

Figure 12: *HMAS Australia* at scuttling site from the stern(Photo: Brisbane Courier 24/4/1924:8).

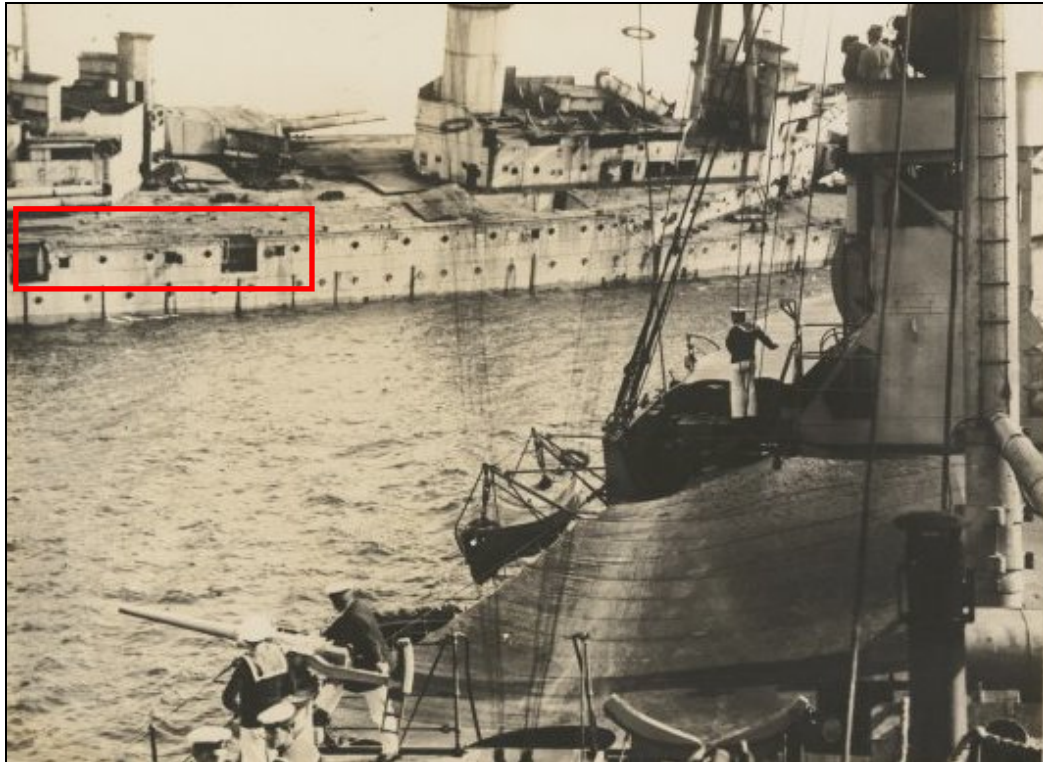


Figure 13: View of *HMAS Australia* during scuttling event showing scuttling holes on port side (Photo: pic-vn4655992v , Searle Collection, National Library of Australia Collection)

