In June, maritime archaeologists affiliated with the Australian National Maritime Museum (ANMM) and the Silentworld Foundation conducted a magnetometer survey of Berrys Bay on Sydney Harbour’s North Shore. The primary focus of the survey was to locate remnants of the Royal Australian Navy’s first training vessel, HMAS Tingira.

Launched in April 1866 as the composite-hulled clipper Sobraon, the ship operated between Great Britain and Australia between 1866 and 1890.
President Report

Welcome to the second newsletter of 2016 (covering April-June). This quarter saw AIMA represented at UNESCO in Paris, advocating for diving regulations in a national workshop, and continuing to advocate for the adoption of the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage by the Australian Government. We have extended our support to the Asia-Pacific Regional Conference on Underwater Cultural Heritage, being held in Hong Kong in 2017, by committing to a Bronze level sponsorship. Also AIMA Council adopted a process for effective email decision making, formalising what was previously a fair but ad hoc process. Other news includes the call for submissions for the 2016 AIMA scholarship. Some of these topics are further detailed below. Please enjoy another great newsletter edited by Paddy Waterson.

1. Safe Work Australia workshop on diving regulations

On Friday 15 April 2016, Safe Work Australia (SWA) hosted a workshop in Adelaide as part of its review of the model WHS regulations for diving work. Amer Khan and I attended the workshop on behalf of AIMA. To recap, Amer is the chairperson of the newly formed AIMA diving work group. The workshop began with a review of public responses to an earlier questionnaire stage (which AIMA also contributed to). The participants then divided into groups and discussed possible improvements to the regulations which included stronger reliance on risk assessments, minimum competencies for divers and categories of diving work.

The workshop was in part based on an acknowledgment from SWA that many stakeholders find the existing regulations unclear. The workshop provided the opportunity to meet other stakeholders, and for the regulations to be discussed in an open forum.

2. Election commitment from Labor Party: UNESCO Convention and changes to the Historic Shipwrecks Act

On 30 May 2016, in the lead up to the Federal election, I wrote to Mark Butler Shadow Minister for Environment, Climate Change and Water [including Heritage] to secure an election commitment from the Federal Labor Party, that if it won government it would in its first term of Office:

• Implement the recommendations to the 2009 review of the Historic Shipwrecks Act
• Ratify the 2001 UNESCO Convention on the Protection Underwater Cultural Heritage.

This request followed previous correspondence which was particularly encouraging, including a letter written by Mark Butler to Minister Hunt on 27 October 2015 seeking his views on the matter. Mark Butler’s office has not responded to this recent correspondence.

3. AIMA representation at UNESCO Paris meetings of the States Parties and the Scientific and Technical Advisory Board

To recall, I made a decision to not attend the UNESCO meetings in Paris in May this year. Dr Wendy Van Duivenvoorde was attending as a representative of UNITWIN, and being both an AIMA Council member and the previous AIMA President, she was well placed to represent AIMA. This provided AIMA appropriate representation without my travel expenses. Thank you Wendy for taking on these extra duties on AIMA’s behalf. Wendy’s report is provided below.

Regards
David Steinberg
President

Dr Wendy Van Duivenvoorde’s Report on UNESCO Paris Meetings:

As an AIMA representative, I attended the 2016 States Parties and 7th meeting of the Scientific and Technical Advisory Body (STAB) meetings of the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage. As in previous years, we joined other significant NGOs such as the NAS, SHA, ACUA, ICUCH, and JNACP at the UNESCO Headquarters in Paris.

On Monday 9 May, UNESCO hosted as Exchange Session for Permanent Delegations on Underwater Cultural Heritage. The session set out to inspire discussions on the future
of the 2001 Convention and a new strategies. Its main focus was on two lectures detailing the results of STAB missions to Madagascar and Panama. Reports of both missions can be downloaded from the UNESCO website and are certainly worth a read:

**STAB Mission to Madagascar**


**STAB Mission to Panama**


Other presentations in this session featured underwater cultural heritage projects such as the Heritage for Peace and Reconciliation Project on Underwater Cultural Heritage from World War I or the effects of global warming on underwater cultural heritage sites.

In the afternoon, the States Parties to the 2001 Convention met, while the accredited NGOs attended their meeting as observers. The most recent countries to ratify the convention are Saudi Arabia and Guatemala (November 2015), Ghana (January 2016), and Guinea-Bissau (March 2016). Then, Germany and the Netherlands are close to ratification.

It was noted that several countries which have ratified the 2001 Convention are now looking for support and training to increase capacity for implementation. During the discussion with representatives, it became clear that there is an important distinction between training and capacity building, and that training alone would not increase capacity without continuing support for maritime archaeologist posts at a national level.

Tuesday, 10 May, was entirely dedicated to the seventh STAB meeting. The meeting was dominated by detailed reports on the two aforementioned STAB missions to Madagascar and Panama, which left little time for other business and input on issues from the accredited NGOs. Most importantly for AIMA: Asia was mentioned as a region of interest and focus in terms of capacity building and UCH activities—a region where AIMA has historically already provided much support and advice, and plays a significant role if it comes to outreach.

Last, the STAB requested the NGOs and, thus, AIMA to identify best-practice projects run and fill out a new form to nominate such projects for special consideration and promotion by STAB. The link can be found at:

Nord Survey
In late 2015 I was contacted by the Australian Maritime College, based in Launceston, about using their Autonomous Underwater Vehicle (AUV) for a demonstration on a shipwreck site. The unit is designed to be programmed for recording ‘missions’ after which it returns to the surface, sends it data, and can then be reprogrammed for further work. The AUV is a torpedo shaped vehicle of about 3 metres in length, which can be deployed off a relatively small vessel. The unit can carry out a wide range of recording techniques such as side-scan sonar, depth soundings, photography, water sampling, current measurement etc., according to how it is configured.

