

Overview of sessions

		WA Maritime Museum Theatre	WA Maritime Museum Functions Centre	Fremantle Port Authority B-Shed
Day 1: Monday 28 November	11:00 am – 1:30 pm	UNESCO roundtable		
	6:00 pm – 9:00 pm		Welcome Reception & Official Launch (Pre-booked)	
Day 2: Tuesday 29 November	9:00 am – 10:45 am	Three-dimensional digitization techniques and technologies in maritime archaeology (Part 1)	Effective and sustained monitoring of archaeological localities in fresh waters, and <i>in-situ</i> preservation and conservation of underwater cultural heritage	Maritime archaeology, capacity building and training in the developing world (Part 1)
	10:45 am – 11:15 am	Morning break		
	11:15 am – 12:45 pm	Three-dimensional digitization techniques and technologies in maritime archaeology (Part 2)	Naval warfare	Maritime archaeology, capacity building and training in the developing world (Part 2)
	12:45 pm – 1:45 pm	Lunch		
	1:45 pm – 3:00 pm	Floating forests / submerged forests: an environmental history of trees (Part 1)	Scientific techniques, use of digital platforms, and application of new technology in maritime archaeology (Part 1)	Poster presentations (Part 1)
	3:00 pm – 3:30 pm	Afternoon break		
	3:30 pm – 4:30 pm	Floating forests / submerged forests: an environmental history of trees (Part 2)	Scientific techniques, use of digital platforms, and application of new technology in maritime archaeology (Part 2)	Poster presentations (Part 2)
From: 7:00 pm	Informal Networking Evening (Limited Numbers)			
Day 3: Wednesday 30 November	9:00 am – 10:30 am	Boats in context and the study of early watercraft (Part 1)	Maritime archaeological sites and legacy data, revisiting old shipwrecks with new technologies (Par 1)	The geoarchaeology of harbours: current research and future directions (Part 1)
	10:30 am – 11:00 am	Morning break		
	11:00 am – 12:15 pm	Boats in context and the study of early watercraft (Part 2)	Maritime archaeological sites and legacy data, revisiting old shipwrecks with new technologies (Par 2)	The geoarchaeology of harbours: current research and future directions (Part 2)
	12:20 pm – 1:30 pm	Lunch (& conference group photo, Functions Centre balcony)		
	1:30 pm – 3:15 pm	Boats, trade and exploration	Current and future prospects of underwater cultural heritage studies and management in East Asia	The final frontier: underwater archaeology, new technology development and the deep shipwreck resource
	3:15 pm – 3:45 pm	Afternoon break		
	3:45 pm – 5:45 pm	Presenting maritime and underwater archaeology in museums in the 21st century	Tying the knot: western and eastern trade ships in the Pacific and Indian Oceans	Poster presentations (Part 3)
From: 7:30pm	Fremantle Prison Tour (Pre-booked)			
Day 4: Thursday 1 December	9:00 am – 10:30 am	The social archaeology of ports, harbours and watery places (Part 1)	Site management (Part 1)	The archaeology of submerged paleolandscapes: a global perspective (Part 1)
	10:30 am – 11:00 am	Morning break		
	11:00 am – 12:15 pm	The social archaeology of ports, harbours and watery places (Part 2)	Site management (Part 2)	The archaeology of submerged paleolandscapes: a global perspective (Part 2)
	12:15 pm – 1:15 pm	Lunch		
	1:15 pm – 3:00 pm	Cultural landscapes and seascapes	French scientific and exploration voyages in the Southern Hemisphere: the making of a shared cultural heritage	Last chance to view posters All posters to be removed by 2:30 pm
	3:00 – 3:30 pm	Afternoon break		
	3:30 pm – 4:15 pm	Closing plenary by IKUWA		
From 6:00 pm	Social dinner, Fremantle Sailing Club (Pre-booked)			

DAY 1 (MORNING)
MONDAY: 28 NOVEMBER 2016

IKUWA6 registrations open: 10:00 am – 2:00 pm & 5:00 pm – 8:00 pm

UNESCO roundtable

Chairs: Dr Ulrike Guerin, UNESCO 2001 Convention (UNESCO Paris) & Dr Hanz Guenter Martin (Chair Steering Committee, KUWA, Germany)

Western Australian Maritime Museum, NWS Theatre

11:00 am – 1:30 pm

1. OPENING	<p>Mr Andrew Viduka (Department of the Environment and Energy, Australia): Australia's consideration of ratification of the UNESCO 2001 Convention on the Protection of the Underwater Cultural Heritage, and current status.</p>
<p>2. REGIONAL OVERVIEW ON ISSUES CONCERNING UNDERWATER CULTURAL HERITAGE</p> <p>(7 min per intervention, maximum of 4 ppt slides)</p>	<p><u>Europe:</u> Dr Martijn Manders (Cultural Heritage Agency of The Netherlands, The Netherlands): New chances for the development of underwater archaeology in Europe.</p> <p>Mr Nicholas Ball (National Maritime Museum, United Kingdom): What to do when commercial exploitation and archaeology are put in competition? The concrete HMS <i>Victory</i> case and the general problem.</p> <p><u>North America:</u> Dr Filipe Castro (Texas A&M University, USA): How to bring underwater cultural heritage to the same degree of acknowledgement as land heritage?</p> <p><u>Latin America:</u> Mr Diego Carabias (ARQMAR, Chile): Underwater archaeology in Latin-America – the challenges.</p> <p><u>Arab Region:</u> Mr Ziad M. Morsy (Alexandria University, Egypt): A short overview of the status of underwater archaeology in the Arab region.</p> <p><u>Non-Government Organisation:</u> Dr Chris Underwood (President ICOMOS-ICUCH): Access to underwater cultural heritage – the challenge of the public and the responsibility of underwater archaeologists.</p> <p><u>Asia-Pacific:</u> Dr Jiang Bo (National Centre for Underwater Archaeology, China): What can underwater archaeology give to the Asian region: from the perspective of China.</p> <p>Ms Nia Naelul Hasanah Ridwan, Indonesian Ministry of Marine Affairs and Fisheries, Indonesia: The current situation in Indonesia.</p> <p>Dr Ligaya Lacsina (National Museum, Philippines): The Philippines and the challenges for underwater archaeology in the region.</p> <p>Dr Jennifer Rodrigues (Western Australian Maritime Museum, Australia) & Dr Stephen Murphy (Asian Civilizations Museum, Singapore): The Belitung wreck collection – what is the way forward?</p> <p>Dr Jun Kimura (Tokai University, Japan): How to build strong scientific underwater archaeology in Asia.</p>
3. ROUNDTABLE DISCUSSION	A recommendation can be adopted

DAY 1 (AFTERNOON & EVENING)
MONDAY: 28 NOVEMBER 2016

Free tour of WA Museum – Shipwreck Galleries (45–47 Cliff Street)
(Please sign up at the IKUWA6 WA Museum table)
2:30 pm – 3:15 pm
(Meet at front desk at 2:25 pm)

Free tour of the WA Maritime Museum (Peter Hughes Drive)
(Please sign up at the IKUWA6 WA Museum table)
2:30 pm – 3:15 pm
(Meet at front desk at 2:25 pm)

Free tour of the WA Maritime Museum (Peter Hughes Drive)
(Please sign up at the IKUWA6 WA Museum table)
4:00 pm – 4:45 pm
(Meet at front desk at 3:55 pm)

Free tour of WA Museum – Shipwreck Galleries (45–47 Cliff Street)
(Please sign up at the IKUWA6 WA Museum table)
4:00 pm – 4:45 pm
(Meet at front desk at 3:55 pm)

Opening welcome reception & official launch of IKUWA6

6:00 pm – 9:00 pm (WA Maritime Museum, Functions Centre, Level 2)

Entertainment by Western Australian performers: John Bannister & the Charisma Brothers

Event sponsored by: Silentworld Foundation

DAY 2 (MORNING)
TUESDAY: 29 NOVEMBER 2016

Registrations: 8:30 am – 4:30 pm

Maritime Museum NWS Theatre 9:00 am – 10:45 am	Maritime Museum Functions Centre (Level 2) 9:00 am – 10:45 am	B Shed (Fremantle Port Authority Venue) 9:00 am – 10:45 am
<p style="text-align: center;">Three-dimensional digitization techniques and technologies in maritime archaeology (Part 1)</p> <p>Session Chairs: Nicolas Bigourdan (Western Australian Museum, Australia) & Kevin Edwards (Tempus Archaeology, Australia)</p> <p><i>Brief welcome & housekeeping</i></p> <p>3DMAPPR: a community-based underwater archaeological photogrammetry program in Perth, Western Australia *Nicolas Bigourdan & Kevin Edwards (*Western Australian Museum, Australia)</p> <p>3D documenting of a pile dwelling Kalle Virtanen (University of Helsinki, Finland)</p> <p>A proposed method to create a local coordinate system for underwater photogrammetric recording Kotaro Yamafune, Daniel Bishop & Carolyn Kennedy (Texas A&M University, USA)</p> <p>Pilot aerial archaeological survey of coastal features in the remote Kimberley area Jorge M. Hacker, Mick O'Leary, Ingrid Ward & Jonathan Benjamin (Airborne Research Australia & Flinders University, Australia)</p> <p>High-resolution digital recording techniques and taphonomic trajectories: multi-imaged photogrammetry applied to a drowned Late Pleistocene site in Central Chile (32°S) Isabel Cartajena, Patricio López, Diego Carabias, Jennifer Pavez, David Letelier, Renato Simonetti & Carla Morales (AROMAR, Universidad de Chile, Chile)</p>	<p style="text-align: center;">Effective and sustained monitoring of archaeological localities in fresh waters, and <i>in-situ</i> preservation and conservation of underwater cultural heritage</p> <p>Session Chairs: Beat Eberschweiler (Society of Underwater Archaeology & Archaeology Canton of Zurich, Switzerland), Vicki Richards (Western Australian Museum, Australia) & Martijn Manders (Cultural Heritage Agency of the Netherlands)</p> <p><i>Brief welcome & housekeeping</i></p> <p>Can we preserve <i>in situ</i>? Martijn R. Manders (Cultural Heritage Agency of the Netherlands, The Netherlands)</p> <p>Erosion and archaeological heritage – protection in Lake Constance and Lake Zurich (Central Europe) Beat Eberschweiler (Kantonsarchäologie Zürich & Archaeology of Canton Zurich, Switzerland)</p> <p><i>In-situ</i> preservation of the <i>James Matthews</i>: past, present and future *Vicki Richards & Peter Veth (*Western Australian Museum, Australia)</p> <p><i>In-situ</i> preservation and monitoring of a wooden shipwreck found in an intertidal zone, South Korea Mi Young Cha (National Research Institute of Maritime Cultural Heritage, Republic of Korea)</p> <p>Preservation <i>in situ</i> of UCH in estuarine contexts: the relationship between material remains and the environment Mitzy Antonieta Quinto Cortés, Mark Jones & Jonathan Adams (University of Southampton & The Mary Rose Trust, United Kingdom)</p>	<p style="text-align: center;">Maritime archaeology, capacity building and training in the developing world (Part 1)</p> <p>Session Chairs: Lucy Blue (University of Southampton, United Kingdom) & Colin Breen (University of Ulster, United Kingdom)</p> <p><i>Brief welcome & housekeeping</i></p> <p>Capacity building and training in the global south: introductory paper *Lucy Blue & Colin Breen (*University of Southampton, England)</p> <p>After one hundred years, is it still 'nascent'? Emad Khalil & Ziad Morsy (Centre for Maritime Archaeology, Alexandria University, Egypt)</p> <p>Maritime archaeology in Lebanon: state of the art, challenges, and future prospects Lucy Semaan (University of Balamand, Lebanon)</p> <p>Progress in UCH management by Pacific Small Island Developing States (SIDS) Akatsuki Takahashi (UNESCO Office for the Pacific States)</p> <p>Capacity building and the 2001 UNESCO Convention: an Adriatic perspective Robert MacKintosh (University of Southampton, United Kingdom)</p>
Coffee / tea break (Functions Centre, Level 2) 10:45 am – 11:15 am		Coffee / tea break (B Shed) 10:45 am – 11:15 am