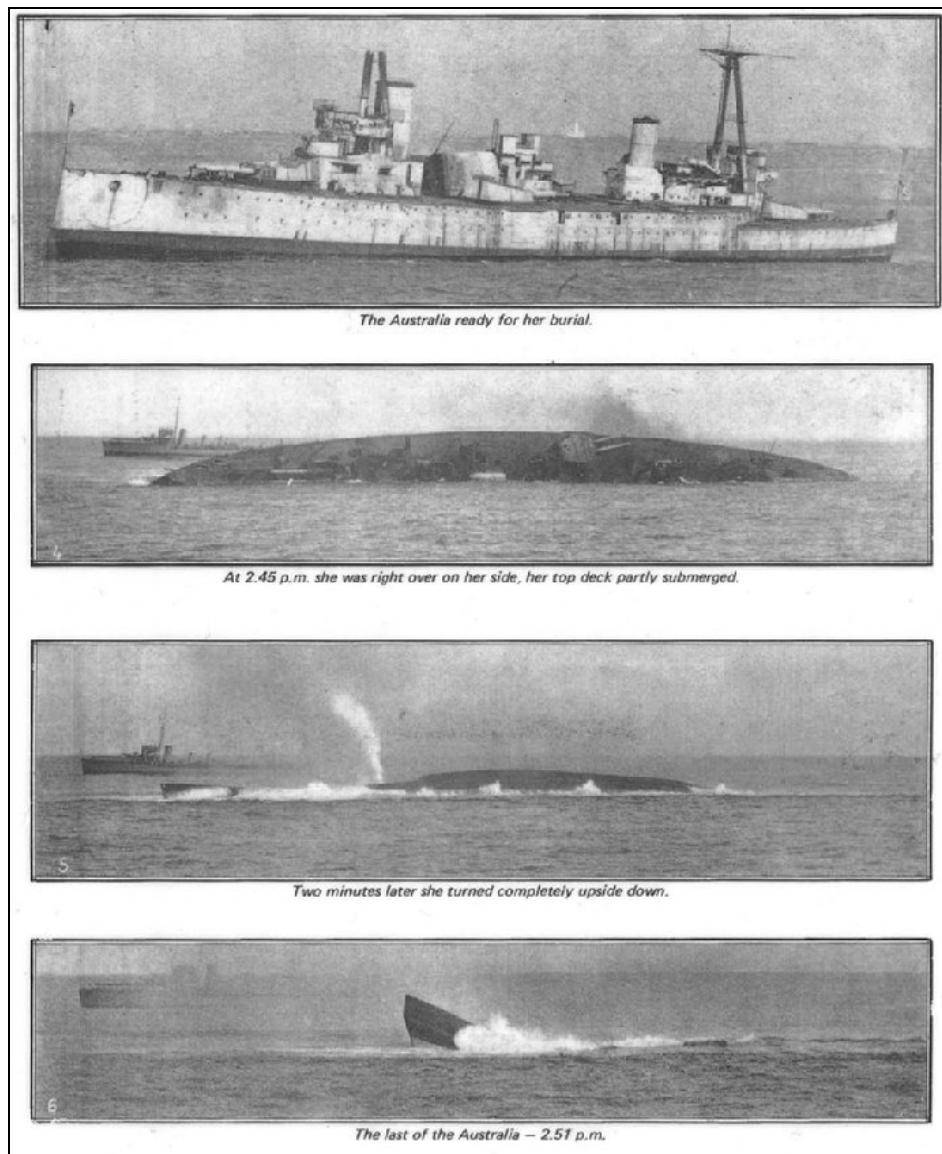


Figure 14: The final moments of *HMAS Australia* (Sydney Morning Herald 14/4/1924).

Memorials and Relics

Despite the sinking of the vessel, the memory of *HMAS Australia* lived on. Although out of sight in deep water, *HMAS Australia* was commemorated in many places around the country. Prior to the announcement of the vessel intended scuttling, the RAN had already begun removing £30 000 worth of valuable fixtures or reusable equipment for use in other ships, and a further £35 000 worth of fittings were donated to universities and technical colleges around Australia (Navy 2011). Many States also requested souvenirs of the vessel for their regions (Advertiser 23/11/1923:13). Local councils also requested mementoes of the vessel, for which purpose the government had already stockpiled many items removed during the dismantling process, including gun breech blocks and pictures framed with teak decking (Advertiser 20/4/1924:17; Brisbane Courier 25/6/1924:6; Western Argus 29/7/1924:18).

The Returned Services League (RSL) suggested that the conning tower be taken off the vessel to be placed at a prominent point around Sydney Harbour (Sydney

Morning Herald 11/1/1924:10; Advertiser 17/1/1924:13), a suggestion that was later used when the tripod tower from *HMAS Sydney* was placed as a memorial at Bradley's Head. Her steam siren was used for many years at the top of the Powerhouse (Sea Power Centre-Australia) in Canberra, and the Admiral's table is displayed in the Senate Opposition Party Room at Parliament House, Canberra (RAN 2011:9). Still other relics were removed to become permanent memorials such as one of the ships propellers which is currently on display at the Australian War Memorial in Canberra (see Figures 15, 16). Three 12 inch shells were placed on display at Garden Island, and another 30 were retained in the Naval Heritage Collection at Spectacle Island, along with tankards, drinking mugs, and trophies. The Ward-room dining table was retained in the Junior Officers Mess at *HMAS Kuttabul* (Commander Moore Shane, Naval Heritage Centre, pers. comms.).

Other institutions in Sydney hold historic relics from the vessel. The Australian National Maritime Museum holds brass and glass signal lanterns; a rating's straw hat (see Figures 17) a copper alloy souvenir dish, a wooden nut bowl and a timber gavel made from metal and timber (respectively) taken from *HMAS Australia* during dismantling, along with glass plate negatives of the scuttling event. The Australian War Memorial also holds an extensive collection of photographs and other memorabilia, including a torpedo tube and a replica scale model of the vessel (see Figures 18-23), propeller, and other ship's components. A full list of the relics held by the Australian War Memorial is included in Appendix One. All these collections offer the opportunity for further research potential on life aboard the vessel and its social significance to the wider community.



Figure 15: Outer port side propeller from *HMAS Australia* currently housed outside of the Australian War Memorial (Photo: Tim Smith 2007)



Figure 16: Twelve inch gun tampion – AWM Collection (Photo: B. Duncan)



Figure 17: Rating's hat, ANMM Collection (Photo Tim Smith)



Figure 18: *HMAS Australia* torpedo tube– AWM Collection (Photo: Brad Duncan)

***HMAS Australia* Historically Listed Location**

At the time of the sinking, the RAN recorded that *HMAS Australia* was scuttled in the area known as the ships graveyard, approximately 50km east of Sydney Heads, which was a well used naval dumping ground that often used to dispose of military hardware (Plunkett 2003; RAN 2011:09). The original location for the wreck was listed as 24 miles out to sea on a bearing of 095 degrees by several tugboats to her final resting place (Sydney Morning herald 14/4/1924). The official location listed in the Commonwealth Government Gazetteer was in 150 fathoms of water (270m) at 33°53' 25" S, 151° 46' 5" E (CGG 1924:17). Plunkett's (2003) database of wrecks dumped at sea lists its position as 33°53' 24" S, 151° 20' 42" E. Although the RAN recorded the general location of the area in which the *Australia* was scuttled, the exact location of its final resting place was not known, with significant discrepancies in the available sources.