In April 2016 a day’s recording work was undertaken on the wreck of the steamship Nord (1915) lying in 40 meters of water close to cliffs on the eastern side of the Tasman Peninsula. A small shark-cat was supplied by the locally based Eaglehawk Dive Centre and this was sufficient for the successful deployment and retrieval of the AUV. The actual missions of the AUV were undertaken in 15 minute sweeps of the site, and these were varied to test the capabilities. One issue that did arise was that a high reef lying near the wreck would sometimes cause the AUV to abort its mission and automatically rise to the surface to avoid any possible collisions. The AUV does not have a highly sophisticated photographic module at the moment, and is limited with this type of recording. However, the bathymetry data for the wreck site was very good, as are the side-scan images.
The World’s Oldest Beer

The Sydney Cove (1797) shipwreck is the project that never dies. During last year the head of conservation at the Queen Victoria Museum, David Thurrowgood, began investigating the alcohol samples that were recovered from some of the intact bottles found on the wreck site. The upshot of the work carried out on the samples was that the Australian Wine Research Institute, based at Adelaide, was able to regrow a sample of what they believe is the original yeast from one of the bottles. Using this yeast as an ingredient, examples of what they are claiming as the ‘World’s Oldest Beer’ has now been produced. The story was examined in depth by the ABC’s Catalyst program and a 20 minute segment on the work was screened on 14 June (the story can still be seen on the ABC’s website). Scientific reports on the work have been submitted for publication and I will advise when these become available.

East Coasts Shipwrecks

The storms that battered Queensland and New South Wales during June 2016 also resulted in wide-spread flooding and coastal erosion in Tasmania. A number of wrecks that we already know of were exposed — with great interest from the general public. These included a ‘new’ site at what is known as the Friendly Beaches, at the northern end of the Freycinet Peninsula.

A piece of wreckage from this site, measuring some 8 metres by 2.5 metres, was subsequently washed approximately one kilometre north by another storm and now lies high on the beach. From historical reports this wreck was believed to be that of the Viola, a coal-carrying barque wrecked in 1857 during a voyage from Newcastle (NSW) to Hobart. The vessel was built at Newfoundland, Canada, in 1843 and timber samples analysed by ex-CSIRO expert Jugo Illic confirmed that they were Yellow Birch and Spruce, both found in North America. My colleague Peter Rigozzi also produced an excellent 3D model of the wreckage using PhotoScan software, which has now appeared on various facebook pages – including AIMA’s.

Netherby Commemoration

In July 1866 the immigrant ship Netherby went aground at King Island, Bass Strait, but miraculously there were no lives lost from the over 500 passengers and crew on board. Many of the passengers ended up settling in Victoria, where some of them founded a town named after the ship. The King Island Historical Society have previously held commemorative events and museum displays connected with the wrecks of the Cataraqui (1845) and Brahmin (1854), and a similar exercise has now been undertaken for the Netherby. Funding was provided through the Historic Shipwrecks Program to help with the display, which includes the original ship’s bell on loan from the Netherby Primary School in Victoria. A number of descendants of the survivors also visited King Island over three days in July 2016, to attend various events on the island as part of the commemoration. These types of community-run projects are tremendously valuable exercises and there will hopefully be the opportunity to fund more of these in the future.

Mike Nash
Tasmanian Parks and Wildlife Service

Port Fairy fieldwork

From 11–20 April 2016, Heritage Victoria’s maritime archaeologists and volunteers spent eight days in the field in and around the Portland/Port Fairy/Warrnambool area. The areas around Portland and Port Fairy are significant in the development of the state of Victoria and many very early wrecks rest around this coastline. The main focus of this year’s fieldwork was to conduct site inspections and confirm coordinates for some of Victoria’s significant wrecks. Over the course of the fieldwork, we attempted to inspect the 11 wrecks stretched along Port Fairy’s East Beach. These include Thistle, Balmoral, Lady Mary Pelham, Socrates, Diana, Sir John Byng, Essington and Lydia and three unidentified wrecks. However, despite our efforts from shore and from boat, all the wrecks appear to be currently covered over—and protected—by the highly mobile sand environment of Port Fairy Bay. During the course of the fieldwork, however, we discovered some contradictory coordinates for Sir John Byng, Essington and Lady Mary Pelham so we are eagerly waiting for these wrecks to re-emerge from the sand to confirm their location. Some keen locals, lucky enough to live along the beach front, have volunteered to keep us informed when the wrecks are next exposed.

We also inspected the Historic Shipwreck trail markers and plinths between Warrnambool and Port Campbell. Although plinths at Peterborough and Port Campbell were in good condition, it is sad to report the majority of the plinths at the western end do not exist anymore. We are working towards inspecting the remaining parts of the trail from Port Campbell through to Torquay and looking at ways we can refresh the trail.

We also attempted to inspect Victoria’s earliest located shipwreck, Isabella at Cape Nelson, west of Portland but we encountered bad weather and, once again, coordinate discrepancies. We managed four dives at two locations but no sign of any of the Isabella’s iron ballast could be located. We did spend two days at the wreck site of the New Zealander, which was wrecked at the base of the Portland lighthouse.
A large three masted immigrant passenger vessel, the New Zealander had arrived in Portland in 1853 with 465 assisted passengers and had undergone an extensive refit. But on the 16th December, the ship was mysteriously found ablaze at 4 in the morning. It was towed to the beach at Whalers Bluff and continued to burn. One theory at the time was that the cook set the ship alight because the crew had wanted to go ashore, while another theory was spontaneous combustion of the coal cargo, fuelled by new varnish which kept the hull burning for 2 to 3 weeks. The wreck was visible for many years above the water at the foot of the lighthouse.