<p>Maritime Museum NWS Theatre 11:15 am – 12:45 pm</p>	<p>Maritime Museum Functions Centre (Level 2) 11:15 – 12:45 pm</p>	<p>B Shed (Fremantle Port Authority venue) 11:15 am – 12:45 pm</p>
<p>Three-dimensional digitization techniques and technologies in maritime archaeology (Part 2)</p> <p>Research of the 17th-century ‘Glass Wreck’ using photogrammetric 3D documentation. The ‘virtual open-air museum of wrecks in the Gulf of Gdansk’ project Tomasz Bednarz (National Maritime Museum, Poland)</p> <p>The role of 3D models in the interpretation and <i>in-situ</i> preservation of archaeological heritage: the case studies of Portus Iulius in submerged Baiae (Pozzuoli, Naples), and the ancient harbour in Marina Lunga-Sottomonastero (Lipari) Barbara Davidde Petriaggi, *Massimiliano Secci, Gabriele Gomez de Ayala, Pier Giorgio Spanu & Luca Sanna (*Università degli Studi di Sassari, Italy)</p> <p>Verification of the <i>Batavia</i> reconstruction based on underwater photogrammetry and laser scanning Petra Helmholtz, Joshua Hollick, David Belton, Andrew Woods & Andrew Hutchison (Curtin University, Australia)</p> <p>Developing salvage visualisation methods to impact maritime heritage Chris Rowland & John Anderson (University of Dundee & ADUS Deepocean, United Kingdom)</p> <p>Old ships, new tricks: 3D documentation of submerged Sydney Harbour shipwreck sites with digital photogrammetry James Hunter & Kieran Hosty (Australian National Maritime Museum, Australia)</p>	<p>Naval warfare</p> <p>Session Chair: Hanz Guenter Martin (International Congress on Underwater Archaeology, Germany)</p> <p>The Prince’s ships. Early Modern warships and sunken battlefields in the Baltic Johan Rönby (Södertörn University, Sweden)</p> <p>Missing link – evidence of the military and naval evolution of a global empire Irina Malliaros (Bournemouth University, United Kingdom)</p> <p>The military dockyards in the Greek world Nicol Tollis (Università La Sapienza di Roma, Italy)</p> <p>The maritime archaeology of duplex drive tanks in the United Kingdom Tom Cousins, Tom Harrison & Dave Parham (Bournemouth University, United Kingdom)</p>	<p>Maritime archaeology, capacity building and training in the developing world (Part 2)</p> <p>Between rules and reality: starting up maritime archaeology in the 21st century – the case of Cyprus Stella Demesticha (University of Cyprus, Cyprus)</p> <p>Increasing professional heritage management capacity: illustrating the components that contribute to the success of international capacity building *Chris Underwood & Martijn Manders (*National Institute of Anthropology Buenos Aires, Argentina & Nautical Archaeology Society, United Kingdom)</p> <p>From try dive to a wreck documentation, archaeological research and capacity-building in Saudi Arabia Michaela Reinfeld (Philipps-University Marburg & University of Cologne, Germany)</p> <p>A value-based model for capacity building in maritime archaeology in the developing world Mark Staniforth & Paddy O’Toole (Flinders University, Adelaide & Monash University, Australia)</p> <p>Maritime Archaeology Survey of Oman (MASO) 2015 Lucy Blue, Jeremy Green & *Tom Vosmer (*C/- Western Australian Museum, Australia)</p>
<p>Lunch (Functions Centre, Level 2) 12:45 pm – 1:45 pm</p>		

DAY 2 (AFTERNOON)
TUESDAY: 29 NOVEMBER 2016

Maritime Museum NWS Theatre 1:45 pm – 3:00 pm	Maritime Museum Functions Centre (Level 2) 1:45 pm – 3:00 pm	B Shed (Fremantle Port Authority venue) 2:00 pm – 3:00 pm
<p>Floating forests / submerged forests: an environmental history of trees (Part 1)</p> <p>Session Chairs: Nigel Nayling (University of Wales Trinity Saint David, United Kingdom) & Ana Crespo Solana (Consejo Superior de Investigaciones Científicas, Spain)</p> <p>Ship sizes and wood scantlings Filipe Castro (Texas A&M University, USA)</p> <p>Reconstructing trees from ship timber assemblages using 3D modelling technologies: evidence from Belinho in northern Portugal Adolfo Miguel Martins, Ana Almeida, Antonio Santos, Ivone Magalhaes, Filipe Castro, Jemma Bezant, Marta Dominguez Delmás, Nigel Nayling & Peter Gronendijk (University of Wales Trinity Saint David, United Kingdom)</p> <p>A timber voyage: the Havana Shipyard in the 18th century Maria M. Intxaustegi (University of the Basque Country, Spain)</p> <p>The Ribadeo shipwreck (c. 1600) – a multidisciplinary approach for an Iberian shipbuilding case study Beñat Eguiluz Miranda, Marta Dominguez Delmás, Ana Crespo Solana, José Luis Gasch-Tomás, Miguel San Claudio & Koldo Trápaga Monchet (Consejo Superior de Investigaciones Científicas [CSIC], Spain)</p>	<p style="border: 1px solid red; padding: 5px;">Scientific techniques, use of digital platforms, and application of new technology in maritime archaeology (Part 1)</p> <p>Session Chairs: Celeste Jordan (Flinders University, Australia) & Arianna Traviglia (Ca' Foscari University Venezia, Italy)</p> <p>Stone Age sites in deep water – how do we cope with an international problem? Ole Grøn, Lars Ole Boldreel, Jean-Pierre Hermand, Debbie Cvikel & Ehud Galili (Norwegian Maritime Museum, Norway)</p> <p style="border: 1px solid red; padding: 5px;">The estimation of buried objects using marine magnetometer in underwater archaeological survey *Jin-Yuan Liu & **Chen-Fen Huang (*Tamkang University, Taiwan & **National Taiwan University & Institute of Oceanography, Taiwan)</p> <p>Archaeology of a Great War U-boat attack in the south of Portugal: development and adaptation of methods and techniques Jorge Russo & Augusto Salgado (Portuguese Navy Research Centre [CINAV], Portugal)</p> <p>How an amateur group produced a shipwrecks phone app Ian Warne (Maritime Archaeological Association of Western Australia (MAAWA), Australia)</p>	<p>The following poster presenters to stand by their posters during this session to present their work and/or answer questions from delegates (Part 1)</p> <p>The Valparaiso Customs wharf: corporate tableware as a source of information for the Pacific Steam Navigation Company (PSNC) Angela M. Rodríguez S., C. Valeria Sepúlveda & Diego A. Carabias ARKA Arqueología Marítima, Chile</p> <p>Shipwrecks and cargoes: routes and trades in the Mediterranean through the Hellenistic relief bowls Antonella Antonazzo University of Rome 'Tor Vergata', Italy</p> <p>Archaeometric analysis of raw materials for lead-based pigments from shipwreck sites in the eastern Adriatic Katarina Batur & Vladimir Bermanec University of Zadar & University of Zagreb, Croatia</p> <p>The reconstruction of the water supply using LiDAR images Frida Occelli & Micaela Leonardi Studium sas, Italy</p> <p>Photography for underwater archaeology – a brief history Patrick Baker Western Australian Museum, Australia</p> <p>Exploitation of prevailing winds and currents by the earliest known seafarers, colonising Australasia c. 50,000 years ago E. Kiki Kuijjer, R. Helen Farr, Robert Marsh, Ivan D. Haigh & Erik van Sebille University of Southampton, United Kingdom</p> <p>Mount Dutton Bay: photogrammetry and three-dimensional modelling of a cultural landscape Jarrad Daniel Kowlessar, Wendy Van Duivenvoorde & Jonathan Benjamin Flinders University, Australia</p>

		<p>Scientific techniques for the conservation of a zinc-iron composite object Thommadura Kamal Kumara De Zoysa Central Cultural Fund, Sri Lanka</p> <p>Metal shipwrecks in Patagonia, Argentina – contributions to their research and management Dolores Elkin, Guillermo Gutierrez & Chris Underwood National Research Council & National Institute of Anthropology, Argentina</p> <p>A Portuguese Indiaman voyage through its finds (<i>Esmeralda</i>, 1503) Tânia Manuel Casimiro & David Mearns IAP/IHC–FCSH, UNL, Portugal</p> <p>Sailing the Nile waters during the 19th and 20th centuries Ziad M. Morsy Alexandria University, Egypt</p>
Coffee / tea break (Functions Centre, Level 2) 3:00 pm – 3:30 pm		Coffee / tea break (B Shed) 3:00 pm – 3:30 pm
Maritime Museum NWS Theatre 3:30 pm – 4:30 pm	Maritime Museum Functions Centre (Level 2) 3:30 pm – 4:30 pm	B Shed (Fremantle Port Authority venue) 3:30 pm – 4:30 pm
<p>Floating forests / submerged forests: an environmental history of trees (Part 2)</p> <p>From forests to the sea, from the sea to the laboratory: the <i>Santa Maria Magdalena</i> frigate *Ana Rita Trindade, Sara Rich, Adolfo Martins, Mohamed Traoré, Nathan Gallagher & Marta Dominguez Delmás (*Centro de Ciencias Humanas y Sociales–Consejo Superior de Investigaciones Científicas [CCHS-CSIC], Spain)</p> <p>Maritime archaeological timber sampling: methods and results from the silty Solent Sara Rich, Garry Momber & Nigel Nayling (Maritime Archaeology Limited, United Kingdom)</p> <p>Timber for the <i>Batavia</i> *Aoife Daly, Marta Dominguez Delmás, Wendy van Duivenvoorde & Jeremy Green (*dendro.dk, Denmark)</p>	<p>Scientific techniques, use of digital platforms, and application of new technology in maritime archaeology (Part 2)</p> <p>Wreck's digitalization in foreshore context Olivia Hulot & Jaouen Marine (Drassm / French Ministry of Culture, France)</p> <p>Integrated approach using sub-bottom profiler combined with sonar multi-beam as a preventive archaeological diagnosis before harbour extension Philippe Pelgas & **Le Faou Yann – *National Institute of research Preventive Archaeological, Inrap & **National hydrographic service, Defense Ministry, France</p> <p>Sensing tidal landscapes: artificial intelligence and computer vision methods for underwater archaeological heritage in shallow waters Arianna Traviglia (University Ca' Foscari Venezia, Italy)</p>	<p>The following poster presenters to stand by their posters during this session to present their work and/or answer questions from delegates (Part 2)</p> <p>A subaquatic diagnosis on coastal river the Charente in Saintes city, France Olivier Dayrens, J.P. Baigl, J. Dez, Eric Rieth & Philippe Pelgas (French Institute of National Preventive Archaeological Research, France)</p> <p>A propeller out of the blue David Nutley (Comber Consultants, Australia)</p> <p>Ships depicted on murals from Sri Lanka's colonial period W.H. Rukshan Priyandana & Rasika Muthucumarana (Maritime Archaeology Unit, Sri Lanka)</p> <p>Pursuing sustainable preservation and valorisation of underwater cultural heritage: attempt in Okinawa at an underwater site museum</p>