Vessel Specifications

HMAS Australia carried eight breech loading 12 inch Mark X guns (which were the biggest guns ever fitted to an Australian warship) mounted in four BVIII twin turrets. Two fore and aft turrets were mounted in the bow and stern which were designated "A" and "X" respectively. The other two turrets were wing mounted amidships and staggered diagonally; with the port turret "P" mounted port of the centre funnel and "Q" turret to starboard and aft. Each wing turret had the ability to fire across the opposite beam. Secondary armament consisted of sixteen breech loading (BL) 4 inch Mark VII guns located in the superstructure, and two submerged 18 inch torpedo tubes, one on each side of the "X" Turret, with 12 torpedoes onboard. A 9ft (3m) rangefinder was equipped on the rear of the "A" turret roof, which could act as a secondary fire control centre for the entire main armament if the primary range fire centre was disabled (Cassells 2000: 16-17; Wikipedia 2011g).

Over time, *HMAS Australia* was modified with many additional features including a single quick fire (QF) 3 inch 20 cwt (76mm) anti-aircraft gun on a Mark II mount in March 1915, which had a maximum ceiling of 23 500 ft (7200m). The 4 inch guns were enclosed in casemates and fitted with blast shields in December 1915, and the two aft guns were also removed at this time. An extra 4 inch gun was added in 1917 as an anti-aircraft gun, and was mounted on the Mark II high angle mounting. The vessel was fitted with a centralised fire control director around 1915-16, along with an extra inch of armour around the amidships turrets following the Battle of Jutland. In 1920 the anti-aircraft guns were replaced with QF 4 inch Mark V guns on manually operated high-angle mounts (Cassells 2000: 16-17; Wikipedia 2011g).

Name:	<i>HMAS Australia</i>
Class:	Indefatigable
Type:	Battlecruiser
Displacement:	18,800 tons
Length:	590 feet (179.8m)
Beam:	80 feet (24.4m)
Draught:	30 feet 4 inches (9.2m)
Builder:	John Brown & Co Ltd, Clydebank, Glasgow, Scotland
Laid Down:	26 June 1910
Launched	25 October 1911
Completed:	21 June 1913
Horsepower:	44,000

Speed:	25 knots
Armament:	8 x 12" guns 14 x 4" guns 1 x 4" anti aircraft gun 1 x 3" anti aircraft gun 4 x 3 pdr gun 2 x 18" torpedo tubes (submerged broadside)
Armour:	6" armour belt amidships 4" armour belt bow and stern
Fuel:	3170 tons of coal (maximum) 840 tons of oil (maximum)

Table 1: Specifications of HMAS Australia (Source: Moore 1990: 95)



Figure 19: AWM Model of HMAS Australia at the Australian War Memorial, Canberra, showing the 'A' turret with 12 inch guns (Photo: Tim Smith 2007)

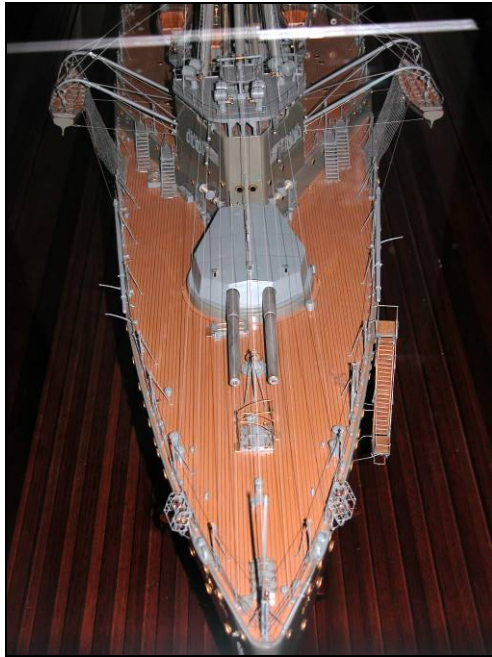


Figure 20: AWM Model showing stern of *HMAS Australia* (Photo: Tim Smith 2007)



Figure 21: AWM model of *HMAS Australia* showing bridge and forward range finding station (Photo: Tim Smith 2007)



Figure 22: AWM model of *HMAS Australia* showing aft control tower top (platform) and ladder (Photo: Tim Smith 2007)



Figure 23: Forward tripod control station on AWM Model (Photo: Tim Smith 2007)