MAAV completed a detailed report on the wreck site in 1980 and it was officially declared an historic wreck in 1989. The wreck has undergone period inspections since then with the most recent site inspection by Heritage Victoria in 2008. The wreck lies approximately 100 metres from shore, on a sandy seabed in roughly 3 metres of water. The wreck appears to not have deteriorated substantially over the 8 years since the last inspection. The majority of the port side hull was visible, including frames with inner and outer planking present and yellow metal sheathing still attached. Large bolts were visible where the planking had eroded away near the remaining tops of the frames. Only small sections of the starboard side frames were visible, with any planking remaining covered by sand. The keel was completely covered over. Six iron knees were visible near the port side.

Over two inspection days, over 500 images were collected for 3D photogrammetry models and site documentation. GPS coordinates for the bow and stern were collected for ongoing GIS polygon work. Technical fieldwork report is in progress.

During periods of bad weather, we moved indoors to work on 3D photogrammetry models of Victorian shipwreck artefacts. We spent one afternoon at the Flagstaff Hill Museum with the Loch Ard Minton peacock. We took 1000s of images but so far processing them into a 3D model has proved unsuccessful, due in part to the reflective nature of the peacock and the lighting.
We are looking at ways to work around the problems and will try again later in the year.

Acknowledgements
This project was generously supported by the Commonwealth Department of the Environment. Heritage Victoria would also like to thank Peter Abbott (Flagstaff Hill Maritime Museum) for providing access to, and assistance with, the Loch Ard Minton Peacock.

As always we particularly want to acknowledge the group of volunteers without whom we would not have been able to complete this season of fieldwork: Enrique Aragon, Cameron Mackay, Adelle Scott and Jane Trotta.

From the deep: revelations of the sea

For three days in June, a first class dining saloon from a nineteenth century passenger sailing vessel came to life at the Mission to Seafarers in Melbourne.

Supported with funding from the Commonwealth Department of the Environment and with a purpose built mount designed by Thylacine Design, the table excavated from the City of Launceston finally hosted a dinner party using artefacts from seven Victorian shipwrecks. The wrecks of the Fiji, Loch Ard, Sacramento, Clonmel, Light of the Age and SS Cheviot all contributed. The aim was to create the feeling of the dining saloon underwater, with the diners having just got up and left the party half way through.

The table was set up at the Mission to Seafarers for a photo shoot as Heritage Victoria is partnering with Google Cultural Institute to bring the installation to life in the digital world. We are currently working on uploading the images and text to launch the exhibition within the next few months.

We are also working on scouting locations to display the dining saloon. The table mount has been specifically designed to enable the table to be permanently supported by stainless steel and capable of being moved to various locations. We are targeting places such as ‘pop-up’ shop windows in locations with high pedestrian traffic. It is hoped that this will bring the Victorian maritime archaeology collection to a new audience, an audience who may not seek out traditional maritime museum displays or who may not be aware of the state’s shipwreck heritage.
Upcoming fieldwork: Swan Island shipwreck inspections

We are working on gaining access to Swan Island for a few days during the week of 8-12 August to inspect shipwrecks that the maritime unit hasn’t visited for over twenty years. These include Will o’ the Wisp, Countess of Hopetoun and an unidentified wreck near the Swan Island beacon. We are also hoping to visit the J-3 submarine and the wreck lying next to it, S.F. Hersey.

The Heritage Victoria Team

South Australia

1. Community consultation completed for South Australia’s Historic Shipwreck Act amendments. Amendments to the South Australian Historic Shipwrecks Act 1981 have been proposed to update compliance provisions that have not been updated since the Act first came into operation in 1981. It is anticipated that increasing penalty amounts and the introduction of infringement notices will help deter illegal activity in relation to historic shipwrecks and associated protected zones. Community consultation about the proposed changes concluded on 24 June 2016 after inviting public feedback through the Government’s yourSay.gov.au website, newspaper advertisement, DEWNR blog and twitter channels, and letters to key stakeholders. Community feedback has been overwhelmingly supportive of the proposed changes. Progression of the Bill to amend the Act is continuing.
A ‘shiver’ of sharks, a shipwreck and an occasional seal – 3D mapping the Lady Darling.

New South Wales hosts a wide variety of historic shipwreck sites. These range from large, fully exposed and intact hulls to smaller, largely disarticulated, dispersed, and buried structural components and artefacts. The environments in which these sites exist also differ significantly in terms of seabed composition, water depth and water clarity.

Many historic shipwrecks in New South Wales waters are located at depths near or in excess of 20 metres (66 feet) and are characterised by moderate-to-low visibility conditions. These attributes in turn often negatively influence working conditions, particularly the amount of time available to execute an adequately comprehensive documentation program.

As Dr James Hunter recently discussed in his blog Meanderings in the Murk: Diving on the wreck of the Centennial (https://anmm.wordpress.com/2016/07/29/meanderings-in-the-murk-diving-on-the-wreck-of-the-centennial/ accessed 26 August 2016) the use of 3D mapping software such as AgiSoft Photoscan and small compact underwater digital cameras such as the GoPro to document and analyse submerged archaeological sites is an emerging field of research in maritime archaeology.