Yumiko Nakanishi, Takashi Tetsu & Rintaro Ono (Osaka Prefectural Board of Education, Japan)

The development of underwater cultural heritage studies in Taiwan: past, present and future plans
*Jin-Yuan Liu, Gwo-Long Shy, Jui-Kun Chiu & Ching-Ting Hsin (*Tamkang University, Taiwan)

Challenging the offshore theory for fossiliferous chert artefacts in south-west Australia
Mick O'Leary, Ingrid Ward, Marcus Key & Mackenze Burkhart (Curtin University, Australia)

Reconstructing the maritime framework of Agios Georgios, Peyia, and Figtree, Protaras, Cyprus, for the 9th to 4th millennium B.C. period using LiDAR data
Achilleas Iasonos (University of Southampton, United Kingdom)

A new look at old cannons: 46 years of investigating the Gun Rock site
Peta Knott & John McCarthy (Wessex Archaeology, United Kingdom)

All the way from the start: restructuring the 3D model of the Mazotos shipwreck
Andonis Neophytou (University of Cyprus, Cyprus)

The typology of ancient ports along the Albanian coast: the case study of Dyrrah
Adrian Anastasi (National Archaeological Institute, Albania)

(1) Informal drinks (own expense) at "Creatures Next Door" after 5:00 pm (42 Mews Rd, Fremantle WA 6160)

(2) Informal Networking Evening (Sponsored by the Embassy of the Kingdom of the Netherlands)
(Limited space: entry by invite only based on time of registration)

DAY 3 (MORNING)
WEDNESDAY: 30 NOVEMBER 2016

Registrations: 8:30 am – 5:30 pm

Maritime Museum NWS Theatre 9:00 am – 10:30 am	Maritime Museum Functions Centre (Level 2) 9:00 am – 10:30 am	B Shed (Fremantle Port Authority venue) 9:00 am – 10:30 am
<p>Boats in context and the study of early watercraft (Part 1)</p> <p>Session Chairs: Charlotte Minh Ha Pham (Murdoch University, Australia) & Miran Erič (Global Early Watercraft Initiative, Slovenia)</p> <p>Exploring variation in traditional boatbuilding practices: 1,500 years of Southeast Asian lashed-lug watercraft Ligaya Lacsina (Flinders University, Australia & National Museum of the Philippines, The Philippines)</p> <p>World's history unlocked: a study of the historical context of the Phanom-Surin shipwreck in Thailand Abhirada Komoot (Thailand)</p> <p>Seafaring and boat use in central Vietnam Charlotte Minh Ha Pham (Asia Research Centre, Murdoch University, Australia)</p> <p>Logboats of Coquí: an ethnographic approach to maritime material culture Clara Fuquen Gomez (University of Southampton, United Kingdom)</p>	<p>Maritime archaeological sites and legacy data, revisiting old shipwrecks with new technologies (Part 1)</p> <p>Session Chairs: Alistair Paterson (University of Western Australia, Australia), Jeremy Green (Western Australian Museum, Australia) & Madeline McAllister (University of Western Australia, Australia)</p> <p>The Gnalic shipwreck, 50 years on *Mariangela Nicolardi & Irena Radić Rossi (*University Paris1 Panthéone-Sorbonne, France)</p> <p>'Reinventing' legacy data and archaeological interpretation: 3D digital visualisations of shipwreck sites Madeline McAllister (University of Western Australia, Australia)</p> <p>Integrating legacy excavation survey data with new technologies – the <i>James Matthews</i> experience Trevor Winton (Flinders University, Australia)</p> <p>3D reconstruction of the <i>Batavia</i> (1629) wreck site from historical (1970s) photographs *Andrew Woods, Nick Oliver, Joshua Hollick, Jeremy Green & Patrick Baker (*Curtin University, Australia)</p>	<p>The geoarchaeology of harbours: current research and future directions (Part 1)</p> <p>Session Chairs: Ania Kotarba-Morley (University of Wollongong, Australia) & David Blackman (University of Oxford, United Kingdom)</p> <p>Geoarchaeological reconnaissance of Unguja Ukuu, a Late Holocene/Early Islamic trade port in southern Zanzibar Nikos Kourampas, Anna M. Kotarba-Morley, Alison Crowther, Mark Horton & Nicole Boivin (University of Stirling & University of Edinburgh, United Kingdom)</p> <p>Forty years (and more) since Colston: an archaeologist's view David Blackman (University of Oxford, United Kingdom)</p> <p>Elaia, the maritime satellite city of Pergamum Stefan Feuser, Felix Pirson & Martin Seeliger (University of Rostock, Germany)</p> <p>Tallinn Harbour from the Middle Ages: studies in the former seabed Maili Roio (Estonian National Heritage Board, Estonia)</p>
<p>Coffee / tea break (Functions Centre, Level 2) 10:30 am – 11:00 am</p>		<p>Coffee / tea break (B Shed) 10:30 am – 11:00 am</p>

Maritime Museum Theatre 11:00 am – 12:15 pm	Maritime Museum Functions Centre 11:00 am – 12:15 pm	B Shed (Fremantle Port Authority Venue) 11:00 am – 12:15 pm
<p align="center">Boats in context and the study of early watercraft (Part 2)</p> <p>Logboat from Ljubljana (SI-81): new evidence of Iron Age transportation on Ljubljansko Barje, Slovenia *Pavla Peterle Udovic & Miran Eric (Arheoved Company, Slovenia)</p> <p>The social context of boats and maritime trade in late medieval and early post-Reformation Norway: stockfish in northern Norway Stephen Wickler & Tori Falck (Tromsø University Museum & University of Tromsø, Norway)</p> <p>Miniaturising boats: the value of models Charlotte Dixon (University of Southampton & British Museum, United kingdom)</p> <p>Ship representations in 17th century Portuguese tin glaze ware Mário Varela Gomes & Tânia Manuel Casimiro (Instituto Arqueologia Paleociências Universidade Nova de Lisboa, Portugal)</p>	<p align="center">Maritime archaeological sites and legacy data, revisiting old shipwrecks with new technologies (Part 2)</p> <p>Helping to identify historic shipwrecks. The DNA analysis of ivory Megan Coghlan & *Jeremy Green (*Western Australian Museum, Australia)</p> <p>The analysis of Spanish coins from shipwreck sites *Walter Bloom, Liesel Gentelli, Jeremy Green, Martijn Manders, Alistair Paterson & Jon Woodhead (*C/- Western Australian Museum & Murdoch University, Australia)</p> <p>The legacy of the <i>Batavia</i> – new research on Beacon island: graves, bones and isotopes Dan Franklin & *Elizabeth Smits (*University of Amsterdam, The Netherlands)</p>	<p align="center">The geoarchaeology of harbours: current research and future directions (Part 2)</p> <p>There's a pier buried under there: rapid geomorphic and anthropogenic change along the Victorian coastline *Geoff Hewitt, Brad Duncan, Cathy Tucker & Hans Dieter Bader (*Geoff Hewitt Archaeologist, Australia)</p> <p>New geoarchaeological results from the Greco-Roman port of Berenike Troglodytica on the Red Sea coast of Egypt Anna M. Kotarba-Morley (University of Wollongong, Australia)</p> <p>Naukratis in its riverine setting Ross Thomas, Benjamin Pennington and Alexandra Villing (The British Museum, United Kingdom) <i>Read by David Blackman for the benefit of the audience</i></p>
<p align="center">Group photo of all IKUWA6 delegates, Functions Centre balcony (12:20 – 12:30)</p> <p align="center">Lunch (Functions Centre, Level 2) 12:30 pm – 1:30 pm</p>		