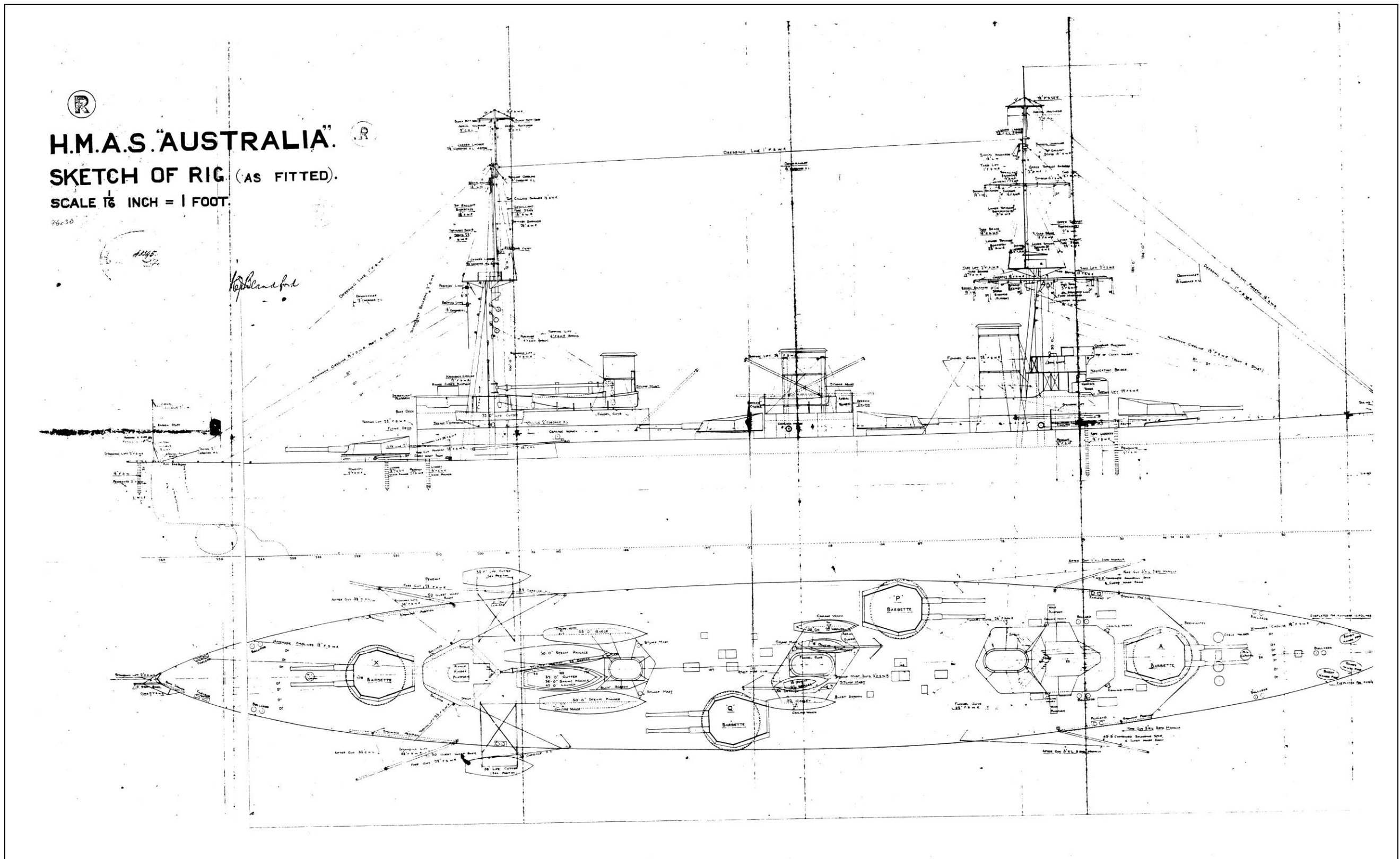


Figure 24: HMAS Australia deck and rig plan (Image: Beandford n.d., AWM Collection)

INSPECTION METHODOLOGY

Fugro Side-scan Sonar Survey (1990)

In 2002, the former Heritage Office became aware of the discovery of a wreck which was thought to be *HMAS Australia*. Tim Smith, (now Deputy Director of the Heritage Branch) attended a conference in Fremantle where Fugro Australia Pty Ltd presented on the past discovery of a sizable unknown wreck off Sydney in 1990. At the time, it was suggested by one person aboard the survey ship that it may be *HMAS Australia*. Smith requested further data from Fugro and was given an image of bathymetric data for where the ship lay, sourced from the company’s archives in Seattle, Washington, USA..

The wreck had been accidentally found between March–April 1990 during a surface side-scan remote sensing survey undertaken by the *M/V Moana Wave 1* as part of the Pacific Rim West Submarine Telecommunications Cable Route Survey Project by Fugro Seafloor Surveys International Inc. The side scan sonar survey had used 500m transect swaths which accidentally located a 590 ft (177m) long vessel which lay near the edge of the Continental Shelf in 390m of water, along with an extensive debris field scattered up to 600m to the south eastern quadrant from the main wreck site. The sidescan image also revealed that the vessel appears to have impacted on the seabed above the main wreck site, and has slid approximately 400m down the slope to its current location (see Figures 25-28). The location given for the Fugro survey location for the wreck was:

33°51' 54.21" S, 151° 44' 25.11" E. (Datum: WGS 84, Projection: Transverse Mercator).

The new accurate position for the wreck placed it away from previous historically recorded positions and at almost double the water depth.

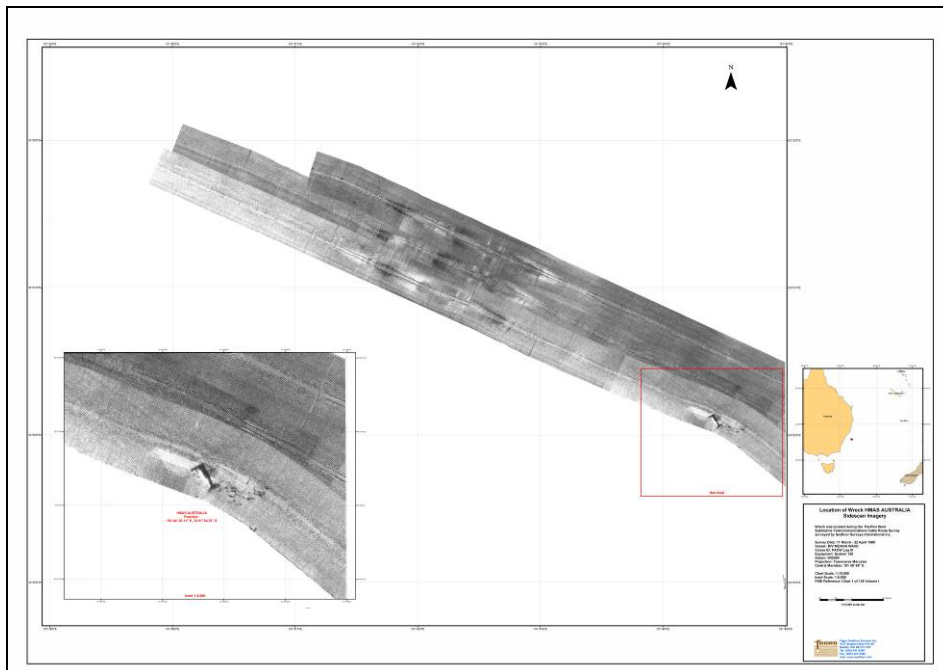


Figure 25: Location of the side scan survey of the *HMAS Australia* site (Image: Fugro Seafloor Survey Inc.)

