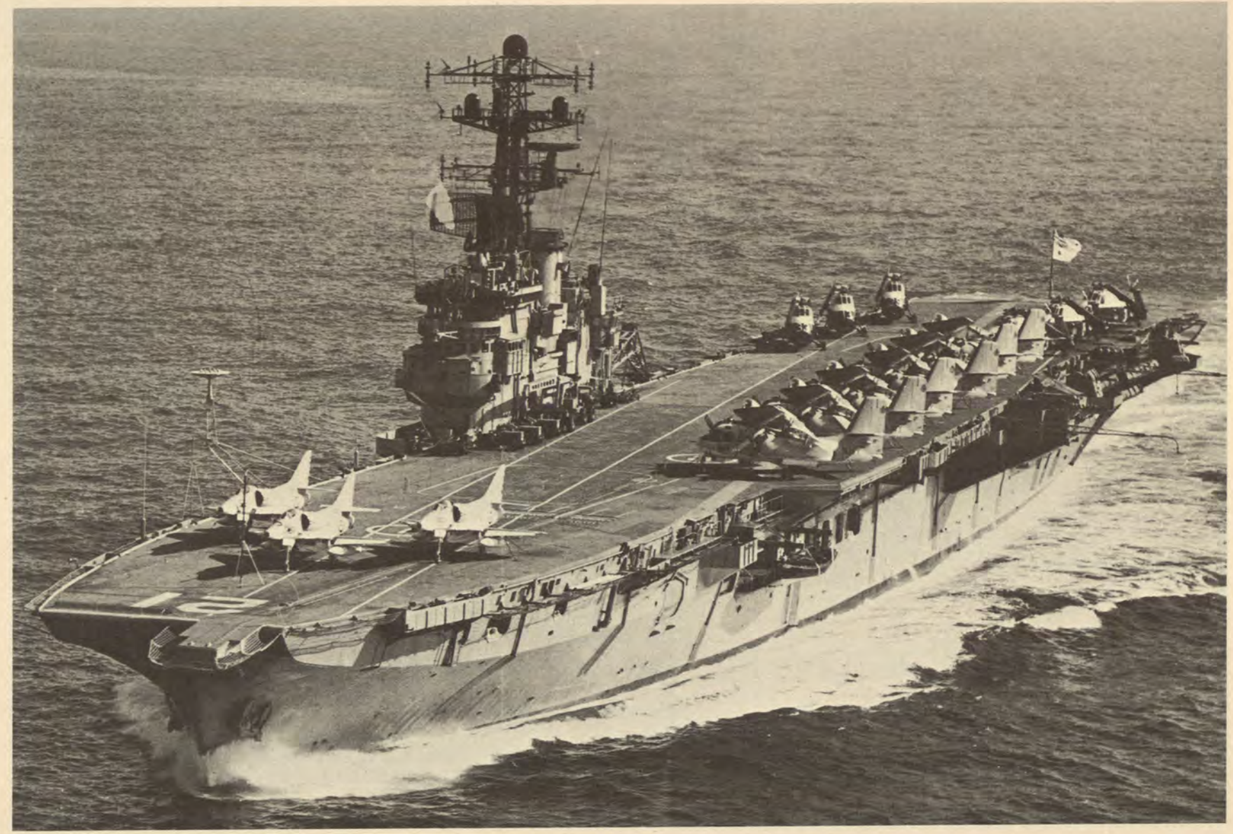
In 1971 the ship received a rebuilt catapult, strengthened flight deck and other changes.

Melbourne was laid down in 1943 as HMS *Majestic*, at the same time as HMS *Terrible* (later HMAS *Sydney*) and was launched in 1945.

With the end of World War II, work on *Majestic* stopped pending a decision on future requirements. Arrangements were then made for the ship to be taken over by the RAN and renamed HMAS *Melbourne.*

Construction resumed in 1949 with modifications including increasing the size of the flight deck lifts to handle larger aircraft and later fitting an angled flight deck, steam catapult and mirror landing system.

Melbourne was commissioned into the RAN on 28 October 1955 and after working up in British waters with her Sea Venom and Gannet aircraft she sailed for Australia, arriving in Sydney on 10 May 1956.



Name	No.	Builder	Laid Down	Launched	First Commissioned
PERTH	38	Defoe Shipbuilding Co Bay City Mich	21/9/62	26/9/63	17/7/65
HOBART	39	Defoe Shipbuilding Co Bay City Mich	26/10/62	9/1/64	18/12/65
BRISBANE	41	Defoe Shipbuilding Co Bay City Mich	15/2/65	5/5/66	16/12/67

Displacement	4,500 tons
Length	437 ft
Beam	47 ft
Armament	Two 5-in automatic rapid fire guns. Tartar anti-aircraft guided missile system. Two Ikara anti-submarine missile systems. Two sets triple mounted anti-submarine homing torpedoes
Machinery	Two GE geared steam turbines driving two shafts
Speed	More than 30 knots
Ship's Company	333

Guided missile destroyers

The three guided missile destroyers—HMA Ships *Perth, Hobart* and *Brisbane*—make up the RAN's First Destroyer Squadron.