DAY 3 (AFTERNOON)
WEDNESDAY: 30 NOVEMBER 2016

Maritime Museum NWS Theatre 1:30 pm – 3:15 pm	Maritime Museum Functions Centre (Level 2) 1:30 pm – 3:15 pm	B Shed (Fremantle Port Authority venue) 1:30 pm – 3:15 pm
Boats, trade and exploration	Current and future prospects of underwater cultural heritage studies and management in East Asia	The final frontier: underwater archaeology, new technology development and the deep shipwreck resource
<p>Session Chair: Michael Gregg (Western Australian Museum, Australia) & Charlotte Minh Ha Pham (Murdoch University, Australia)</p> <p>Evidence of prehistoric seafaring in Dalmatia Nikolina Stepan & Irena Radić Rossi (University of Zadar, Croatia)</p> <p>Hahotrim, Israel Shelley Wachsmann (Institute of Nautical Archaeology, Texas A&M University, USA)</p> <p>Recent discovery of post-Medieval shipwrecks in Croatia Igor Miholjek (Croatian Conservation Institute, Croatia)</p> <p>Did Icelandic stockfish change northern German shipbuilding? Mike Belasus (German Maritime Museum, Germany)</p> <p>Ghost ships of the Arctic: the underwater archaeology of Sir John Franklin's HMS <i>Erebus</i> and HMS <i>Terror</i> Marc-André Bernier (Parks Canada, Canada)</p> <p>A 'floating Venice off Arnhem Land': the research potential of the <i>Sanyo Maru</i> shipwreck David Steinberg (Northern Territory Government, Australia)</p>	<p>Session Chairs: Rintaro Ono (Tokai University, Japan), Cheng-Hwa Tsang (Academia Sinica, Taiwan), & Jun Kimura (Tokai University, Japan)</p> <p>Underwater archaeology in Korea Do-Hyun Kim (ICOMOS Korea, Pukyong National University, Republic of Korea)</p> <p>A model educational Underwater Cultural Heritage program utilizing a remotely operated vehicle Norimitsu Sakagami, Yinji Li & Jun Kimura (Tokai University, Japan)</p> <p>The results of the underwater archaeological excavation at sea off Taean, Korea Whan Suk Moon & Kyeong-jung Roh (National Research Institute of Maritime Cultural Heritage, Republic of Korea)</p> <p>Shipwrecks and sea routes in the Ryukyu Archipelago Chiaki Katagiri, Rintaro Ono, Yuji Yamamoto & Hiroki Miyagi (Okinawa Prefectural Museum and Art Museum, Japan)</p> <p>3D visualization of USS <i>Emmons</i> (WWII wreck) off Okinawa Island using multi-beam bathymetry and PhotoScan SfM software Hironobu Kan, C. Katagiri, Rintaro Ono, M. Nagao, Y. Nakanishi & S. Yoshizaki (Kyushu University, Japan)</p> <p>Communicating maritime archaeology to the Vietnamese public Charlotte Looram & Melissa Bendell (Flinders University, Australia)</p>	<p>Session Chairs: Matt Carter (La Trobe University, Australia) & Andy Viduka (Department of the Environment and Energy, Australia)</p> <p>Preliminary performance experiments in the sea of a multi-legged ROV Crabster for surveying underwater cultural heritage Bong-Huan Jun, Jin-Yeong Park, Hyunwon Shim, Banghyun Kim, Seongyeol Yoo, Hyuk Baek, Woo-Young Jeong, Pan-Mook Lee & Young-Hwa Jung (Korea Research Institute of Ships & Ocean Engineering, Republic of Korea)</p> <p>The 3D seismic survey of the shipwreck, Mado 4, using EOS3D-A in Republic of Korea Won-sik Kim, Yong-hwa Jung & Hyun-do Kim (Korea Institute of Geoscience and Mineral Resources, Republic of Korea)</p> <p>Artefact classification in the debris field of HMAS <i>Sydney II</i> *Andrew Hutchison, Ross Anderson, Andrew Woods, Petra Helmholtz, Wes Olsen & Joshua Hollick (*Curtin University, Australia)</p> <p>'The Six Million Dollar Hand': a robotic hand for remotely-operated deep archaeology Denis Degez & Vincent Creuze (Département des Recherches Archéologiques Subaquatiques et Sous-Marines & Submarine and Undersea Archaeological Research Department, France)</p> <p>Prospecting and digging at 1,100m with an ROV: the campaign to archaeologically investigate the shipwreck <i>N^o S^a de las Mercedes</i> Iván Negueruela Martínez, Rocío Castillo Belinchón, Juan Luis Sierra Méndez, Milagros Buendía Ortuño & Patricia Recio Sánchez (Museo Nacional de Arqueología Subacuática, Spain)</p> <p>Deep water archaeology in the Black Sea *Jonathan Adams, Kroum Batchvarov, Kalin Dimitrov, Justin Dix, R. Helen Farr, Dragomir Garbov, Johann Rønnby, Dimitris Sakellariou, Fraser Sturt, Lyudmil Vagalinski (*University of Southampton, United Kingdom)</p>

Coffee / tea break (Functions Centre, Level 2) 3:15 pm – 3:45 pm		Coffee / tea break (B-Shed) 3:15 pm – 3:45 pm
Maritime Museum NWS Theatre 3:45 pm – 5:45 pm	Maritime Museum Functions Centre (Level 2) 3:45 pm – 5:45 pm	B Shed (Fremantle Port Authority venue) 3:45 pm – 4:45 pm
<p>Presenting maritime and underwater archaeology in museums in the 21st century</p> <p>Session chair: Christopher Dobbs (The Mary Rose Trust, United Kingdom)</p> <p>It's not about a ship: presenting the <i>Mary Rose</i> in a new museum Christopher Dobbs (The Mary Rose Trust, United Kingdom)</p> <p>Apoxyomenos – underwater cultural heritage and museums in the service of the local community *Zrinka Ettinger Starini & Hrvoje Potrebica (*Museum of Lošinj, Croatia)</p> <p>Shoe-box archaeology and how to snorkel a wreck and stay dry! Presenting and interpreting West Australian maritime heritage to schools, aged care and the wider community Richenda Prall & Megan Mentz (Museum of Moving Objects [MOMO] Inc., Australia)</p> <p>Making a lot with very little *Kevin Edwards, Nicolas Bigourdan & Michael McCarthy (*Flinders University, Australia)</p> <p>Underwater cultural heritage & maritime museums Omaima Ahmed Gamal Elbastawisy Eldeeb (Flinders University, Australia)</p> <p>Aims and targets of maritime museums and exhibitions in Europe: case studies from Germany, Greece and Italy Marina M.S. Nuovo (Sapienza Università di Roma, Italy)</p> <p>Curating an ocean of objects. Object histories of the Indian Ocean *J.D. Hill & Corioli Souter (*The British Museum, United Kingdom)</p>	<p>Tying the knot: western and eastern trade ships in the Pacific and Indian Oceans</p> <p>Session Chair: Filipe Castro (Texas A&M University, USA)</p> <p>Missing links of Indian Ocean wrecks Rasika Muthucumarana (Central Cultural Fund, Sri Lanka)</p> <p>Identifying the steamship SS <i>Malabar</i> (1860) Indika Upul Hewage & Rasika Muthucumarana (Central Cultural Fund, Sri Lanka)</p> <p>Closing in on the <i>Fortuyn</i> Graeme Henderson, Andrew Viduka, Alex Moss & James Parkinson (Wreck Check Inc., Australia)</p> <p>Silver – key to a shipwreck mystery? Hugh Edwards (Author and Independent Researcher, Australia)</p> <p>Archaeological study of an early 16th century Portuguese East Indiaman: Al Hallaniyah Island, Oman David L. Mearns, David Parma, Ayyoub Al Busaidi, Ahmed Al Siyabi (Blue Water Recoveries Ltd, United Kingdom)</p> <p>An account of stone anchors in the northern shoreline of the Persian Gulf *Ali Moosiae & **Sorna Khakzad (*Siraf Pars Museum, Iran & **University of West Florida, Florida Public Archaeology Network, USA)</p> <p>Exploration and analysis of the regional cooperation scheme for the protection of the UCH in the South China Sea Liu Lina & Liu Shuguang (Xi'an Jiaotong University, China)</p>	<p>The following poster presenters to stand by their posters during this session to present their work and/or answer questions from delegates (Part 3)</p> <p>The Limassol carnayo: understanding maritime aspects of oral traditional culture and preserving authenticity and integrity Maria Ktori (University of Cyprus, Cyprus)</p> <p>Preserved meat supplies or slaughterhouse waste disposal? Zooarchaeology and the case of the wreck of the <i>Infatigable</i> Patricio López, Isabel Cartajena, Diego Carabias, Renato Simonetti & Carla Morales (ARQMAR – Centre for Maritime Archaeology Research of the Southeastern Pacific, Chile)</p> <p>Sensory navigation in the Roman Mediterranean: the Levantine and Ionian seascapes Carmen Obied & Steven Lopez (University of Southampton, United Kingdom)</p> <p>Maritime conflict: a view of the Great War from a cultural landscape approach Augusto Salgado, Jorge Freire, Jorge Russo & Tiago Fraga (Portuguese Navy Research Centre, Portugal)</p> <p>Mosquitoes, forts and ships: maritime landscapes of war in the 18th century, Cartagena de Indias, Colombia Carlos del Cairo Hurtado (University Externado de Colombia–Terra Firme Foundation, Colombia)</p> <p>Large Roman logboat from Liublianica River, Slovenia: a significant challenge in a newly established conservation workshop Katja Kavkler & Miran Erič (Institute for the Protection of Cultural Heritage of Slovenia, Slovenia)</p> <p>Does an extended logboat drevák from Notranjska region (Slovenia) originate from shipbuilding tradition of Roman times? Miran Erič, Ljoba Jenče, Barbara Sosič & Zala Erič (Institute for the Protection of Cultural heritage of Slovenia, Slovenia)</p> <p>Global database of early watercraft: the case of Slovenia Bojan Kastelic, Miran Erič, Goran Zlodi & *Franc Solina (*University of</p>

		<p>Ljubljana, Slovenia)</p> <p>Anaxum project: a bottom-up approach to riverine archaeology *Massimo Capulli & Arianna Traviglia (*Università degli Studi di Udine, Italy)</p> <p>The transport of sculpture in the eastern and central Mediterranean during the Hellenistic and Roman periods Katerina Velentza (University of Southampton, United Kingdom)</p> <p>Art and documentation serving the underwater archaeology in the interpretation of history Ramon Orrite & Angel Tobar</p>
<p>(1) Tour of World Heritage Fremantle Prison (as pre-booked during registration)</p> <p>(2) Informal drinks at "Creatures Next Door" after 5:00 pm, 42 Mews Rd, Fremantle WA 6160 (own expense)</p>		

DAY 4 (MORNING)
THURSDAY: 1 DECEMBER 2016

Registrations: 8:30 am – 3:00 pm

Maritime Museum NWS Theatre 9:00 am – 10:30 am	Maritime Museum Functions Centre (Level 2) 9:00 am – 10:30 am	B Shed (Fremantle Port Authority venue) 9:00 am – 10:30 am
<p>The social archaeology of ports, harbours and watery places (Part 1)</p> <p>Session Chair: Hanna Steyne (University of Manchester, United Kingdom), Martin Gibbs (University of New England, Australia) & Brad Duncan (Heritage New South Wales & University of New England, Australia)</p> <p>Landing site – trading site: ancient ‘meshworks’ in maritime hotspots of the Mediterranean Aylin Güngör (University of Hamburg, Germany)</p> <p>The Adriatic communication area Julia Daum & Martina Seifert (University of Hamburg, Germany)</p> <p>Cultural landscapes at the urban waterside Hanna Steyne (University of Manchester, United Kingdom)</p> <p>Van Don commercial port (Vietnam) – geographical location and its role in the history and archaeological research Ngo The Bach (Thang Long–Hanoi Heritage Conservation Centre, Vietnam)</p>	<p>Site management (Part 1)</p> <p>Session Chair: Hrvoje Potrebica (University of Zagreb, Croatia)</p> <p>Balancing safety and significance: the SS <i>Dicky</i> shipwreck Danielle Wilkinson (Cosmos Archaeology, Australia)</p> <p>The challenge of the Swash Channel wreck Dave Parham (Bournemouth University, England)</p> <p>Impacts and issues of the commercial exploitation of the Åland champagne schooner Ville Peltokorpi (University of Helsinki, Finland)</p> <p>The secret life of wreck divers Joanne Edney (Southern Cross University, Australia)</p>	<p>The archaeology of submerged palaeolandscapes: a global perspective (Part 1)</p> <p>Session Chair: Jonathan Benjamin (Flinders University, Australia)</p> <p>Submerged landscapes: ‘Good to think’ Fraser Sturt & Nic Flemming (University of Southampton, United Kingdom)</p> <p>The significance of the drowned landscapes to mobility and the transmission of prehistoric technologies Garry Momber (Maritime Archaeology Trust, United Kingdom)</p> <p>The Splashcos-Viewer – first online atlas of submerged paleolandscape archaeological sites in Europe *Hauke Jöns, Moritz Mennenga, Jørgen Dencker & Martin Segsneider (*Lower Saxony Institute for Historical Coastal Research, Germany)</p> <p>Submerged prehistoric landscapes of the Eastern Adriatic: a case study site at Zambratija Bay Katarina Jerbić & Ida Koncani Uhač (Flinders University, Australia)</p>
<p>Coffee / tea break (Functions Centre, Level 2) 10:30 am – 11:00 am</p>		<p>Coffee / tea break (B-Shed) 10:30 am – 11:00 am</p>