Although digital photogrammetry has rapidly evolved into a relatively inexpensive and efficient means of documenting submerged shipwreck sites, it is still fraught with issues and in-water survey methods still need significant refinement in order to produce the most time and cost efficient results. In an effort to test the efficiency of these methods as a mapping tool maritime archaeologists at the museum’s Maritime Archaeology Research Centre (MARC) and the Silentworld Foundation have selected five shipwrecks in New South Wales waters with diverse site and environmental profiles.

These include the composite-hulled sailing ship Centurion (1887), the paddle steamer Herald (1884), the screw steamship Royal Shepherd (1890), the iron-hulled steamship Centennial (1889) and the iron-hulled steamship SS Lady Darling, which was wrecked south of Montague Island off Narooma, New South Wales, in 1880.

The Lady Darling

The SS Lady Darling was a single screw, iron-hulled, wooden decked, three-masted, brigantine rigged, auxiliary steamer. It was built by W.H. Potter and Company in Liverpool, England in 1863 and launched in July 1864. The steamer originally displaced 649 tons (net) and was 73.03m (189.7ft) long, had a breadth of 8.83m (28.10ft) and was powered by a 100 horsepower, twin cylinder steam engine. (The Lloyds Register of British Shipping, 1865)

It had an elliptical counter stern, four iron bulkheads and was strengthened along its lower hull with concrete. It was originally registered in Liverpool, England (Liverpool 426/1864), its official number was 50499 and having been built under a Special Survey was classified A1 by Lloyds in 1864 (Smith and Nutley, 1998).
The vessel arrived in Melbourne in January 1865 and its registry was transferred shortly afterwards to Melbourne in 1866 (Melbourne 9/1866) with its owner recorded as Charles Edward Bright (Bright Brothers and Company) of Melbourne. In November 1866 the vessel was laid upon the Government patent Slip where the hull was painted, its bottom coated with Borthwick’s Patent Anti-fouling Composition and its compass adjusted.

The vessel then commenced operations as a collier (general cargo carrier) and following a refit, a coastal passenger vessel on the Melbourne to Newcastle via Sydney route. Given the tough competition of the route, the vessel was not a success and was subsequently sent back to England. Lady Darling’s registry was transferred back to Tyndall and Heywood Bright, of Liverpool, in 1869. (Smith and Nutley, 1998).

Back in Liverpool, significant structural modifications were made to the vessel in 1870. These included lengthening the vessel by 50 feet to 239.5' (72.9m) as well as adding a new bottom. The ship’s machinery (an inverted direct acting engine rated at 140hp) was serviced and re-certified at the same time. Lady Darling’s net tonnage was raised (reflecting its additional length) to 895 tons. (The Lloyds Register of British Shipping, 1871)

For the next four years, the Lady Darling operated in the Mediterranean and on the Atlantic crossing between England and Canada before being sold again in 1875 to James Paterson of Paterson and Company, Melbourne, Victoria. Upon the steamers’ return to Australia, it was promptly put back onto the Melbourne–Newcastle–Melbourne route as a collier with a 1000–1200 ton cargo capacity.

On its final voyage in 1880, the *Lady Darling* departed Newcastle, New South Wales – on its regular run to Melbourne – with 1220 tons of coal on the 8th November and then proceeded to steam and sail its way down the New South Wales coast, battling a rising gale. (The Sydney Morning Herald, 12 November 1880).

The steamer was off the South Coast of New South Wales, approximately four nautical miles south of Montague Island, in the vicinity of Aughinish Rock, in the late evening of 10 November 1880 when Captain Roberts reported that the ship had struck something: ‘abreast the engine room and nine feet (2.75m) below the water line and forty feet (12.2m) forward of the stern’. (The Melbourne Age, 22 November 1880, The Melbourne Argus, 24 November 1880)

The impact tore upon the coal bunkers near the engine room’s aft bulkhead, opening the hull to the sea, which quickly flooded the engine room putting out the fires and making the ship’s pumps inoperable. Unable to maneuver, with its pumps out of action and the hull rapidly filling the Captain and crew abandoned ship. The crew made their way towards Montague Island where they were assisted by the construction crew employed at building the new lighthouse on the Island.

On the morning of 11 November, the crew of the Illawarra Steam Navigation Company’s steamer *Kameruka* located the remains of the sunken vessel south-west of Montague Island in 15 fathoms (28 metres) of water and subsequently reported their discovery to the Marine Board in Sydney. The Marine Board promptly despatched the pilot vessel, Captain Cook, to investigate the discovery and rescue any survivors.

**Image 2: The collapsed cargo hold of the Lady Darling. Image: ANMM.**
At the Court of Marine Inquiry, held in late November 1880, neither the Captain, Deck Officer nor any of the ship’s crew reported seeing any reef or floating debris either before or after the vessel struck. With no evidence to indicate otherwise the Court found that no blame could be attached to the Officers and crew of the ship as the vessel appeared to have struck an unidentified object such as a piece of wreckage or an uncharted reef. (The Melbourne Age, November 1880)

The actual location of the Lady Darling remained very much a mystery until August 1996 when the net from a Bermagui fishing trawler, operated by Dom Puglise, became entangled on something on the seabed off Cape Dromedary. Puglise asked Bert Elswyk, the owner of a local fishing and dive charter boat, and his friend Paul Mood to recover his snagged nets. On the 16 August 1996 Elsyck and Mood dove on the spot indicated by Puglise and in doing so found that the nets had snagged on the remains of Lady Darling’s iron hull. (The Sydney Morning Herald, 6 September 1996).