The US-built ships are similar to the US Navy's DDG-15 class and their design is particularly versatile.

Their main task is air defence of the Fleet, but they also have formidable anti-submarine and surface gunnery capabilities.

The principal aircraft defence weapon is the Tartar guided missile system which is mounted near the stern.

The DDG's are also fitted with two Ikara missile launchers. This long-range anti-submarine system is Australian-designed and developed. The missile is automatically guided to the vicinity of a hostile submarine where a torpedo is released by parachute to home on the target.

The ships are fitted with modern long-range sonar, radar, communications and electronic equipment to provide the command with comprehensive information.

Living spaces are air conditioned.

All three ships saw action in Vietnam where they served with distinction with ships of the US Navy's 7th Fleet.

The ships are entering a period when their weapon systems are being updated.

Perth, Hobart and *Brisbane* are the names of former RAN cruisers.

Name	No.	Builder	Laid Down	Launched	First Commissioned
VENDETTA	08	HMA Naval Dockyard Williamstown	4/7/49	3/5/54	26/11/58
VAMPIRE	11	Cockatoo Island Dockyard Sydney	1/7/52	27/10/56	23/6/59

Displacement	3,600 tons
Length	390 ft
Beam	43 ft
Armament	Six 4.5 in dual purpose guns in twin turrets, two forward, one aft. Six 40/60 mm Bofors guns. Triple - barrel anti - submarine mortar.
Machinery	Parsons double reduction geared turbine, driving two shafts
Speed	More than 30 knots
Ship's Company	321

Destroyers

The Royal Australian Navy's Second Destroyer Squadron is made up of the Daring Class destroyers HMA Ships *Vendetta* and *Vampire*.

These all-purpose warships have main gunnery armament comparable to a light cruiser, giving them formidable surface gunnery as well as anti-aircraft capabilities.

Anti-submarine detection equipment and weapons increase their versatility.

Vampire and *Vendetta* were built in Australia, while the training ship *Duchess*—also a Daring—was built in Britain.

The three ships are all-welded and light alloys have been used extensively in their construction to reduce weight.

In 1969, *Vendetta* became the first Australian-built warship to serve in Vietnam. She had the distinction, as a result, of being the first Daring Class destroyer to engage in the role for which the ships were primarily built—naval gunfire support.

Half-life modernization of *Vampire* and *Vendetta*, which began in 1970, included fitting new gun turrets, fire control systems, new aircraft warning and navigation radar, re-equipping the operations centre, enclosing the bridge and replacing a major part of the superstructure.

Communications equipment was renewed and living conditions on board considerably improved.

The original *Vampire* and *Vendetta* served with distinction in the 10th Destroyer Flotilla, known as the "Scrap Iron Flotilla", in World War II.

Name	No.	Builder	Laid Down	Launched	First Commissioned
YARRA	45	Williamstown Dockyard	9/4/57	30/9/58	27/7/61
PARRAMATTA	46	Cockatoo Island Dockyard	3/1/57	31/1/59	4/7/61
STUART	48	Cockatoo Island Dockyard	20/3/59	8/4/61	28/6/63
DERWENT	49	Williamstown Dockyard	16/6/58	17/4/61	30/4/64
SWAN	50	Williamstown Dockyard	18/8/65	16/12/67	20/1/70
TORRENS	53	Cockatoo Island Dockyard	18/8/65	28/9/68	19/1/71

Displacement	2,700 tons
Length	370 ft
Beam	41 ft
Armament	Two 4.5 in guns in twin turret controlled by digital fire control radar and computer. Seacat anti-aircraft missile system. Ikara anti-submarine missile system. Triple-barrel anti-submarine mortar
Machinery	Geared steam turbines 30,000 shaft horsepower
Speed	More than 30 knots
Ship's Company	250

Destroyer escorts

The Royal Australian Navy has six Australian-built destroyer escorts forming the Third Australian Destroyer Squadron.

The newest ship HMAS *Torrens* and her sister ship HMAS *Swan* incorporate many design changes made in the four earlier River Class HMAS Ships *Derwent*, *Stuart*, *Yarra* and *Parramatta*.

All the ships are armed with twin 4.5 inch guns which are used with digital fire control radar and computer.

The guns can be used for shore bombardment or can provide fire power against air or surface targets.

Close-range air and surface defence is provided by the Seacat missile system which is controlled by a separate radar and computer.

The Seacat missile system was developed in Britain and has been adopted by a number of navies.

A submarine threat can be met by using either the Australian-designed and built Ikara anti-submarine missile system, or the triple-barrelled mortars carried on all the escorts.

Ikara is a rocket-propelled guided missile which carries a homing torpedo towards its submarine target. The torpedo is dropped into the sea by parachute and is then acoustically homed on the submarine target.