<p>Maritime Museum NWS Theatre 11:00 am – 12:15 pm</p>	<p>Maritime Museum Functions Centre (Level 2) 11:00 am – 12:15 pm</p>	<p>B Shed (Fremantle Port Authority venue) 11:00 am – 12:15 pm</p>
<p>The social archaeology of ports, harbours and watery places (Part 2)</p> <p>Submerged coastal structures of the ancient settlement in the bay of Caska (island of Pag, Croatia) Giulia Boetto, Irena Radić Rossi, Katarina Batur & Maja Grisonic (University of Zadar, Croatia)</p> <p>Vado Bay (Liguria, Italy): dredging in a long life ancient harbour Simon Luca Trigona & Frida Ocoelli (Soprintendenza Archeologia della Liguria, Italy)</p> <p>Living at the coast and working at sea: social archaeology of a 15th century fishing settlement along the coast of Flanders (Ostend, Belgium) Marnix Pieters (Flanders Heritage Agency, Belgium)</p> <p>Ancient shore and port of Pharos / Pharia, island of Hvar, Croatia J. Tea Katunaric Kirjakov (University of Split, Croatia)</p>	<p>Site management (Part 2)</p> <p>The vulnerability of HMAS <i>Perth</i> shipwreck site, Banten Bay, Indonesia Nia Naelul Hasanah Ridwan, Gunardi Kusumah, Semeidi Husrin, Adli Attamimi, Shinatria Adhityatama & Zainab Tahir (Indonesian Ministry of Marine Affairs and Fisheries, Indonesia & James Cook University, Australia)</p> <p>Documentation of a submerged hermitage in the reservoir of 'Buendía' (Spain): an example of collaboration between divers and institutions for the protection of UCH Rocío Castillo Belinchón, David Munuera Navarro, Ángel Tobar Escudero, María Elena Labrandero Pulgar, Rogelio de la Vega Panizo & David Fernández Sánchez (Museo Nacional de Arqueología Subacuática, Spain)</p> <p>Archaeology at the beach of Raversijde (Ostend, Belgium): a case for using different techniques in an intertidal area Ine Demerre, Sven van Haelst & Marnix Pieters (Flanders Heritage agency, Belgium)</p> <p>An underwater archaeology lesson for our time Elena Flavia Castagnino Berlinghieri & David Blackman (Soprintendenza Beni Culturali e Ambientali of di Siracusa, Italy)</p>	<p>The archaeology of submerged palaeolandscapes: a global perspective (Part 2)</p> <p>Visualising dynamic sedimentary coastlines helps improve understanding of post-glacial occupation patterns, North West Shelf, Australia Piers Larcombe, Ingrid Ward & Tom Whitley (RPS MetOcean & University of Western Australia, Australia)</p> <p>The cold case of the Eccles Bonebeds: diver ground-truthing in the North Sea Rachel Bynoe, Fraser Sturt, Justin Dix, Simon Parfitt, Nick Ashton, Simon Lewis, Nigel Larkin, Peter Hoare & Chris Stringer (University of Southampton, United Kingdom)</p> <p>Bromme-, Maglemose-, Kongemose-, Ertebølle Culture. Four submerged sites from 12–1 m water depth in the same confined area Jørgen Dencker (The Viking Ship Museum, Denmark)</p> <p>Drowning landscapes, past submergence and present coastal change at Borth, West Wales, United Kingdom Jemma Bezzant, R. Bale & Nigel Nayling (University of Wales Trinity Saint David, United Kingdom)</p>
<p>Lunch (Functions Centre, Level 2) 12:15 pm – 1:15 pm</p>		

DAY 4 (AFTERNOON)
THURSDAY: 1 DECEMBER 2016

Maritime Museum NWS Theatre 1:15 pm – 3:00 pm	Maritime Museum Functions Centre (Level 2) 1:15 pm – 3:00 pm	B Shed (Fremantle Port Authority venue) 1:15 pm – 2:30 pm
<p>Cultural landscapes and seascapes</p> <p>Session Chairs: Hanna Steyne (University of Manchester, United Kingdom), Martin Gibbs (University of New England, Australia) & Brad Duncan (Heritage New South Wales & University of New England, Australia)</p> <p>Please God, send me a wreck!: conflicting perceptions & alternative archaeological interpretation of shipping mishaps in Victoria Brad Duncan & Martin Gibbs (Heritage Division, Office of Environment & University of New England, Australia)</p> <p>The maritime world of the Early Bronze Age Levant through space and time Crystal Safadi (University of Southampton, United Kingdom)</p> <p>Maritime landscape and recycling ships as a cultural behaviour of UNESCO World Heritage Site Suomenlinna, Sea Fortress Minna Koivikko (National Board of Antiquities, Finland)</p> <p>Engraving the seascape life at Port Hedland, Western Australia Sam Harper (CRAR+M, University of Western Australia, Australia)</p> <p>Ships in shelters: comparing Indigenous management of colonial contact and invasion through the rock arts of southern Africa and northern Australia Sven Ouzman (University of Western Australia, Australia)</p>	<p>French scientific and exploration voyages in the Southern Hemisphere: the making of a shared cultural heritage</p> <p>Session Chairs: Emilie Dotte-Sarout (The Australian National University, Australia) & Nicolas Bigourdan (Western Australian Museum, Australia)</p> <p>18th–19th century French voyages in the South Seas and their legacy for Oceania archaeology: a shared intangible heritage? Emilie Dotte-Sarout (The Australian National University, Australia)</p> <p>The implications of the voyage collections of Bruni d'Entrecasteaux for modern creative artists Billie Lythberg (University of Auckland, New Zealand & Cambridge University Museum of Archaeology and Anthropology, United Kingdom)</p> <p>The scattered object collection from the voyage of Bruni d'Entrecasteaux Fanny Wonu Veys, Bronwen Douglas and Billie Lythberg (National Museum of World Cultures, The Netherlands)</p> <p>Sailors, savants, naming: France, Britain and the knowing of Oceania, 1750–1850 Bronwen Douglas (C/- The Australian National University, Australia)</p> <p>Tuamotu environments and societies in Early French accounts: from repulsion to ethnography Emilie Nolet (Université Paris 1, France)</p> <p>'Vive la France' – Louis de Saint Aloiarn and the French claim to the western part of New Holland Myra Stanbury (C/- Western Australian Museum, Australia)</p>	<p>Last chance to view posters</p> <p>All posters must be collected by 3:00 pm</p>

<p>From fresh to salt: dynamics of the maritime cultural landscape of the Zuiderzee (The Netherlands) between 1100 and 1400 AD Yftinus van Popta (University of Groningen, The Netherlands)</p>		
<p>Coffee / tea break (Functions Centre, Level 2) 3:00 pm – 3:30 pm</p>		
<p>Closing Plenary by IKUWA 3:30 pm – 4:15 pm Maritime Museum NWS Theatre</p>		
<p><u>ASSOCIATION MEETING</u> Maritime Museum, Functions Centre, Level 2 AIMA AGM 4:30 pm – 5:30 pm</p>	<p><u>COMMITTEE MEETING</u> Maritime Museum, Kailis Boardroom, Level 2 IKUWA Steering Committee Meeting 4:30 pm – 5:30 pm</p>	
<p>Conference Social Dinner (for those who pre-booked) (Fremantle Sailing Club: 151 Marine Terrace, Fremantle WA 6160. Phone: + 61 8 9435 8800) 6:00 pm until late</p>		

DAY 5 (ALL DAY)
FRIDAY: 2 DECEMBER 2016

Rottnest Island Dive / Snorkel Trip

Meet at 8:30 am at Molfetta Quay, Mews Road, Fremantle (not far from Esplanade Hotel)

Swan Valley Wine Tour

Meet at front steps of WA Maritime Museum at 9:30 am
for a 9:45 am pick up

Trial

In 1621 the English East India Company dispatched the ship *Trial* to the Indies; during the outward voyage in May the following year the vessel was wrecked on a then unknown reef off the coast of Western Australia. The wreck was found in 1969 and is the earliest known wreck of an East Indiaman on these shores, and Australia's earliest known shipwreck.

Trial was lost as a result of a navigational error on the part of the master, who was following a new course (Brouwer's Route) to the Indies that had been learned from the United Dutch East India Company (VOC) a few years earlier. Following this course, some VOC ships had sailed too far to the east and, as a result, in 1616 the coast of Western Australia was discovered. Navigators of the time were faced with several problems, both because of uncertainty of the position of the land and the related difficulty in determining the ship's longitude.

In the debacle that followed the wreck, more than 100 men were lost, as well as most of the Company's goods. Subsequently, there were serious allegations against the Master: that he was negligent; that he had stolen some of the Company's goods; and, that he was an incompetent navigator. Examination of the records seem to indicate that the Master falsified the location of the rocks to make it appear that he had been following orders. Because of this falsification, Trial Rocks remained undiscovered for over 300 years, simply because they were not where they were said to be.

The Master's subsequent career is interesting as it reflect on his honesty. He was acquitted by the Company of any blame, and was then given the command of the East Indiaman *Moone*, that returned home in 1624. In 1625, the *Moone* was wrecked off Dover. The Master was immediately imprisoned in Dover Castle for purposely wrecking the ship. The court case dragged on for two years.

By the 18th century, there was complete confusion in the charts as to the position of Trial Rocks. At least four groups of non-existent islands were charted in the area, and it was not until the advent of accurate longitude determination and the Admiralty Hydrographic Surveys in the late 18th and early 19th century that these anachronisms were sorted out. Initially, the Admiralty officially declared Trial Rocks non-existent. Later, their position was rather arbitrarily assigned to a group of islands in the general area. In 1934, Lee published the Master's letters which showed that a reef known as Ritchie's Reef was in fact the reef on which the *Trial* was lost. The Australia Pilot was amended and so finally Trial Rocks were officially and correctly located 314 years after their first tragic discovery.

In 1969 an expedition was mounted to locate the wreck site of *Trial*. On the first day of the search around the rocks, a wreck site was located and tentatively identified as that of *Trial*. Although four museum expeditions have visited the site since, no evidence has been found to identify the site conclusively, although circumstantial evidence indicates that the wreck site is that of the *Trial*.

Reference: Green, 1977a, 1986e; Stanbury, 1979.



Batavia

The *Batavia* is Australia's second oldest known shipwreck; the oldest is the English East India Company ship *Trial* lost in 1622 (see *Trial*).