Due to its historical and archaeological significance, the Lady Darling now lies within a Historic Shipwreck Protected Zone and the site has the highest level of protection under the Historic Shipwrecks Act (1976) only accessible through a permit system issued by the Federal Minister for the Environment or their New South Wales State delegate.

The wreck today
Recently the Maritime Archaeology Research Centre (MARC) at the Australian National Maritime Museum obtained such a research permit to enter the Protected Zone around the Lady Darling to conduct a 3D mapping exercise on the wrecksite.

Taking advantage of predicted favourable light westerly winds and opportune tides the dive team, consisting of Lee Graham, Dr James Hunter and Kieran Hosty from the MARC, Paul Hundley from the Silentworld Foundation and two volunteer archaeology divers Matilda Goslett and Eliza Goslett, arrived in Narooma, on the south coast of New South Wales, some 350 kilometres south of Sydney in early August 2016.

After first talking to the Narooma Coastal Patrol, who would be supplying safety radio cover during the fieldwork, and assessing the area’s various boat ramps, the team launched Maggie III, the team’s research vessel (provided by the Silentworld Foundation), on the northern side of Wagonga Inlet and prepared to cross the ‘infamous’ Narooma Bar.

With the bar successfully crossed the dive team departed Narooma for the 14 kilometre trip to the wrecksite – which is located 5.5 kilometres south-west of Aughinish Rock, 8 kilometres south-west of the southern end of Montague Island (home to a large permanent colony of Australian and New Zealand Fur Seals) and two kilometres offshore from Mystery Bay (Cape Dromedary).

Arriving on site we first located the wreck by using a combination of GPS co-ordinates and Maggie III’s side scan sonar. Once located, as we could not anchor on or near the wreck in case we damaged it, we then rigged up a shot line which would guide our divers down to the seabed and prepared to dive what is considered to be the most intact shallow water shipwreck (less than 30m) in New South Wales waters. (Byron, T., No date)

Following final safety briefings the dive teams entered the water and swam down to the wreck which slowly appeared resting on a flat sandy bottom in 29-30 metres of water. With a slight current pushing us southwards we quickly found the relatively intact counter stern of the Lady Darling, supported by its substantial and intact iron cant frames, bilge stringers and a transverse bulkhead. The structure rises up some 4 to 5 metres off the.
sand and supports the remains of the upper deck (minus its timber decking) as well as the steamer’s large steering quadrant.

Moving forward of the transverse bulkhead, and swimming between the port and starboard hull plating (which projects between 1 and 2 metres above the sand), we swam over what was Lady Darling’s engine room. We could see the steamer’s exposed propeller shaft, massive twin cylinder, vertical, inverted, direct acting steam engine (230 cm long x 400 cm high) as well as an equally impressive large, single cylindrical type, ship’s boiler (325 cm long x 320 cm wide), lying just aft of another transverse iron bulkhead.

Forward from the engine room’s bulkhead, we swam over the remains of the steamer’s cargo holds, which would have originally contained more than 1200 tons of Newcastle coal. In this section of the wreck, the sides of the steamer’s hull (unsupported by the transverse bulkheads) and in total agreement with Riley’s Waterline Theory of Iron Ship Disintegration (1982) have collapsed outwards. They are almost level with the surrounding sand and the coal has become dispersed by the strong currents which frequent the site.

In the past, this area of the wreck has been deeply buried in the sand for some 30 to 40 metres before protruding again and rising up to the bow section. However, on our recent visit the entire forward section of the ship’s hull, including its iron keelson, lower iron floors and water ballast tanks were lying exposed on the seabed, with the port and starboard sides of the hull splayed out on either side. Lying on top of the exposed lower deck plating were the remains of the ship’s upper deck. These consisted of iron deck beams supported by tie plates, diagonals and the mast partner plates, that reinforced the main and fore masts of the Lady Darling.
Off to starboard we also observed a small upright donkey boiler, which would originally have supplied separate steam power to deck winches, pumps and windlasses.

The intact bow is now home to small shiver (or group) of Port Jackson sharks. The bow is tilted over on its starboard side and all the fittings associated with the bow, including Admiralty and Porters Patent anchors, a capstan, a davit and anchor chain, have tumbled outside the hull and now lie on the seabed to the west of the wreck.

With our initial inspection over it was down to business. Along with the sounds of passing humpback whales singing in our ears and being occasionally photobombed by a curious New Zealand fur seal, we commenced recording the wreck.

We used two GoPro cameras which were equipped with a variety of correction filters (www.backscatter.com) to help compensate for the effect of water depth on colour. The density of the water effects the ambient colour spectrum and is one of the big problems with taking underwater images at such depth. Colours such as red disappear at around 5m, orange at around 8m, yellow at around 12m and green at around 22m – turning the underwater terrain into murky blues and browns. By using the correct red density filter you can emphasis the existing red light by filtering out the blue spectrum with a red filter.

Working quickly in two teams, we recorded the major structural features such as the bow, counter stern, engine, boilers and transverse bulkheads allowing for up to 40% overlap between each set of images. Unfortunately, at 30m you don’t get much safe bottom time before you start incurring a serious decompression commitment so after 20 minutes on the bottom it was time to ascend the shot line and commence our various safety stops before being picked up by Paul Hundley and Maggie III circling above us.

In the afternoon the same process was carried out but with an even shorter bottom time of 15 minutes. However, practice makes perfect and with no need to carry out a
site inspection on our second dive, we managed to record a significant area of the wreck before we once again had to make our ascent to the surface.

Now back in Sydney, the team are assessing the still images and digital footage obtained on our two-day site inspection of the Lady Darling shipwreck and we’re currently running the images through the Agisoft software to create the 3D map of the site.