All the ships in the squadron except *Derwent* carry the names of former RAN destroyers and sloops.

Name	No.	Builder	Laid Down	Launched	First Commissioned
OXLEY	57	Scotts' Shipbuilding Greenock	2/7/64	24/9/65	27/3/67
OTWAY	59	Scotts' Shipbuilding Greenock	29/6/65	29/11/66	22/4/68
ONSLOW	60	Scotts' Shipbuilding Greenock	26/5/67	3/12/68	22/12/69
OVENS	70	Scotts' Shipbuilding Greenock	17/6/66	4/12/67	18/4/69

Displacement	2,030 tons
Length	295 ft
Beam	26½ ft
Armament	Six bow and two stern anti-surface ship and anti-submarine torpedo tubes
Machinery	Two English Electric main propulsion motors, with two Admiralty standard range diesel generators
Speed	Submerged speed, more than 15 knots
Ship's Company	62

Submarines

Four Oberon Class submarines form the First Australian Submarine Squadron. Two more are on order.

Their value as an offensive weapons system is enhanced by their ability to operate in enemy-dominated waters for extended periods, without logistic support and without air cover.

The Oberons are long-range diesel-electric submarines which can move against surface ships or other submarines.

They are one of the most effective conventional types of submarines available today, and their quietness of operation makes them particularly difficult for an enemy to detect.

They are designed for silent running, and underwater equipment includes sensitive listening apparatus and an electronic fire control system.

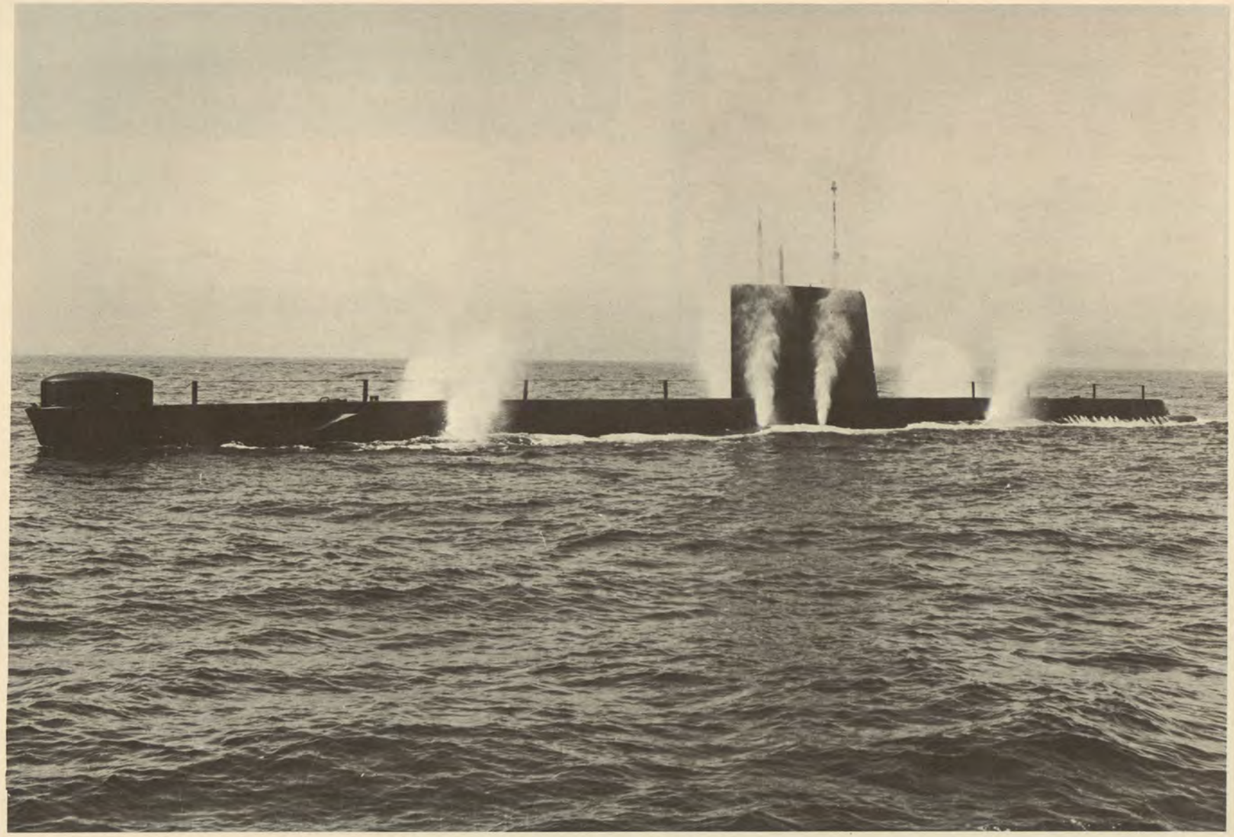
All are fitted with a 'snort' system which enables batteries to be recharged while the submarine remains submerged.