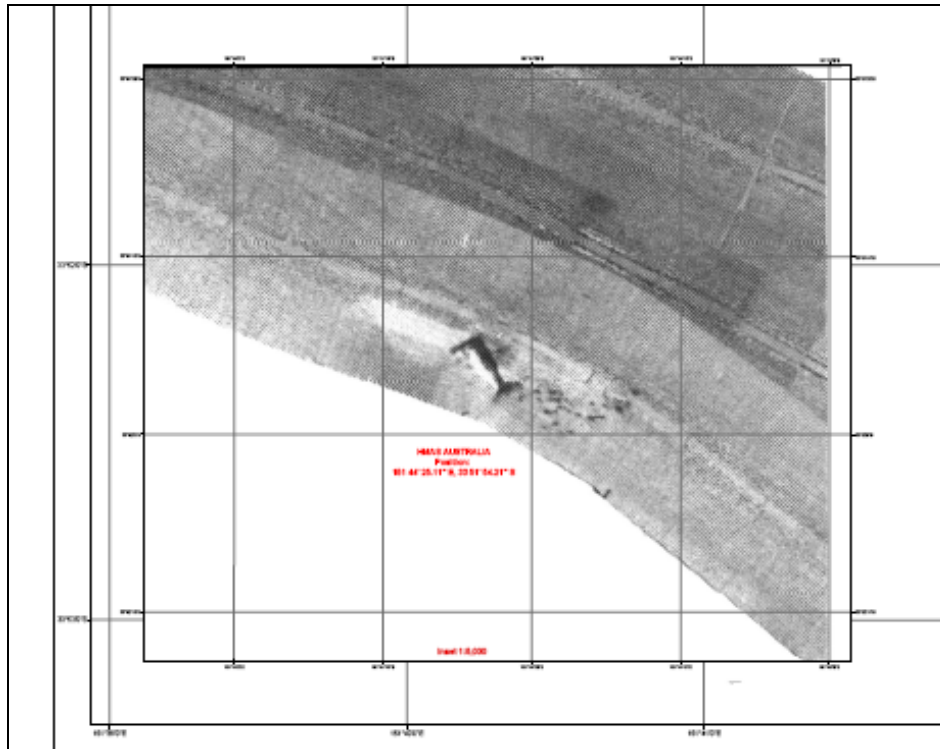


Figure 26: Side scan image of *HMAS Australia* and associated debris field laying on the seafloor (Image: Fugro Seafloor Survey Inc.)

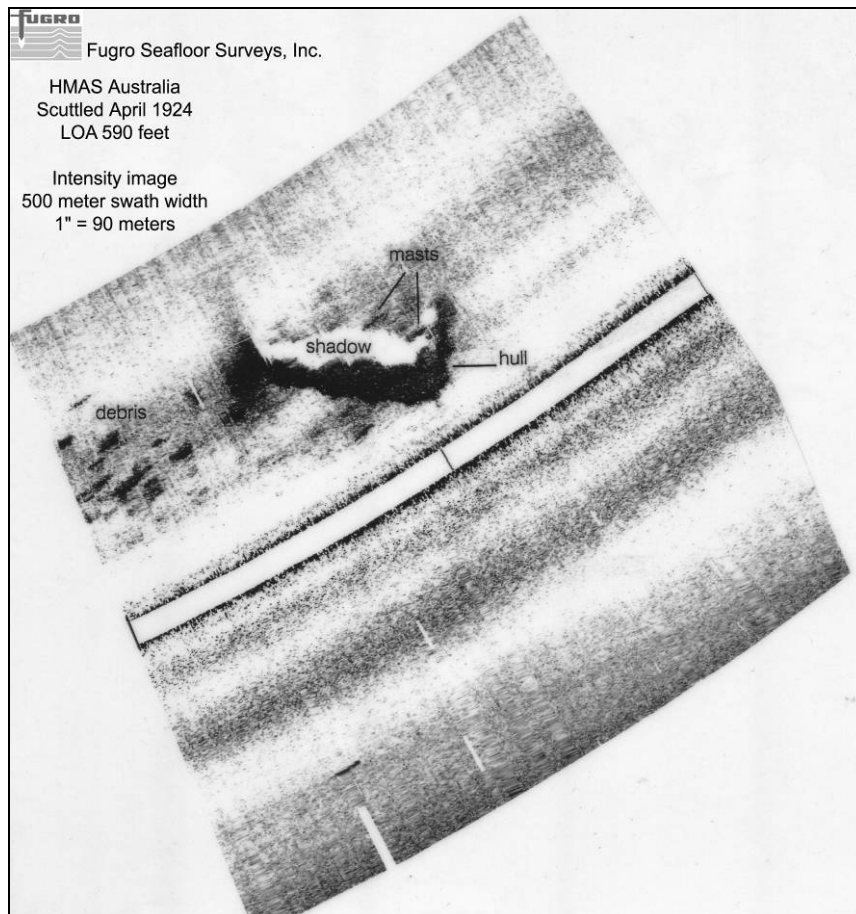


Figure 27: Side scan survey of the *HMAS Australia* wreck site and associated debris field site (Image: Fugro Seafloor Survey Inc.)