Acknowledgements

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Queensland

Australian Government
Great Barrier Reef
Marine Park Authority

Foam Inspection
The Great Barrier Reef Marine Park Authority (GBRMPA) Maritime Cultural Heritage Unit led a collaborative team on a dive inspection of the wreck of the Foam. The Schooner Foam was a “blackbirder” or labour vessel that was wrecked in February 1893 whilst en-route to the Solomon Islands with returning labourers. The wreck is located on Myrmidon Reef and has a Protected Zone declared around it for management purposes. The site has been previously investigated but there has been no formal research or assessment of the site for over 10 years, and current site delimiters are suspected to be inaccurate.

Inspection Objectives
- Accurately confirm the location and extent of the Foam site, assess its condition, and familiarise GBRMPA staff with the site and with maritime survey methodology;
- Create a comprehensive photographic record of the site and archive at GBRMPA for future reference;
- Identify management issues and risks.
- Document the current status of the Foam in a report.
- The following additional objectives were a lower priority if time permitted:
- Locate and assess the wreck of the Florida.

Survey Team
The survey team consisted of commercial contractors from Adrenalin Dive, staff from GBRMPA and rangers from the Department of National Parks, Sport and Recreation. Immediately prior to the expedition four team members undertook training in anchor survey methodology and terminology, taking advantage of two similar admiralty pattern anchors that are located at the Townsville Coast Guard on Ross Creek. The Coast Guard were happy to let the team practise surveying the anchors before going underwater to measure the Foam anchor.

An AIMA/NAS Introduction to Maritime Archaeology Course was run in Townsville in November 2015, which was attended by three of the survey team; this contributed significantly to the efficiency of the expedition.

Results
- Site report on the Historic Shipwreck Foam.
- A digital photographic record from the expedition has been placed on the Image Library for future reference and research. These images will also be made available to the Queensland Department of Environment and Heritage Protection (EHP) for their reference and possible inclusion in the Australian National Shipwrecks Database.
- Three Reef Health and Impact Surveys were completed.
- Accurate coordinates of the Historic Shipwreck Foam including the position of the off-site anchor, were recorded. This information was passed on to the relevant authorities, including EHP to update the Australian National Shipwrecks Database, and the Australian Hydrographic Service.

Image 1: Possible bow sprit or sprit end brace. The section of scale shown is two 10 cm sections (total 20 cm) of a 50 cm scale.
• Data was collected that will feed into the development of a conservation management plan for the Historic Shipwreck Foam (AOP)
• A 3D model of the Foam anchor was made using the Agisoft program.

Outcomes
• A significant advancement in maritime heritage knowledge in the GBRMP including specific details of this high priority site.
• GBRMPA’s commitment to maritime cultural heritage in the GBRMP has been demonstrated to, and a useful working relationship has been developed with, maritime cultural stakeholders such as staff from the Department of National Parks, Sport and Recreation.
• The partnership with EHP has been strengthened, through sharing of expedition results, photographs, and updated information for the database.
• Specific management actions and priorities have been identified for the site.
• Prioritise timely post cyclone inspections of maritime heritage sites.
• Conduct annual monitoring of the site to maintain site knowledge and understanding of site formation processes.
• Encourage an increase in surveillance flights and marine patrols of the area.
• Encourage partner agencies participation in site monitoring work.

Pete Illidge
Manager, Maritime Cultural Heritage, GBRMPA
QLD AIMA Councillor
Magnetometer Survey of Hypothesised HMAS Tingira Abandonment Site (cont from cover).

With an overall length of 317 feet (97 metres) and a displacement of 2,131 tons, Sobraon was the world’s largest ever composite-hulled vessel, and was highly regarded for its speed and luxury passenger accommodation. The ship was known to frequently cover 2,000 nautical miles (3,704 kilometres) in a week, and once travelled 392 miles (631 kilometres) in a single day. Its fastest voyages to Sydney and Melbourne were 73 days and 68 days, respectively. Had it not faced contrary winds in the latter instance, Sobraon would have recorded the fastest time for a sailing ship transiting between England and Australia.

The ship was sold to the New South Wales colonial government in January 1891 and converted into a reformatory vessel and floating school. Commissioned as the Nautical School Ship (NSS) Sobraon during the latter half of 1891, it became home to over 4,000 neglected, destitute or delinquent boys during the next two decades. Sobraon was permanently moored off Cockatoo Island for the duration of its career as a reformatory ship. Those sent to live aboard the vessel were instructed with a mixture of elementary education and nautical and industrial training. Among those sent to serve time as a ‘Sobraon Boy’ was Barney Kieran, who took up swimming during his incarceration and later became a record-breaking competitor in several Australian and international swimming events. Following a shift in New South Wales government policy towards the rehabilitation of delinquent youth, Sobraon was decommissioned and offered to the Commonwealth in June 1911.

The vessel was again converted and renamed His Majesty’s Australian Training Ship (HMATS, later HMAS) Tingira. Like NSS Sobraon, Tingira served as a training vessel for boys; however, entry was limited to youths between the ages of 14 and 16 years, and all recruits were expected to serve a minimum of seven years in the navy once they reached the age of 18. Unlike the destitute and delinquents who filled Sobraon’s ranks, those who came aboard Tingira did so willingly under the Department of the Navy’s boy enlistment scheme. Visual signalling such as semaphore was a specialty of many of the ship’s instructors, with the result that several boys were proficient by the time they graduated, and later served as RAN fleet signalmen. Many Tingira recruits would also go on to serve their country with distinction in the First and Second World Wars. In the mid-1920s, the Royal Australian Navy instituted a move away from the boy enlistment scheme towards a direct entry system for new recruits. The last draft of boys was
brought aboard in early 1926, and by the end of the year recruitment ceased entirely. 