On the morning of 4 June 1629, the VOC ship *Batavia* was wrecked on the Houtman Abrolhos, off the coast of Western Australia. Commander Francisco Pelsaert, all the senior officers, some crew and passengers, 48 in all, deserted 268 people on the wreck and on two waterless islands whilst they went in search of water. Abandoning the search on the mainland coast, they made their way to Batavia (modern Jakarta, Indonesia), to obtain help; the journey took 33 days. On arrival, the Governor General dispatched Pelsaert in the *jacht Sardam* to rescue the survivors. With extraordinary bad luck, it took 63 days to find the wreck site, almost double the time it took the party to get to Batavia. At the Abrolhos, Pelsaert discovered that mutiny had taken place. A small group of mutineers, led by Jeronimus Cornelisz the undermerchant, had massacred 125 men, women and children. Pelsaert arrested the mutineers, tried them according to Dutch law and executed some of them.

When the *Sardam* finally returned to *Batavia*, some of the lesser offenders, who had been flogged, keelhauled and dropped from the yard-arm as punishment on the voyage, were executed. Two people were marooned on the mainland coast as punishment. Out of 316 people aboard the *Batavia*, only 116 survived. Pelsaert died in the following year.

The *Batavia* was found in 1963 by fisherman and divers. In the late 1960s the Museum conducted a holding operation on the site using watch-keepers to ensure the site was not looted. Between 1972 and 1976 the Department of Maritime Archaeology conducted a series of excavations of the *Batavia*. The artefacts from these excavations were treated by the Western Australian Museum's Department of Materials Conservation and may now be seen in the Maritime Museum and Shipwreck Galleries in Fremantle, and in the Western Australian Museum Geraldton. During the excavation, part of the hull of the vessel was uncovered. This was carefully recorded and raised. After a number of years of conservation treatment, the remains were rebuilt in the Shipwreck Galleries. This provides the centre-piece for the *Batavia* Gallery display. The section is the stern quarter of the port side of the ship up to the top of the first gun-deck, and includes the transom and stern-post. Part of a portico façade was found on the site, comprising 97 (of a total of 149) blocks weighing over 36 tonnes. The portico was reconstructed and is on display in the WA Museum Geraldton. From archival research, it was found that the portico was destined for either the Land Port or the Waterport at the Castle at Batavia.

References: Green, 1989; 1998c.





Vergulde Draeck

On 4 October 1655, *Vergulde Draeck* of the Amsterdam Chamber of the Dutch United East India Company (VOC) set sail from Texel, on what was to be its second and final voyage to Batavia (modern Jakarta) in the East Indies. The *jacht Vergulde Draeck* carried a cargo of trade goods worth 106 400 florins, together with eight chests of silver coin worth 78 600 florins. The Amsterdam Chamber purchased the vessel in 1653 for trade, its first voyage being between Holland and the East Indies. The crew and consignment consisted of 193 men, a cargo of trade goods and eight chests of silver coin.

Following Brouwer's route, the vessel made use of trade winds before making a northward turn to the East Indies. The vessel was lost on 28 April 1656 on a reef off the coast of Western Australia, north of Yanchep, near Ledge Point. The vessel began to break up immediately and two of the ship's boats were launched. Subsequently, a boat was dispatched to Batavia to get help. Arriving on 7 June they reported that 75 people of the 193 people on board had reached the shore and that the ship's boat had been driven

ashore and damaged. Several vessels were dispatched to try and find the survivors but no one was ever found.

The site was discovered in 1963; it was looted and damaged. A group of the original finders approached the Western Australian Government suggesting that they transfer their rights as finders of the site to the Government on the condition that the site was protected under legislation. This was completed in late 1963 and the Department of Maritime Archaeology was called in to assess and excavate the site in 1971. The Department's first major excavation took place in 1972. Over several months a very large collection of artefacts was systematically excavated from the site. Finds included beardman jugs, clay tobacco pipes (including a box of complete pipes), bronze and brass utensils, tools, accessories, glass bottles, various armaments, over 8000 bricks from the Netherlands (presumably used as paying ballast on the ship) and over 8500 silver coins, mostly Spanish reales. The 1972 field-work was the first major underwater archaeological excavation undertaken in Australia and was the commencement of a series of major archaeological excavations by the Department in the 1970s and 1980s. Subsequent visits to the site were made in 1981 and 1983. The objectives in 1981 were to excavate the main wreck site areas that had been left at the end of 1971–72. This proved to be extremely difficult because of the bad weather and limited time. The 1983 season was a great success due to long periods of unusually calm weather. During the excavation period, on the 19 days when diving took place, a total of 332 hours diving were recorded. Finds included a Southeast Asian smoking pipe (a very unusual find for the mid-17th century), several beardman jugs and an astrolabe.

References: Green, 1977b, 1981h, 1983c; Huystee, 1993; Stanbury, 1979.

Zuytdorp

The Dutch East India (VOC) ship *Zuytdorp* was lost without trace in the winter of 1712 en route from the Netherlands to Batavia (now Jakarta) carrying a rich cargo and silver bullion. Of the seven VOC, English East India Company, Portuguese and American East India ships known to be lost off the coast of Western Australia, *Zuytdorp* is the only wreck from which survivors did not reach the nearest European settlement at Batavia to tell the tale.



The site has proved one of the most difficult and dangerous wrecks on the Australian coast. Following a series of land excavations by amateur enthusiasts and station people, and then a number of dives by recreational and salvage-oriented divers, the Western Australian Museum became legislatively responsible for the site in 1963. It then began a series of salvage attempts aimed at removing the remaining silver bullion in order to deter looters. Rarely is a good day experienced on the site, precluding the application of accepted archaeological techniques. In order to facilitate the work and better protect the site, in the late 1970s, a full-time watch keeper was installed in quarters adjacent the wreck. As a result of the difficulties working on the site, lack of funding and other pressures, work at the *Zuytdorp* was put in abeyance in the early 1980s. A local abalone fisherman was employed to act as part-time watch keeper and monitor the site.

In 1986, work recommenced on the site. Research and field-work concentrated on collating previous work in order to determine the best approach to working the site. As a result, it was decided to work from the sea out of a 7 m work-boat, rather than work from land. Given the dangers and difficulty of working the site, innovative recording and recovery strategies were also devised and applied. Plans of the wreck were produced using aerial photography and other airborne photogrammetric techniques. Rapid diver deployment and material recovery strategies also proved successful in the removal of a well-preserved cannon, coins, lead ingots, exquisite glass-ware and a large anchor.

Since 1986, work has involved questions relating to the survivors and what happened to them. The possibility that they may have intermarried with Aborigines was also examined. Historical archaeologists and other specialists were invited to join the project in order to broaden its scope. Prehistorians, for example, examined shell middens found near the site, and identified them as Aboriginal, dating to around 4 000 BP.

Diving operations were again halted in 2000. Currently a study is underway to assess the amount of coins still on the site and the potential for recovery.

References: McCarthy, 1997c; 1998c, f; 2000c; Morse, 1988.



Zeewijk

On 7 November 1726, the VOC ship *Zeewijk* left the Netherlands bound for Batavia (modern Jakarta), with a complement of 208 seamen and soldiers. *Zeewijk* was a Zeeland ship, 40.6 m (145 ft) long with a draught of 5.53 m (19.75 ft) in the stern and 4.9 m (17.5 ft) forward. The vessel was registered at 140 *lasten* (278 tonnes) and armed with 36 cannon and six small, breech-loading, swivel guns. On the maiden voyage, *Zeewijk* carried heavy

ironwork, bricks and cash money in ten chests amounting to 315 837 guilders.

During the voyage Captain Steyns made an unfortunate decision: despite the protests of the steersman (helmsman), the ship's log of 21 May 1727 reads: 'It was decided unanimously to steer ENE, if there [was] an opportunity, in order to, if feasible, call at the land of *Eendracht* (Western Australia)'. This decision contravened the strict sailing orders of the Directorate of the Dutch East India Company. As a result, at 7.30 p.m. on 9 June 1727, with the small sail and foresail set, and both topsails double-reefed, *Zeewijk* ran aground on the northern edge of Half Moon Reef, opposite Gun Island, in the Houtman Abrolhos on Western Australia's mid-west coast.

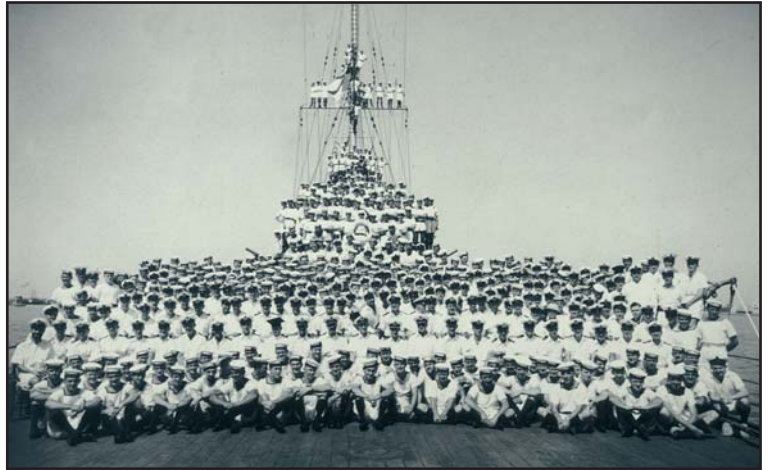
In 1840, officers and crew of the British survey ship HMS *Beagle* landed on the island where the marooned sailors from the *Zeewijk* had camped and found numerous relics, which they believed to be from the *Batavia*, so confusing later searches for this wreck. Subsequent colonial visitors and guano miners further located artefacts left by the survivors. In the 1950s and 1960s, visitors continued to discover material on the island and in the shallows.

In 1968, the outside of the reef was searched for the main wreck site. During March of that year, the major wreckage was discovered consisting of anchors, cannons and a large mound of conglomerate (items concreted together). A combined underwater and land survey was conducted by the Underwater Explorers Club (UEC) in 1972, under museum supervision. Following a feasibility study of the archaeological sites by the Department of Maritime Archaeology in 1974, plans were made to undertake more intensive investigations. In 1976, the Department commenced the *Zeewijk* Project—a combined land and underwater survey of the *Zeewijk* site. Several expeditions ensued over the following years.

References: Bevacqua, 1974e; Henderson, 1980f; Ingelman-Sundberg, 1976a, 1977d, 1978a, b, n.d.; Stanbury, 1998b.

HMAS *Sydney*

The HMAS *Sydney*/HSK *Kormoran* engagement on 19 November 1941 resulted in the loss of 79 or 80 German seamen and the entire *Sydney* crew of 645 men and boys. Coming from virtually every major town and city in Australia, it was a major blow to the country as a whole during World War II and was an unexplained loss that many families were unable to come to terms with, some expressing concerns decades after the event.