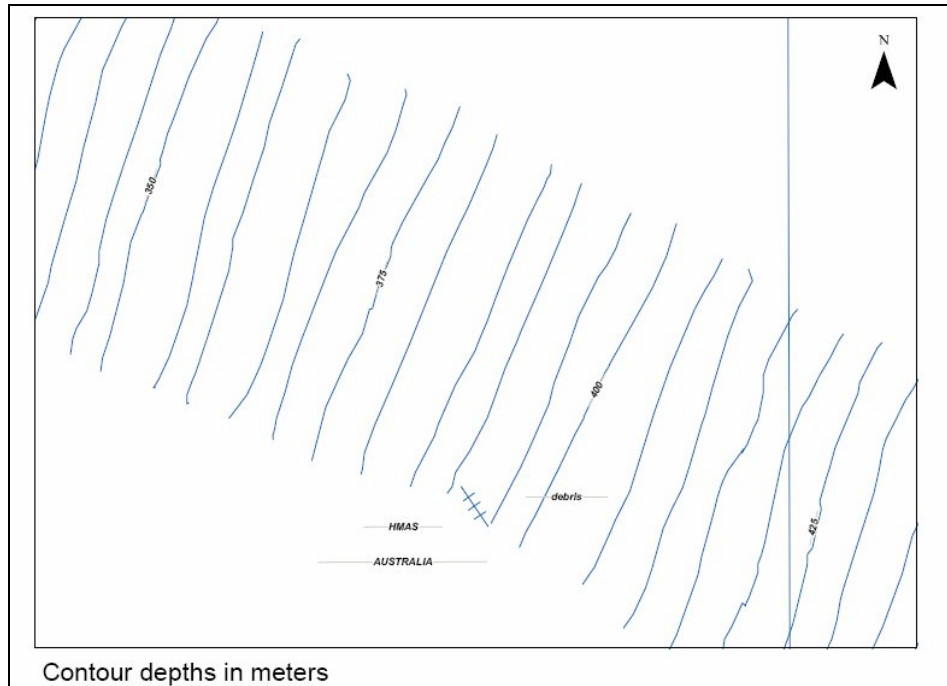


Figure 28: Bathymetry chart for *HMAS Australia* site (Image: Fugro Seafloor Survey Inc.)

Background to ROV Inspection

A search of the NSW Shipwreck database revealed that, based on the size and location of the wreck, the only vessel known to have sunk in this area was *HMAS Australia*. Due to the extreme depth of the wreck (390m), the vessel lay well outside the limits of technical diving and a Remotely Operated Vehicle (ROV) unit would be required to further investigate the site.

On 7 February 2007, Deputy Director Tim Smith approached the (then) Chief of Navy, Vice Admiral Russ Shalders (AO CSC RAN) and Rear Admiral Daffyd Thomas (Maritime Commander) aboard *HMAS Newcastle* during a commemorative service to honour the loss of the Japanese midget submarine *M24* in World War Two at the wreck. It was suggested that the RAN assist in the first ever filming of the wreck using an ROV. Although the Navy supported the project in principle, at the time they did not have the equipment which could reach the depths at which the wreck lay.

An opportunity arose on 18 March 2007, when a United States Navy (USN) deep sea ROV was contacted by the RAN to recover a downed Blackhawk helicopter lost in the sea near Fiji. At the request of the Heritage Office, the RAN agreed to direct the *USN ROV CURV 21* (see Figure 29) aboard the platform *MV Seahorse Standard* (Defence Maritime Services - DMS) to visit the site to undertake a photographic survey of the wreck after they had finished the operations in Fiji. The *MV Seahorse Standard* was equipped with a 100 ton crane to launch the ROV.

The *USN CURV 21* is an ROV capable of reaching depths of 20 000ft (6000m). The system uses a fibre optic cable and a shared handling system which can switch between side scan sonar and ROV operations. The vehicle is equipped with side scan sonar for target location and pinger direction; high resolution digital stills camera; and black/white and colour television cameras. Specifications of this unit are included in Appendix Two.

On 18 March 2007, the first ever visual inspection of the site was undertaken, but, as the search vessel was in transit from Fiji and had not yet cleared Australian Customs, no members of the Heritage Office maritime archaeology programs team were permitted aboard. The vessel spent several hours onsite and captured video footage and stills camera images of the wreck site. Approximately 10 hours of footage was released by the RAN to the Heritage Office on 27 March 2007 to be refined for television broadcasting. A significant portion of this footage was not specific to the wreck, with a large amount taken on the way down to the wreck, and of the vehicle navigating along the sandy sea floor.



Figure 29: ROV USN CURV 21 being launched for a similar photographic survey of the M24 Japanese midget submarine (Photo: David Nutley 2007)

Survey Limitations

Several factors limited the extent of the survey area and the effectiveness of the inspection.