*Tingira* was decommissioned from service on 27 June 1927. During its 15 years as a naval vessel, the ship was home to 3,168 boys, many of whom formed the core of the navy’s experienced shipboard personnel during the next three decades.

The final phase of *Tingira’s* life began in 1929, when it was purchased by shipwright W.M. Ford, towed to Berrys Bay, and moored a short distance from shore. The vessel would remain in the same spot for over a decade. Its end finally came during the latter half of 1940, when a salvage crew began dismantling the ship’s surviving upper-works. The hull was systematically reduced over the course of the following year, until only a shell remained. By a stroke of luck, this process was recorded in a handful of archival photographs housed in the collections of the National Library of Australia and the Sydney Heritage Fleet. By the end of 1941 what remained of *Tingira* was no longer moored at Berrys Bay, and its fate seems to have gone largely unrecorded in contemporary accounts.

Based on a review of available historical sources, ANMM’s maritime archaeology team speculated that *Tingira* never left Sydney Harbour, and in fact was probably discarded within or near Berrys Bay, a former ship breaking and discard area. One theory was that *Tingira* was scuttled at its moorings, and to test the idea, a magnetometer and side-scan sonar survey was conducted at the ship’s former mooring site. The area is now an anchorage for small craft; consequently, the magnetometer was affected by interference from several sources, including the metal hulls, engines and fittings of modern boats, as well as...
submerged mooring blocks. Despite these false positives it quickly became apparent that a very large and complex zone of magnetic influence existed on and within the seabed. This was correlated by side-scan sonar imagery, which revealed a low mound of debris interspersed with larger objects, including what may be iron knees or braces.

While results of the survey were being analysed, historical information came to light that refined Tingira’s disposal narrative. Aerial photographs of Sydney taken in 1943, and made available online through the New South Wales government’s Spatial Information Exchange system, revealed a large composite hull in a mud flat at the northern end of Berrys Bay. These aerial images have been georeferenced and ortho-rectified, and the projected location and overall dimensions of the unidentified hull could be determined. Its preserved length (83 metres) and breadth (11 metres) are virtually identical to Tingira’s length between perpendiculars (83 metres) and maximum beam (12 metres), and provides compelling evidence that the ship is depicted in the 1943 aerial photographs and was intentionally grounded in the mud flat and abandoned.

The aerial imagery is complimented by archival photographs in the collections of the Sydney Heritage Fleet library. These photographs are contemporary with the aerial images, show the same large wooden hull from the ground level, and reveal additional details—including the presence of iron frames and what appears to be white paint above the waterline (Tingira’s hull was painted white following the vessel’s transfer to RAN service).

Although Tingira appears to have been run ashore in Berrys Bay in the early 1940s, it is unclear whether its remnants are still there. Reclamation activities in 1960 replaced the mud flat with Waverton Park, which was created through the discharge of silt from Sydney Harbour dredging. The silt was
held in place by a retention wall that laterally bisects the proposed location of Tingira's surviving hull. Today, the ship's forward half may be buried beneath the park, while the remainder could be located beneath the shallows and intertidal zone at the head of the bay. The latter zone was the focus of the June survey, which detected a large magnetic anomaly in approximate alignment with Tingira's projected orientation. However, this area—like Tingira’s mooring site—is surrounded by several modern magnetic sources, and it is presently unclear whether an abandoned hull is the source of the large anomaly.

The ANMM/Silentworld Foundation team intends to collaborate with the Maritime Heritage Program of the New South Wales Office of Environment and Heritage to conduct additional remote sensing work, including a land-based magnetometer and ground-penetrating radar survey of Waverton Park in the area where Tingira is thought to be buried. These techniques will be employed to determine the physical presence and extent of any surviving hull, as well as its depth beneath the modern ground surface. The team also intends to inspect the source of the magnetic and acoustic anomalies at Tingira's mooring site, as they may represent hull components and artefacts that were accidentally or intentionally dropped overboard as the vessel was dismantled by shipbreakers.

This project has benefited tremendously from the input and assistance of the Silentworld Foundation, Sydney Heritage Fleet, and Maritime Heritage Program of the New South Wales Office of Environment and Heritage.

Dr James Hunter  
Curator, RAN Maritime Archaeology  
Australian Maritime Museum

Two Australians to join the search for a 17th Century ‘Manila Galleon’ in Japan

In early August this year a small contingent of maritime archaeologists from Japan, Australia and the Philippines will visit Onjuku Town, Chiba Prefecture in Japan, to search for the wreck of the Spanish Manila Galleon, San Francisco, which sank in 1609.

This year Onjuku town will be commemorating the 400th anniversary of the death of Ieyasu Tokugawa, who was the ruler of Japan at the time. The town will be using the account of the sinking of the San Francisco and the survivors’ rescue as a central story for their celebrations.

The San Francisco was carrying trade goods from the Philippines to Acapulco, and then to Spain. On board was the very important Governor of the Philippines, Don Rodrigo de Vivero Velasco.

On the night of the 30th September 1609 the vessel was driven onto reefs near the village of Yuanda, now Iwawada in the Chiba Prefecture, and due to the help of the local people, particularly the Ama (women free divers who caught fish and collected shellfish), nearly 400 people survived.

Usually unauthorised people landing on Japanese soil at this time were executed. Luckily Velasco, earlier in his tenure in the Philippines, treated some Japanese prisoners very well, eventually providing them with a boat so they could sail back to Japan.