They can dive to more than 400 ft and have a submerged speed of more than 15 knots.

The four craft are based at HMAS *Platypus,* Neutral Bay, Sydney.

HMAS *Oxley* and HMAS *Otway* are named after two earlier RAN submarines. The first of the new submarines on order will be named HMAS *Orion* to preserve long established links with the Royal Navy and because the constellation Orion is visible in the Southern Hemisphere.

The second new Oberon will be named HMAS *Otama* after the Queensland aboriginal word meaning dolphin—the submarines' symbol.



Name	No.	Builder	Laid Down	Launched	First Commissioned in RAN
SNIPE	1102	Thornycroft, UK	Jul. 51	5/1/53	11/9/62
CURLEW	1121	Montrose, UK	April 53	6/10/53	21/8/62
HAWK	1139	I. W. Richards, UK	June 53	17/9/55	18/7/62
TEAL	1152	Philip, UK	Jan. 53	28/2/55	30/8/62
IBIS	1183	Montrose, UK	Oct. 53	18/11/55	7/9/62
GULL	1185	Doig, UK	Aug. 54	1/7/54	19/7/62

Displacement	480 tons
Length	153 ft
Beam	28 ft
Armament	Two 40/60 mm Bofors gun (one on minehunters)
Machinery	Napier diesel engines developing 3,000 hp
Speed	More than 15 knots
Ship's Company	34 (minesweeper) 38 (minehunter)

Mine warfare ships

The First Australian Mine Countermeasures Squadron is made up of six Ton Class mine countermeasure ships.

Of British design and construction, the ships were modified in the UK before joining the Australian Fleet in 1962.

Originally all six ships were fitted as minesweepers, but HMAS *Curlew* and HMAS *Snipe* have been converted to minehunters.

The other four are fitted for mine sweeping.

They carry devices to explode acoustic and magnetic as well as contact mines. They can also detect and destroy other underwater obstructions which would be hazardous to shipping.

The wooden-hulled minesweepers are themselves non-magnetic and are sufficiently silent not to actuate acoustic mines.

Mine hunting is the latest advance in mine countermeasures and the re-equipped *Curlew* and *Snipe* are significant additions to the Australian Fleet.

Mine hunting is complementary to mine sweeping and is carried out in a different way.

Using a high definition sonar set, the minehunter locates mines ahead of the ship.

When a mine is located, clearance divers go into the water to identify it and decide whether to render it safe and remove it, or to blow it up with an explosive charge.

Patrol boats

Name	No.	Builder	Laid Down	Launched	First Commissioned
ACUTE	81	Evans Deakin Ltd	Apr. 67	26/8/67	26/4/68
ADROIT	82	Evans Deakin Ltd	Aug. 67	3/2/68	17/8/68
ADVANCE	83	Walkers Ltd	Mar. 67	16/8/67	24/1/68
AITAPE	84	Walkers Ltd	Nov. 66	6/7/67	13/11/67
SAMARAI	85	Evans Deakin Ltd	Dec. 66	14/7/67	1/3/68
ARCHER	86	Walkers Ltd	Jul. 67	2/12/67	15/5/68
ARDENT	87	Evans Deakin Ltd	Oct. 67	27/4/68	26/10/68
ARROW	88	Walkers Ltd	Sep. 67	17/2/68	3/7/68
ASSAIL	89	Evans Deakin Ltd	Aug. 67	18/11/67	12/7/68
ATTACK	90	Evans Deakin Ltd	Sep. 66	8/4/67	17/11/67
AWARE	91	Evans Deakin Ltd	Jul. 67	7/10/67	21/6/68
LADAVA	92	Walkers Ltd	Feb. 68	11/5/68	21/10/68
LAE	93	Walkers Ltd	May 67	5/10/67	3/4/68
MADANG	94	Evans Deakin Ltd	Mar. 68	10/8/68	29/11/68
BANDOLIER	95	Walkers Ltd	Jul. 68	2/10/68	14/12/68
BARBETTE	97	Walkers Ltd	Nov. 67	10/4/68	16/8/68
BARRICADE	98	Evans Deakin Ltd	Dec. 67	29/6/68	26/10/68
BOMBARD	99	Walkers Ltd	Apr. 68	6/7/68	5/11/68
BUCCANEER	100	Evans Deakin Ltd	Jun. 68	14/9/68	11/1/69
BAYONET	101	Walkers Ltd	Oct. 68	6/11/68	22/2/69

Displacement	146 tons
Length	107 ft
Beam	20 ft
Armament	40/60 mm Bofors gun, machine gun and a variety of light arms
Machinery	Two 16-cylinder diesels, producing more than 3,000 hp
Speed	More than 20 knots
Ship's Company	19

Twenty patrol boats were built in Australian shipyards for patrol and survey work in waters around Australia and Papua New Guinea.

They form units of the Navy's patrol boat squadrons.

They are units of the First Australian Patrol Boat Squadron.