- That maritime archaeologists were not present during the survey, and hence could not direct survey operations or inspect targets of interest. As such, the ROV interrogation was not an archaeologically controlled operation.
- The area lies in the region of the East Australian Current (EAC), a strong boundary current which runs from Queensland to Tasmania and results in strong offshore seawater movement from north to south (and vice versa) with sporadic strong localised eddies. The current is strongest during the summer months, and is characterised by large scale meso-eddies dominating the flow (Ridgway and Hill 2009: 1, 5).
- The current's presence led to difficulty in manoeuvring the ROV onsite due to strong lateral currents and localised eddies, and also stirred up seabed sediments obscuring vision. The current also supports increased prolific marine

life, which was observed during the footage on site, and small microorganisms (probably plankton) often obscured video coverage as they moved across the screen (with an appearance not unlike small hot cinders darting across the screen).

- The extreme depth of the wreck (up to 400m) limited the technology that could be used to inspect the wreck. There was a limited window of availability for use of the CURV ROV as the unit was assigned to other commitments, which resulted in approximately 10 hours of onsite video coverage.
- Due to heavy fouling by fishing nets, the stern area of the vessel was not investigated in great detail due to the danger of potential snagging hazards for the ROV.

It should be noted that:

- most of the video footage covers the starboard side of the vessel, although some footage was recorded immediately around the port sides of the bow and stern;
- as there are gaps between coverage in the video footage provided to the Heritage Branch, it was sometimes not possible to estimate the exact location of some structural features observed in the film, estimate their relative locations to other features or give exact distances between features;
- the majority of the vast debris field (up to 600m long) which was identified during the 1990 survey was not inspected due to time restrictions on site and strong currents;
- as the ROV was an American vessel, all measurements taken on site were recorded in feet, and:
- the video data captured was not in high definition digital format, which has limited subsequent broadcasting opportunities.

RESULTS / INTERPRETATION

Site Description and Identification of Wreck Features

The wreck consists of a completely intact upside down hull, with the deck resting on the seabed. The bow section lies on the seabed with a slight list (of less than 2 degrees) to the starboard side. The amidships section of the hull is slightly elevated off the seabed (in some places 1-2m) and supported by the vessel's crushed superstructure. The stern area has sustained some buckling damage from descent collision with the seabed, but is substantially intact and rests on the seabed. An extensive debris field is evident on the starboard side of the wreck. Several features have confirmed the identity of the vessel as *HMAS Australia*, outlined below.

Intact Hull

- Bow Section and Starboard Side Features: The stem post of the wreck is very fine in profile, and exhibits a pronounced turn to aft approximately 2m vertically from the keel. The stem post showed signs of fresh corrosion and scraping, which might be consistent with damage attributed to commercial fishing nets and ropes scraping over the hull (see Figures 30, 31). A mooring port is visible approximately 1 metre aft of the bow at deck level on the port side.
- Two large hawseholes are located on the starboard side approximately 2-3m aft of the stem post (see Figure 32). No mooring port was visible on this side as it appears that this area is partially buried in shallow silt. A distinct band of oysters and/or barnacles were evident still adhering along the former waterline edge in this area of the bow.
- The first of six scuttles were sighted approximately 8m aft of the last hawsehole, with the scuttles spaced approximately 2 m apart along the hull side approx 0.5m below the deck. A square escape hatch was visible approximately 1m to aft, with what appears to be a fairlead on the deck above, followed by another scuttle (see Figure 33).
- Two mounts for an antisubmarine net or boarding/ landing stage support were noted approx 2m from the scuttle, followed by an undersized and two regular scuttles (see Figure 34).
- Below the last scuttle, the end of a hollow cylindrical iron/steel mast with an internal ladder was observed protruding approximately 3m horizontally from underneath the hull at an angle of approximately 45 degrees towards the bow. This mast is probably the vertical mast from the forward mast tripod (see Figure 35).
- Rusticles were evident adhering to the deck edge and on some sections of plating in this area. Large sections of fresh iron corrosion were evident on the hull plating approximately 3m above this location, suggesting that there may have been recent damage to this section of the hull.



Figure 30: Photomosaic of starboard stem and keel of bow (Photomosaic: Brad. Duncan after DMS 2007)

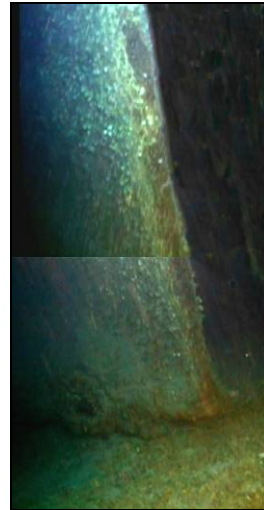


Figure 31: Photomosaic view of port bow and mooring port, showing recent corrosion probably caused by net abrasion (Photomosaic: Brad Duncan after DMS 2007)

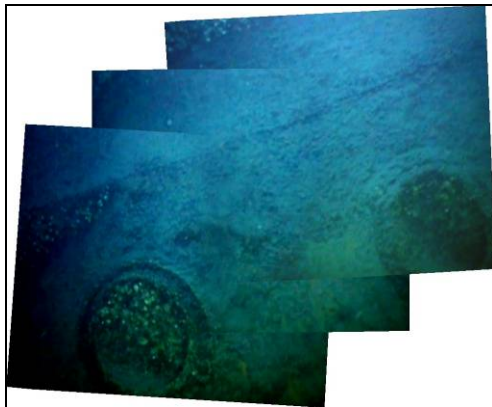


Figure 32: Hawse pipe in bow section (Photomosaic: Brad Duncan after DMS 2007)