When the Shogun realised Velasco was one of the survivors he extended similar courtesy to the survivors and constructed the first Western style ship ever built in Japan so Velasco and his people could sail back to Spain. This opened trade between Japan and Europe.

Unfortunately in the 18th century Chiba Peninsula was hit by a tsunami with waves up to 10 meters destroying the village and any possible material evidence the village may have had of the wreck as well as any oral history that could have been passed onto the present villagers.
Dr Jun Kimura, lecturer in archaeology at Tokai University, and recently of Murdoch University in Western Australia will lead the project along with an experienced team of archaeologists and divers who have worked with him on maritime archeological projects in Australia, Vietnam and Japan.

Two Australians, Bob Sheppard and Ian McCann, will assist Dr Kimura. Bob Sheppard is a freelance archaeologist and author who specialises in using metal detectors as an investigative tool on terrestrial and maritime sites. See https://heritagedetection.wordpress.com/about/.

Ian McCann is an experienced diver who also specialises in photography and videography.

The Japan Maritime Archaeology Project promotes the project via their Facebook page click here for link

Team members have worked a variety of projects including the Vietnam Maritime Archeology Project for the last eight years, (click here for link) as well as projects in Australia and Africa.

Minelab Electronics Australia are supporting the Australian members of the team by providing them with a Minelab Excalibur II underwater metal detector to assist with the search.

Media contacts in Australia
Bob Sheppard bob@heritagedetection.com.au
Ian McCann ianmccann@verticalservice.com
Closing in on the Fortuyn Project – Season 2 results

The Closing in on the Fortuyn project is a search for the Dutch East Indiaman Fortuyn, which disappeared in the Indian Ocean en route to Batavia in 1724. Historical evidence has suggested the ship may have wrecked at either Christmas or Cocos (Keeling) Islands. The non-profit organisation Wreck Check Inc. ran a remote sensing and diving survey at the islands in 2015 and, based on results, a second season from 22 February to 16 March 2016.

Although no evidence was found to indicate the wreck-site of the Fortuyn, the project was successful in narrowing the search area. The identified anomalies detected by a proton magnetometer from Season 1 were re-investigated using the more sensitive and therefore more accurate Geometrics G-882 caesium vapour marine magnetometer. The most promising areas, as identified in 2015 and others from historical analysis, were re-surveyed, and other areas of interest added as information came to light. Data analysis, conducted in the field, allowed targeting of diving operations during the survey.

While the survey was taking place new evidence concerning another Dutch shipwreck, the barque Vice Admiraal Rijk (1852), came to light through the researches of Thomas Creemers in the Netherlands. The historical account of the ship’s wrecking at Christmas Island indicated its location along a particular stretch of the island’s south-west coastline. Magnetic anomalies were detected in this area and visual searches conducted.

With all gathered evidence being considered it was concluded that if there is historical shipwreck material within the areas investigated it is buried under coral and overlying sediments, obscured by the naturally occurring magnetic geology or within data gaps. There is also the strong possibility that a wreck lies beyond the 30 metres depth range of the surveyed transect lines.

The results of the 2016 fieldwork have encouraged Wreck Check to team up with the Australian Maritime College at the University of Tasmania to employ their Autonomous Underwater Vehicle with visual and magnetometer capability.

There were conservation opportunities for known wreck-sites at the islands, during the 2016 fieldwork season. Corrosion studies provided data on the rates metal components are disappearing. The team were able to dive at the Emden wreck-site at the remote North Keeling Island. This German WWI naval vessel was scuttled after a battle with HMAS Sydney. Motion and stills photography were taken, as well as some 3D photogrammetry of the site.
IMAGE 2: IMAGES OF THE SEA BOTTOM AT CHRISTMAS ISLAND WITH BATHYMETRY SHOWING THE NARROWNESS AND STEEPNESS IN SOME AREAS. GRAHAM HENDERSON PICTURED AT RIGHT.

IMAGE 3: CONDUCTING CORROSION STUDIES UNDERTAKEN BY ANDY VIDUKA AND SHINATRIA.
Image 4 (Left) Survey in progress at Christmas Island. James at the helm, Alex running the survey kit, Robert and Shinatira deploying the magnetometer at the stern.

Image 5 (Below) Some results of the 3D photogrammetry at the Emden site, north Keeling Island.
The Closing in on the Fortuyn project is one of the activities commemorating 400 years since Dirk Hartog's 1616 First Landing in Western Australia. The project is partnered by the Maritime Program of the Cultural Heritage Agency of the Netherlands Ministry of Education, Culture and Science, the Embassy of the Kingdom of the Netherlands in Canberra, and the Western Australian Museum. The Wreck Check team thank sponsors of both seasons; the Embassy of the Kingdom of the Netherlands; Silentworld Foundation and Parks Australia. Also thanks to the Maritime Archaeology Association of Victoria, Professional Diving Services, Cocos Communications and IT Pty Ltd, Esri and QPS, as well as Pablo Boorsma and Thomas Creemers.

Members of the Wreck Check team will be presenting a paper on the 'Closing in on the Fortuyn' project during the upcoming conference IKUWA6 in Perth in the session Tying the knot: western and eastern trade ships in the Pacific and Indian Oceans. More information on Wreck Check and its projects (including survey report) can be seen at wreckcheckinc.org and the Facebook page: Closing in on the Fortuyn .

https://www.facebook.com/FortuynProject/
Dear Members,

A big thanks to all the contributors! Can I please request the urgent submission of news items and articles for the second half of 2016 - at this stage I only have a small number of submissions and want to get the next issue out ASAP.

- Editor.