These all-weather, ocean-going ships have a variety of tasks, including the patrol of fishing grounds close to the coastline.

They also assist RAN survey ships in sounding and survey work.

The 107 ft patrol boats are used for Reserve training and for training Papua-New Guinea officers and sailors who will eventually assume full responsibility for operating a Papua-New Guinea patrol boat squadron.

The speed and versatility of the patrol boats have made them useful for helping disabled craft, for use as sea-air rescue boats and for transporting patients from remote shallow ports.

Major excursions have been made deep into Papua-New Guinea river systems.

Included in the ships' equipment is high definition navigation radar, high and ultra-high frequency radio transmitters and receivers, gyro and magnetic compasses and echo sounders.

All the patrol boats are fully air conditioned, and all were built in Queensland shipyards.

Amphibious craft

Name	No.	Builder	Laid Down	Launched	First Commissioned
BALIKPAPAN	L126	Walkers Ltd	May 71	15/8/71	8/12/71
BRUNEI	L127	Walkers Ltd	Jul. 71	15/10/71	5/1/73
LABUAN	L128	Walkers Ltd	Oct. 71	29/12/71	9/3/73
TARAKAN	L129	Walkers Ltd	Dec. 71	16/3/72	15/6/73
WEWAK	L130	Walkers Ltd	Mar. 72	18/5/72	10/8/73
SALAMAUA	L131	Walkers Ltd	May 72	27/7/72	
BUNA	L132	Walkers Ltd	Jul. 72	26/9/72	
BETANO	L133	Walkers Ltd	Sep. 72	5/12/72	

Displacement	310 tons
Length	146 ft
Beam	33 ft
Armament	Two 0.5 in machine guns
Speed	More than nine knots
Ship's Company	Two officers, 11 sailors

For the first time since World War II, the RAN has a landing craft squadron. Called Landing Craft Heavy (LCH), the first ship, HMAS *Brunei*, joined the Fleet on January 5, 1973.

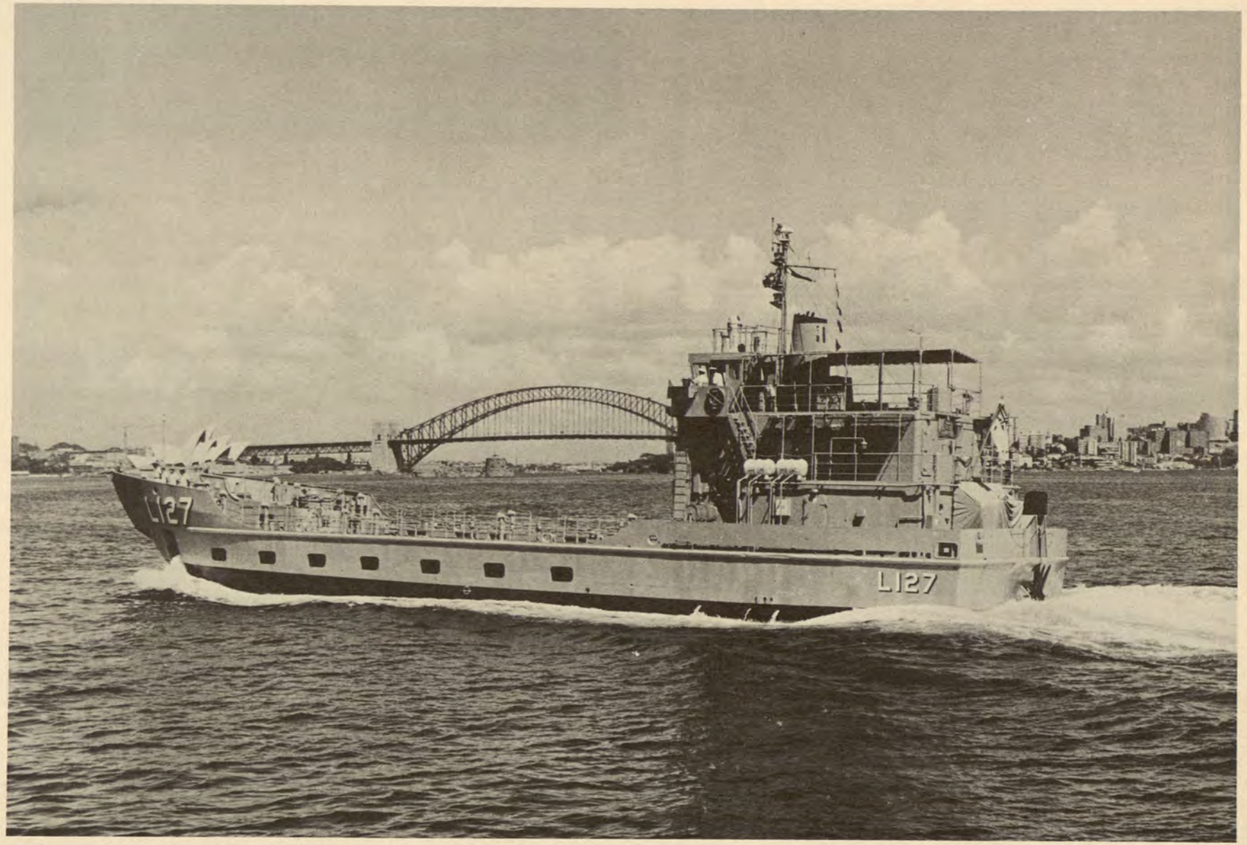
The squadron is based at HMAS *Moreton*, the RAN shore establishment at Brisbane, where the commanding officer is also the LCH Squadron Commander.