Figure 33: Starboard deck edge with scuttles and escape hatches, fairlead and rusticles (Photo: DMS 2007)

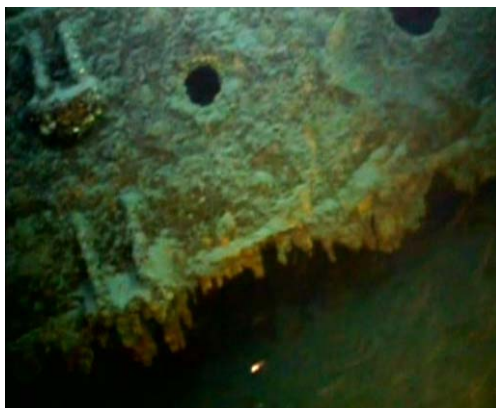


Figure 34: Landing stage bracket supports, starboard side (Photo: DMS 2007)



Figure 35: Part of forehead tripod mast trapped under the hull on starboard side (Photo: DMS 2007)

- Stern Scuttling Holes: A large rectangular shaped hole approximately two- three metres square was evident cut at deck level in the hull at a depth of 1315 ft (394m), with two scuttles evident approximately 1m directly above and to the right side of the opening (see Figure 36). A progression of a scuttle, and an escape

hatch followed by two more scuttles were evenly spaced just below the deck level on the right side of the inverted hull. The large hole is consistent with one of two scuttling holes known to have been cut between the P and Q gun mounts (located amidships) which were cut into the hull and deck to allow air to escape from the hull during scuttling were observed. Identification of these features in a contemporary photograph of the scuttling show that the scuttling hole is located just aft of the amidships funnel. A section of overlapping/protruding hull plates were observed just aft of this area approximately 2m higher on the hull, as were several rusticles and freshly rusted areas at a depth of 1316ft (395m).

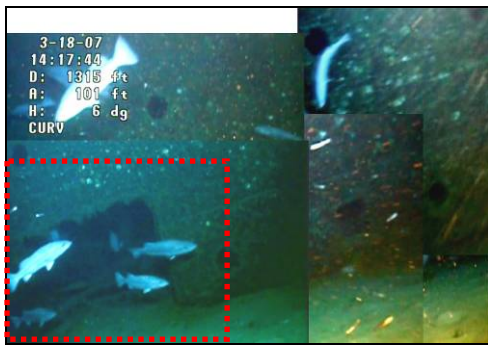


Figure 36: Scuttling hole in hull at deck level (Photomosaic by Brad Duncan after DMS 2007)

- Stern Area – Torpedo Tube/ Cruiser Stern: A section of bilge keel extends longitudinally for at least 10-15m towards the stern on the hull. A section of possible stern tubing is also evident on the inner side of this feature at the torpedo tube end, probably from the inner starboard propeller (see Figures 37, 38).
- A small attached section of iron on the port stern side at 1298ft (389m) may be the remains of the port propeller stay (see Figures 39, 40). Sections of what appears to be a collapsed walkway (evidenced by what appears to be stanchioned handrails) lie further aft close to the edge of the hull (see Figure 41).
- This area lies close to a large rectangular aperture located near the rear of the cruiser stern and approximately 1m below the stern extremity of the keel/ stern tube (at a depth of 1279ft – 384m), which reduces in size as it penetrates perpendicularly (to the keel) into the hull. The location and appearance of this feature is consistent with the aft submerged torpedo launch tube (see Figure 42, 43). This area is heavily entangled with demersal (bottom trawling) nets.

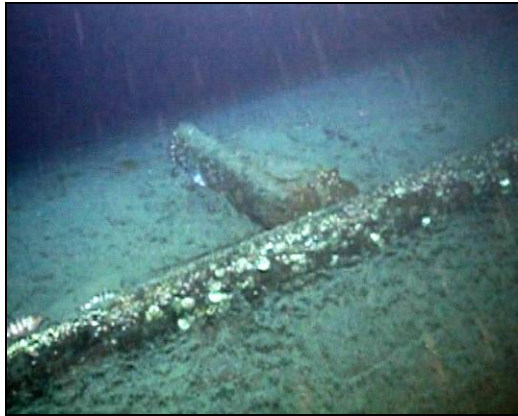


Figure 37: A section of bilge on the aft section of the wreck (Photo: DMS 2007)

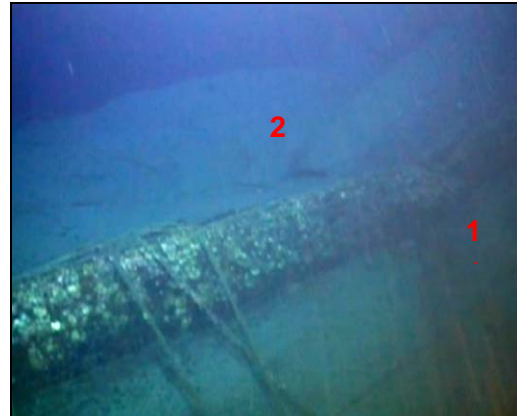


Figure 38: Possible bilge keel for propeller at stern end. Note broken/ creased section (1) and a stern tube (2) (Photo: DMS 2007)



Figure 39: Port propeller stay (Photo: DMS 2007)



Figure 40: Close-up view of port propeller stay (Photo: DMS 2007)



Figure 41: Unidentified piping wreckage alongside starboard hull (Photo: DMS 2007)