In 1976, under the terms of the new Commonwealth *Historic Shipwrecks Act*, the Department of Maritime Archaeology of the WA Maritime Museum became responsible on behalf of the Federal Government for all the historic wrecks off the coast of Western Australia. At the time, it was believed that HMAS *Sydney* and its adversary HSK *Kormoran* were covered under that Act. Staff of the Department of Maritime Archaeology established links with all major parties concerned—with vision to keeping abreast of the debate; to provide informed and objective opinions; and, to be in a position to properly manage the wrecks should they be found. The waters in which the engagement was believed to have taken place were considered too deep for actual search and analysis however.

The possibility that HMAS *Sydney* was attempting to make the coast before it disappeared was considered a reasonable assumption, and oil exploration records of the Shark Bay area were searched leading to the discovery of a very promising magnetic anomaly. A combined Department of Maritime Archaeology and RAN team operating from HMAS *Moresby* analysed the anomaly in October 1981, resulting in the location of a geological formation lying *c.* 200 m below the sea bed off Kalbarri. Though a large-scale search for *Sydney* did not occur, partly as a result of the findings of the 1991 Forum, held at the Department of Maritime Archaeology, the Department continued work in the water both independently and with the assistance of the RAN. In February 1996, at the request of the Museum and other interested parties, World Geosciences completed an analysis of two promising magnetic anomalies off Port Gregory that had appeared in its oil search data. These also proved to be geological. This work is ongoing as part of the Museum's perceived brief under the terms of the Commonwealth *Historic Shipwrecks Act 1976*. Since that time, many other groups have become involved, most operating independently of the Museum, the RAN and each other. A number of inquiries and seminars on the loss of HMAS *Sydney* have been held since, all assisted by the Museum. Advice and assistance is also provided to the many prospective searchers where it is sought, though the Museum steadfastly retains its independence such that it can be best placed to serve its obligations under the Act.

References: Green, 1991f; Green, *et al.*, 1984; McCarthy, 1984d.



Environment Protection and Biodiversity Conservation Act 1999

INCLUSION OF A PLACE IN THE NATIONAL HERITAGE LIST

HMAS *Sydney II* and HSK *Kormoran* Shipwreck Sites

I, Tony Burke, Minister for Sustainability, Environment, Water, Population and Communities, being satisfied that the place known as HMAS *Sydney II* and HSK *Kormoran* Shipwreck Sites, described in the Schedule, has the National Heritage values specified in the Schedule, pursuant to section 324JJ of the *Environment Protection and Biodiversity Conservation Act 1999*, include it in the National Heritage List.

Dated

4.10.10

Tony Burke
Minister for Sustainability, Environment,
Water, Population and Communities

SCHEDULE

Name

Location / Boundary

Criteria / Values

HMAS Sydney II and HSK Kormoran Shipwreck Sites:

The place is made up of two areas approximately 22 kilometres apart, which are of equal size and cover a total area of 400 hectares. The place is located approximately 290 kilometres West South West of Carnarvon, Western Australia:

Area 1

An area within which the historic shipwreck HMAS *Sydney II* is located, being an area bounded by an imaginary line forming a circle with a radius of 797 metres the centre of which is at the intersection of the parallel 26 degrees, 14 minutes and 39 seconds South latitude with the meridian 111 degrees, 12 minutes and 48 seconds East longitude as defined using GDA 94 datum and as consists of Australian waters or waters above the continental shelf of Australia.

Area 2

An area within which the historic shipwreck HSK *Kormoran* is located, being so much of the area within the Indian Ocean contained within and bounded, and as consists of Australian waters or waters above the continental shelf of Australia, as follows *:

- (i) commencing at the point of latitude 26 degrees 5 minutes 18 seconds south, longitude 111 degrees 4 minutes 10 seconds east;
- (ii) thence east along the parallel of latitude 26 degrees 5 minutes 18 seconds south to its intersection with the meridian of longitude 111 degrees 4 minutes 38 seconds east;
- (iii) thence south along the meridian of longitude 111 degrees 4 minutes 38 seconds east to its intersection with the parallel of latitude 26 degrees 6 minutes 36 seconds south;
- (iv) thence west along the parallel of latitude 26 degrees 6 minutes 36 seconds south to its intersection with the meridian of longitude 111 degrees 4 minutes 10 seconds east; and
- (v) thence north along the meridian of longitude 111 degrees 4 minutes 10 seconds east to the point of commencement.

* All geographic coordinates are expressed in terms of the Geocentric Datum of Australia 1994 (GDA94) as described in the Commonwealth of Australia Gazette GN35 of 6 September 1995.

Criterion	Values
(a) the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.	<p>The shipwreck sites of HMAS <i>Sydney II</i> and HSK <i>Kormoran</i> have outstanding heritage value to the nation because of their importance in a defining event in Australia's cultural history and for their part in development of the process of the defence of Australia.</p> <p>The battle that occurred between HMAS <i>Sydney II</i> and the German raider HSK <i>Kormoran</i> off the Western Australian coast on the 19 November 1941 and the subsequent destruction of both vessels, severely shocked the Australian public of the day. The disaster of the loss of HMAS <i>Sydney II</i> and its entire crew and the subsequent mystery surrounding the battle, resulted in anguish and disbelief that is still evident in the Australian psyche.</p> <p>At the time of the sinking, Australians were significantly distressed by the loss of their most famous warship. This battle brought World War II to Australia's doorstep and highlighted its vulnerability to attack. The loss of HMAS <i>Sydney II</i> and several other Australian warships contributed to a shift towards the idea of homeland defence rather than defence of the British Empire and resulted in the development of a defence alliance with the United States.</p>

Criterion	Values
(c) the place has outstanding heritage value to the nation because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history	<p>The shipwreck sites of HMAS <i>Sydney</i> II and HSK <i>Kormoran</i> have outstanding heritage value to the nation because of their potential to yield information that would contribute to a greater understanding of Australia's history of World War II.</p> <p>The remaining fabric of these historic shipwrecks contain important physical evidence of a key historical event in Australia's history. The facts surrounding the battle between HMAS <i>Sydney</i> II and HSK <i>Kormoran</i> have remained the subject of intense scrutiny and have been hotly debated by historians, resulting in numerous government investigations, inquiries, forums and publications. Much of the debate has been due to lack of evidence caused by the absence of any surviving witnesses from HMAS <i>Sydney</i> II.</p> <p>The discovery and inspection of the physical remains of these two vessels in 2008 has enabled a reconciliation of theory and known historical fact concerning the battle with the archaeological evidence present in the remains. This evidence was pivotal to the findings of the <i>2009 HMAS Sydney II Commission of Inquiry</i> (Cole Inquiry) by providing previously unknown information that allowed the circumstances surrounding the loss of HMAS <i>Sydney</i> II to be better understood.</p>
(f) the place has outstanding heritage value to the nation because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period.	<p>The current development of advanced underwater vehicles and technologies will in the future allow a more detailed study of the remains of these vessel, which will enable a clearer picture to be developed of the events that occurred during and after the battle.</p> <p>The shipwreck site of HSK <i>Kormoran</i> has outstanding heritage value to the nation because of its importance in demonstrating a high degree of creative and technical achievement during World War II.</p> <p>HSK <i>Kormoran</i> was a disguised German commerce raider that was created by extensively modifying an existing cargo vessel and retrofitting it with concealed weaponry hidden by ingenious mechanical camouflage. These unique technological features allowed HSK <i>Kormoran</i> to avoid identification as a warship when approaching HMAS <i>Sydney</i> II until reaching point blank range for the contemporary weapons of the period. The surprise achieved through use of these technologies was a major contributing factor in the subsequent destruction of HMAS <i>Sydney</i> II.</p> <p>Archaeological examination of the remaining fabric of HSK <i>Kormoran</i> clearly show many of these advanced technological features and is internationally the only known example of this type of World War II technology.</p>

(g)	Criterion	Values
	the place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	<p>The shipwreck sites of HMAS <i>Sydney</i> II and HSK <i>Kormoran</i> have outstanding heritage value to the nation because of their strong and special association with particular communities and the Australian community as a whole.</p> <p>This association is especially strong for those family and friends of the naval, airforce and civilian personnel who died as a result of the battle. The strong connection to this tragic loss of life was a driving force behind the public push for location, protection and memorialisation of the remains of HMAS <i>Sydney</i> II and HSK <i>Kormoran</i>. The sites of these historic shipwrecks are seen as the final resting place of those personnel who died and a tangible link to their memory.</p> <p>These sites are not only important to family and friends of the crew of HMAS <i>Sydney</i> II but also to those Australians who are descendants of crew members of HSK <i>Kormoran</i> who died as a result of the battle and those German survivors who chose to become Australian citizens after the war ended.</p>

For a description of any references quoted above, and more information on the place please search the Australian Heritage Database at <http://www.environment.gov.au/cgi-bin/ahdb/search.pl> using the name of the place.



Environment Protection and Biodiversity Conservation Act 1999

INCLUSION OF A PLACE IN THE COMMONWEALTH HERITAGE LIST

HMAS Sydney II and HSK Kormoran Shipwreck Sites

I, Tony Burke, Minister for Sustainability, Environment, Water, Population and Communities, being satisfied that the place known as HMAS Sydney II and HSK Kormoran Shipwreck Sites, described in the Schedule, has the Commonwealth Heritage values specified in the Schedule, pursuant to section 324JI of the *Environment Protection and Biodiversity Conservation Act 1999*, include it in the Commonwealth Heritage List.

Dated

4.10.10

Tony Burke
Minister for Sustainability, Environment,
Water, Population and Communities

SCHEDULE

Name**Location / Boundary****Criteria / Values**

HMAS Sydney II and HSK Kormoran Shipwreck Sites:

The place is made up of two areas approximately 22 kilometres apart, which are of equal size and cover a total area of 400 hectares. The place is located approximately 290 kilometres West South West of Carnarvon, Western Australia.

Area 1

An area within which the historic shipwreck HMAS *Sydney II* is located, being an area bounded by an imaginary line forming a circle with a radius of 797 metres the centre of which is at the intersection of the parallel 26 degrees, 14 minutes and 39 seconds South latitude with the meridian 111 degrees, 12 minutes and 48 seconds East longitude as defined using GDA 94 datum and as consists of Australian waters or waters above the continental shelf of Australia.

Area 2

An area within which the historic shipwreck HSK *Kormoran* is located, being so much of the area within the Indian Ocean contained within and bounded, and as consists of Australian waters or waters above the continental shelf of Australia, as follows *:

- (i) commencing at the point of latitude 26 degrees 5 minutes 18 seconds south, longitude 111 degrees 4 minutes 10 seconds east;
- (ii) thence east along the parallel of latitude 26 degrees 5 minutes 18 seconds south to its intersection with the meridian of longitude 111 degrees 4 minutes 38 seconds east;
- (iii) thence south along the meridian of longitude 111 degrees 4 minutes 38 seconds east to its intersection with the parallel of latitude 26 degrees 6 minutes 36 seconds south;
- (iv) thence west along the parallel of latitude 26 degrees 6 minutes 36 seconds south to its intersection with the meridian of longitude 111 degrees 4 minutes 10 seconds east; and
- (v) thence north along the meridian of longitude 111 degrees 4 minutes 10 seconds east to the point of commencement.