At the end of August 1973, four LCHs had been commissioned into the RAN — HMA Ships *Brunei*, *Labuan*, *Tarakan* and *Wewak* — and three others — HMA Ships *Salamaua*, *Buna* and *Betano* — were to commission in late 1973 or early in 1974. An eighth, *Balikpapan*, the prototype which has been manned by the Army, will transfer to the RAN in mid-1974. She went through extensive joint Navy/Army evaluation trials in 1972.

The eight sea-going ships, all built at Walkers Ltd. shipyards, Maryborough, Queensland, are each manned by two officers and 11 sailors. They will be employed primarily in providing support for the Army, although one will normally be allocated to the Navy for hydrographic survey work.

As the names suggest, the ships are all named after World War II amphibious operations in which RAN ships and craft put Australian Army units ashore or did surveys preparatory to the landings.

The versatile LCHs will be able to carry the heaviest equipment in the Army's order of battle (up to three Centurion tanks, for example).



Name	No.	Builder	Laid Down	Launched	First Commissioned
ANZAC	59	Williamstown Dockyard	23/9/46	20/8/48	14/3/51

Displacement	3,450 tons
Length	379 ft
Beam	41 ft
Armament	One twin 4.5 in gun turret
Machinery	Parsons geared turbines 50,000 shp. 2 shafts
Speed	More than 30 knots
Ship's Company	270

Name	No.	Builder	Laid Down	Launched	First Commissioned
DUCHESS	154	Thornycroft, Southampton	2/7/48	9/4/51	23/10/52

Displacement	3,600 tons
Length	390 ft
Beam	43 ft
Armament	Four 4.5 in dual purpose guns in twin turrets forward. Two 40/60 mm Bofors guns.
Machinery	Parsons double reduction geared turbine, driving two shafts
Speed	More than 30 knots
Ship's Company	260

Training ships

The Battle Class destroyer HMAS *Anzac* and the Daring Class destroyer HMAS *Duchess* are the Royal Australian Navy's training ships.

Anzac, the second RAN ship of that name, was built at Williamstown Naval Dockyard, Melbourne, and commissioned on 14 March 1951. She spent the greater part of the following two years in Korean waters supporting United Nations forces. Her other periods in northern waters included four tours of duty with the Strategic Reserve at Singapore.

In 1961 *Anzac* became the Fleet training ship with the important task of preparing young officers and sailors for careers at sea. Much of the ship's original armament was removed and replaced by classrooms and other training facilities.

Duchess, formerly a Royal Navy ship, was built in Britain and commissioned in 1952. She served at Suez during the 1956 crisis and escorted aircraft carriers in the Aden area in 1963. She was lent to the RAN in 1964 and was bought by the Australian Government in 1972.

A Daring Class destroyer, *Duchess* has served in recent years as a member of the Second Australian Destroyer Squadron.

Like *Anzac*, changes have been made to *Duchess* to convert her to her training role. *Anzac* will decommission in 1974.

Trainees in both ships include young sailors, cadet midshipmen from the RAN College, midshipmen from the Papua New Guinea division of the RAN and officer cadets from other countries. Normally they spend several months at sea learning navigation, seamanship, enginering, communications and other aspects of naval life.

Name	No.	Builder	Laid Down	Launched	First Commissioned
STALWART	215	Cockatoo Island Dockyard	23/6/64	7/10/66	9/2/68
SUPPLY	195	Harland and Wolff Belfast	5/8/52	1/9/54	15/8/62

	STALWART	*SUPPLY*
Displacement	10,500 tons	26,000 tons
Length	515 ft	583 ft
Beam	67 ft	71 ft
Armament	Two 40/60 mm Bofors guns twin mountings. Provision for Seacat close-range missiles	Two twin, two single mountings, 40/60 mm Bofors guns
Machinery	Two six-cylinder diesel engines developing 14,400 bhp	Double reduction geared turbines developing 15,000 shaft hp
Speed	More than 20 knots	More than 16 knots
Ship's Company	396	205

Destroyer tender

The destroyer tender HMAS *Stalwart* is the largest naval vessel wholly designed and built in Australia.

Her role is to provide destroyers with repair and maintenance facilities on a mobile basis so the ships can spend the maximum time on duty in their operational areas.

For this job the ship is equipped with extensive engineering, electrical, electronic, weapons, shipwright and other workshops, staffed by experts in a wide variety of trades and professions.

Several destroyers can be maintained by *Stalwart* at a time and three quarters of *Stalwart's* ship's company of nearly 400 are available for repair and maintenance duties.

Fleet oiler

HMAS *Supply,* the largest ship in the RAN, has the important task of refuelling fleet units to give ships greater range and mobility.

She supplies furnace fuel, aviation gasoline, diesel oil and water to other ships while they are underway.

In a typical operation a destroyer will steam alongside *Supply* at about 15 knots. With only about 100 ft between ships, lines are shot across, hoses are run across and connected, and pumping begins. A destroyer can be refuelled in this way in less than half an hour.

Survey ships

Name	No.	Builder	Laid Down	Launched	First Commissioned
MORESBY	73	Newcastle State Dockyard	May 62	7/9/63	6/3/64
FLINDERS	312	Williamstown N.D.	Dec. 70	29/7/72	27/4/73
DIAMANTINA	266	Walkers Ltd, Maryborough	12/4/43	6/4/44	27/4/45
KIMBLA	314	Walkers Ltd, Maryborough	4/11/53	23/3/55	26/3/56

	MORESBY	*FLINDERS*
Displacement	2,300 tons	750 tons
Length	314 ft	161 ft
Beam	42 ft	33 ft
Armament	Two 40/60 mm Bofors guns	Two diesel engines
Machinery	Diesel electric main engines	More than 13 knots
Speed	More than 18 knots	38
Ship's Company	146	

	DIAMANTINA	*KIMBLA*
Displacement	2,000 tons	750 tons
Length	301 ft	179 ft
Beam	36.7 ft	32 ft
Armament	One 40/60 mm Bofors gun	
Machinery	Triple expansion; two Admiralty 3-drum boilers	Triple expansion steam engine
Speed	More than 19 knots	More than 10 knots
Ship's Company	121	40

Surveying of Australian and Papua-New Guinea waters, which combined involve 16,500 miles of coastline and cover about one eighth of the earth's surface, is the mammoth task entrusted to the RAN Hydrographic Service.

The stepped-up exploitation of Australia's vast mineral resources in recent years based on bulk handling methods has led to the development of new ports such as Gove, Weipa, Spring Bay, Dampier and Port Hedland.

The largest bulk carriers in the world now call at Australian ports and there is a continuing need for new and more accurate surveys of shipping routes and harbour approaches.

Four RAN ships are engaged full time in this work and on oceanographic research. They are HMA Ships *Moresby, Flinders, Diamantina* and *Kimbla,* helped at times by other Fleet units.

Moresby is a large modern survey ship. She operates her own helicopter and carries advanced electronic surveying equipment.

A new hydrographic ship, the 750 ton *Flinders,* has replaced the 336 ton *Paluma*, which was commissioned in 1957.

The two other ships *Diamantina,* a converted frigate, and *Kimbla* are mainly engaged on military and civilian oceanographic research including work for the CSIRO, universities and museums.

Diamantina will soon be replaced by another new hydrographic ship, HMAS *Cook,* similar to *Moresby* but slightly larger, and fitted with the most up-to-date oceanographic and survey equipment.

• *Top left—HMAS Diamantina* • *Top right—HMAS Flinders* • *Bottom left—HMAS Kimbla* • *Bottom right—HMAS Moresby*

Name	No.	Builder	Launched	First Commissioned
BASS	247	Walkers Ltd, Maryborough	28/3/60	15/11/60
BANKS	244	Walkers Ltd, Maryborough	15/12/59	16/2/60

Displacement	177 tons *(Bass)* 145 tons *(Banks)*
Length	93 ft
Beam	23 ft
Machinery	Twin-screw engine
Speed	10 knots

COOK	
Displacement	Standard, 1,910 tons Full Load, 2,650 tons
Length	317 ft
Beam	44 ft
Main engines	Diesel, 2 shafts, 3,000 bhp
Speed	17 knots
Oil fuel	640 tons
Ship's Company	150, including scientific staff

Support ships

The Royal Australian Navy has two general purpose ships, HMAS *Bass* and HMAS *Banks*, of the Explorer Class, built at Walkers Ltd. shipyards, Maryborough, Queensland. *Banks* was fitted for fishery surveillance and *Bass* for surveying, but both were used for other duties.

In June 1967, *Bass* was assigned as a Naval Reserve training ship in Tasmanian waters and a month later *Banks* was assigned to similar duties in South Australian waters. Normally they have complements of two officers and 12 sailors, but during training cruises they may carry more.

Both ships provide training of officers and sailors in the seamen, electrical, engineering and communications branches of the Naval Reserve. Also, they provide support to shore establishments in Tasmania and South Australia and to visiting Fleet units.

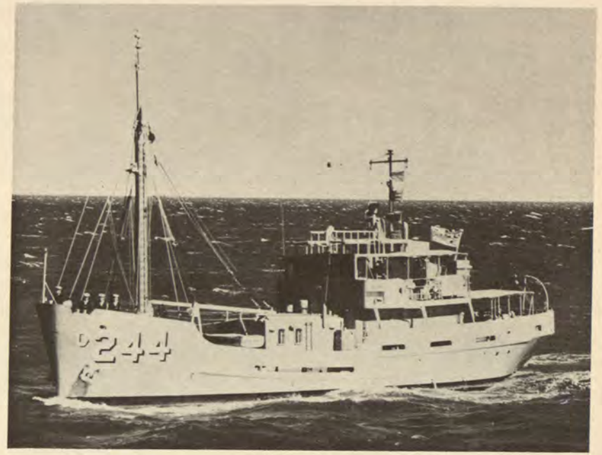
Future ships

As well as HMAS *Flinders*, which was commissioned in 1973, the RAN's oceanographic and hydrographic service is to have another new ship. She is HMAS *Cook*, which will replace HMAS *Diamantina*.

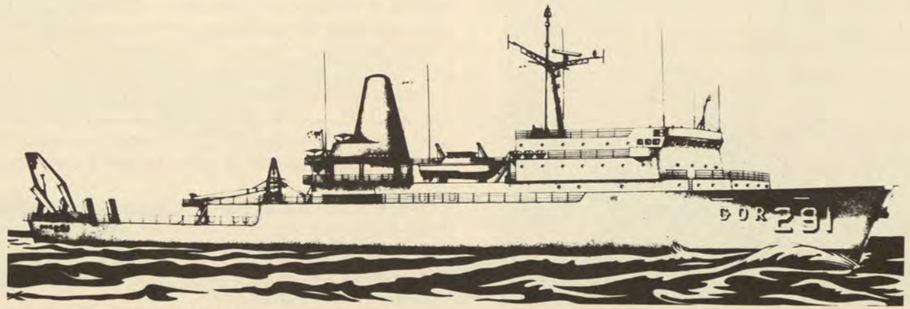
Cook will be of similar size to the survey ship HMAS *Moresby* but with distinct features of her own. Equipped with the latest survey techniques including satellite navigation, *Cook* will have accommodation and laboratory research facilities for a number of scientific staff in addition to the ship's company.

Unlike *Moresby* she will not carry a helicopter.

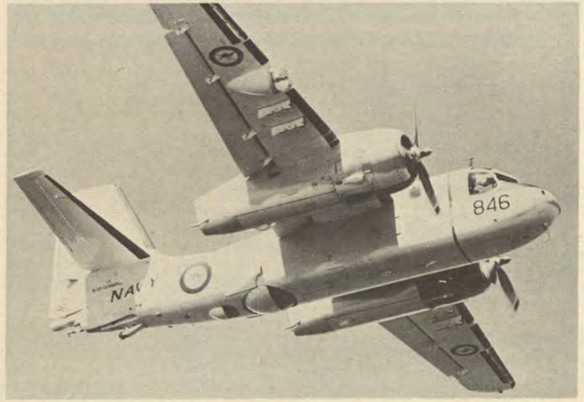
• *HMAS Bass*



• *HMAS Banks*



• *Artist's impression of HMAS Cook*



Aircraft

The Skyhawk jet fighter-bomber (top left) is the air defence and strike aircraft of the Fleet Air Arm.

These transonic aircraft are ideal for high pay load/wide radius operations in tactical air support and they have increased the versatility of the aircraft carrier HMAS *Melbourne*.

The Douglas A4-G Skyhawk is a relatively small aircraft (weight empty—9,800 lbs) but it is capable of carrying an extensive and varied war load (maximum all-up weight—24,500 lbs) over a considerable distance.

Its armaments include combinations of air-to-air missiles, a variety of 250, 500 and 1,000 lb bombs, 20mm cannon and rockets.

Embarked on *Melbourne* with the Skyhawks are anti-submarine Tracker aircraft and Wessex helicopters.

The Grumman S2E Tracker (below left) is an all-weather, twin-engine aircraft. It can remain on patrol for up to 10 hours and each carries a crew of two pilots, an observer and an aircrewman.

The Tracker is fitted with electronic devices for submarine detection and can be armed with homing torpedoes or depth charges.

The Westland Wessex 31B helicopter, which doubles in a search and rescue role, is equipped with sonar for its anti-submarine duties and can also be armed with homing torpedoes or depth charges.

The Wessex carries a crew of two pilots, an observer and an aircrewman.

Training and support aircraft of the Royal Australian Navy include Iroquois utility and search and rescue helicopters, Macchi jet trainers and Dakota aircraft. The Dakotas are due to be phased out soon and Hawker Siddeley 748 training aircraft, the latter having been delivered in mid-1973.

• *Above left—Hawker Siddeley 748* • *Above right— Wessex Helicopters* • *Left—Macchi Jets* • *Right—Iroquois Helicopters*

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