* All geographic coordinates are expressed in terms of the Geocentric Datum of Australia 1994 (GDA94) as described in the Commonwealth of Australia Gazette GN35 of 6 September 1995.

Criterion	Values
(a) the place has significant heritage value because of the place's importance in the course, or pattern, of Australia's natural or cultural history	<p>The shipwreck sites of HMAS <i>Sydney II</i> and HSK <i>Kormoran</i> have significant heritage value because of their importance in a defining event in Australia's cultural history and for their part in development of the process of the defence of Australia.</p> <p>The battle that occurred between HMAS <i>Sydney II</i> and the German raider HSK <i>Kormoran</i> off the Western Australian coast on the 19 November 1941 and the subsequent destruction of both vessels, severely shocked the Australian public of the day. The disaster of the loss of HMAS <i>Sydney II</i> and its entire crew and the subsequent mystery surrounding the battle, resulted in anguish and disbelief that is still evident in the Australian psyche.</p> <p>At the time of the sinking, Australians were significantly distressed by the loss of their most famous warship. This battle brought World War II to Australia's doorstep and highlighted its vulnerability to attack. The loss of HMAS <i>Sydney II</i> and several other Australian warships contributed to a shift towards the idea of homeland defence rather than defence of the British Empire and resulted in the development of a defence alliance with the United States.</p>

- | Criterion | Values |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(c) the place has significant heritage value because of the place's potential to yield information that will contribute to an understanding of Australia's natural or cultural history</p> | <p>The shipwrecksites of HMAS <i>Sydney II</i> and HSK <i>Kormoran</i> have significant heritage value because of their potential to yield information that would contribute to a greater understanding of Australia's history of World War II.</p> <p>The remaining fabric of these historic shipwrecks contain important physical evidence of a key historical event in Australia's history. The facts surrounding the battle between HMAS <i>Sydney II</i> and HSK <i>Kormoran</i> have remained the subject of intense scrutiny and have been hotly debated by historians, resulting in numerous government investigations, inquiries, forums and publications. Much of the debate has been due to lack of evidence caused by the absence of any surviving witnesses from HMAS <i>Sydney II</i>.</p> <p>The discovery and inspection of the physical remains of these two vessels in 2008 has enabled a reconciliation of theory and known historical fact concerning the battle with the archaeological evidence present in the remains. This evidence was pivotal to the findings of the 2009 <i>HMAS Sydney II Commission of Inquiry</i> (Cole Inquiry) by providing previously unknown information that allowed the circumstances surrounding the loss of HMAS <i>Sydney II</i> to be better understood.</p> |
| <p>(f) the place has significant heritage value because of the place's importance in demonstrating a high degree of creative or technical achievement at a particular period</p> | <p>The shipwreck site of HSK <i>Kormoran</i> has significant heritage value because of its importance in demonstrating a high degree of creative and technical achievement during World War II.</p> <p>HSK <i>Kormoran</i> was a disguised German commerce raider that was created by extensively modifying an existing cargo vessel and retrofitting it with concealed weaponry hidden by ingenious mechanical camouflage. These unique technological features allowed HSK <i>Kormoran</i> to avoid identification as a warship when approaching HMAS <i>Sydney II</i> until reaching point blank range for the contemporary weapons of the period. The surprise achieved through use of these technologies was a major contributing factor in the subsequent destruction of HMAS <i>Sydney II</i>.</p> <p>Archaeological examination of the remaining fabric of HSK <i>Kormoran</i> clearly show many of these advanced technological features and is internationally the only known example of this type of World War II technology.</p> |
| <p>(g) the place has significant heritage value because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons</p> | <p>The shipwreck sites of HMAS <i>Sydney II</i> and HSK <i>Kormoran</i> have significant heritage value to the nation because of their strong and special association with particular communities and the Australian community as a whole.</p> <p>This association is especially strong for those family and friends of the naval, airforce and civilian personnel who died as a result of the battle. The strong connection to this tragic loss of life was a driving force behind the public push for location, protection and memorialisation of the remains of HMAS <i>Sydney II</i> and HSK <i>Kormoran</i>. The sites of these historic shipwrecks are seen as the final resting place of those personnel who died and a tangible link to their memory.</p> <p>These sites are not only important to family and friends of the crew of HMAS <i>Sydney II</i> but also to those Australians who are descendants of crew members of HSK <i>Kormoran</i> who died as a result of the battle and those German survivors who chose to become Australian citizens after the war ended.</p> |

	Criterion	Values
(h)	the place has significant heritage value because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history	<p>The shipwreck site of HMAS <i>Sydney II</i> has significant heritage value because of its special association with the lives of the Royal Australian Navy captains who served on HMAS <i>Sydney II</i>.</p> <p>During the relatively short career of HMAS <i>Sydney II</i>, it was commanded by two of the most respected and highly regarded Australian naval officers of the time in Captain J.A. Collins and Captain J. Burnett.</p>

For a description of any references quoted above, and more information on the place please search the Australian Heritage Database at <http://www.environment.gov.au/cgi-bin/ahdb/search.pl> using the name of the place.

THE SYDNEY-KORMORAN PROJECT

During World War II, the Australian ship HMAS Sydney (II) encountered the German raider HSK Kormoran and after a short but fierce battle, both ships sank, taking with them all 645 crew from the Sydney and almost 100 crew from the Kormoran. The exact resting place of these wrecks was unknown until their discovery in 2008, when they were located 200km off the coast of Western Australia at a depth of 2.5km below the ocean's surface. These ships are very historically significant, but until now they have been inaccessible due to their isolated location. Using remotely operated vehicles (ROVs) fitted with digital still and video cameras and the power of the Pawsey Supercomputing Centre's Magnus supercomputer, a team of researchers from Curtin University are recreating the wreck sites in 3D to make this important piece of Australian history available to the general public.



HMAS Sydney II

The Challenge

"The project has been huge and has involved a lot of people, a lot of partners, a lot of hard work, and a lot of technology," Dr Woods says. "Some of the project challenges were budget (how on earth were we going to complete such an ambitious project with a limited budget), logistical (reaching the two most isolated sites on the Australian Heritage Register), and technical (we had a huge amount of camera and lighting equipment to connect to two underwater vehicles, and it all had to work at considerable water depth)."

To access these remote wrecks, Dr Andrew Woods, Dr Andrew Hutchison, and Mr Joshua Hollick worked with the WA Museum to use two ROVs from offshore services company DOF Subsea fitted with new-to-market cameras capable of cataloging such a large site and operating successfully at 2.5km underwater.

The team collected half a million photographs and 300 hours of high definition video footage - in total some 50 terabytes worth of data. Using conventional methods, it would have taken 1000 years to process this vast amount of data. The team needed to find a way to reduce this time to something achievable.

The Solution

The researchers are utilising the computing power of Pawsey's Magnus supercomputer to feature-match the images and build their 3D models - using a complex process known as photogrammetric 3D reconstruction.

"The wreck sites are expansive and detailed, which causes a problem for conventional 3D reconstruction processing techniques. We are therefore developing custom software to run on Magnus to perform our 3D reconstruction processing," Dr Woods says.

The method being used by the team is a multi-stage process - after identifying common features between images, Magnus builds a cloud of points (representing the common features) in 3D space, over which a 3D mesh is fitted, and the original images are placed to form the final 3D model.

"Fortunately the 3D reconstruction process is highly parallel in nature and very suitable for running on Magnus which allows thousands of operations to be performed in parallel which speeds up the process considerably."

Outcome

The completed reconstructions could be available to the general public in two to three years and will form part of a new exhibition in several Western Australian Museum sites to commemorate the Sydney, the Kormoran, and their lost crew.

The team could potentially also print 3D models of the ships and related artefacts. The site is protected by the Historic Shipwrecks Act which prevents the removal of artefacts from the wreck sites, so 3D printed physical reproductions could be used in future exhibits in place of the real thing.

Of the photogrammetric 3D reconstruction method they're using, Dr Woods says, "The process could be applied to other underwater sites such as tropical coral reefs or oil and gas infrastructure and other shipwrecks, but the process could also be used in land-based environments such as complex rock-art fields, or underground mines."

Click [here](#) to download the printable version of the case study

More information

- [ABC TV 7.30](#)
- [ABC Radio PM](#)
- [About the HMAS Sydney II](#)

 January 29, 2015

 No Comments



Beacon Virtua shines light on WA's dramatic shipwreck history

MEDIA RELEASE

Tuesday 11 October 2016

A virtual reality simulation of Beacon Island in the Houtman Abrolhos Islands – site of the notorious Batavia shipwreck – will enable members of the public to explore and understand the tiny island's dramatic place in Western Australian history.

Beacon Virtua is a digital visualisation of the island



developed

at the Curtin HIVE

and The University of Western Australia (UWA) as part of an Australian Research Council (ARC) Linkage project led by UWA and the Western Australian Museum.

The visualisation presents Beacon Island as it was in 2013 and takes users on a tour of key features, from the rudimentary shacks built by fishing families who for decades made the island their home during the annual Abrolhos fishing season, to excavated graves holding the skeletal remains of survivors of the Batavia wreck.

Dr Andrew Woods, Manager of the Curtin HIVE and leader of the Beacon Virtua project, said the visualisation – available as a Google Cardboard app for Android, for Windows and Mac computers and for desktop web browsers – would allow the general public to learn about the island's history in a highly immersive and engaging way.

“Very few people have been to Beacon Island, so this simulation allows the public at large to gain a very realistic experience of visiting the island,” Dr Woods said.

“People will be able to see the island as it was with an extensive array of fishing shacks, a schoolhouse built by the families for their children – complete with lessons on the table and blackboard – as well as the shallow graves of Batavia survivors who later died on the island.

“It might sound rather macabre, but it is done very tastefully and is an important part of the story of Beacon Island.”

Beacon Virtua was launched at the Curtin HIVE today by Mr Alec Coles, CEO of the Western Australian Museum.

The simulation is an outcome of the ARC Linkage project, *Shipwrecks of the Roaring Forties – a maritime archaeological reassessment of some of Australia’s earliest shipwrecks*, led by UWA’s Professor Alistair Paterson and the WA Museum’s Dr Jeremy Green. The *Beacon Virtua* portion of the project was developed at the Curtin HIVE and UWA by Paul Bourke, Nick Oliver and Dr Woods.

Dr Green, Head of the Department of Maritime Archaeology at the WA Museum, said the loss of the Dutch VOC ship *Batavia* in 1629 off the WA coast, and subsequent mutiny and death of 200 individuals, was one of the most dramatic events in Dutch and Australian shared history.

“The National Heritage-listed sites on the island are some of the earliest European sites in the nation,” Dr Green said.

“The visualisation allows people to see Batavia’s Graveyard, as it was once known, through time – the graves of those who died on the island and the archaeological excavations that revealed them. The buildings of the fishing community that were once there and are now gone can also be viewed at leisure. All of this helps to preserve our heritage for future generations.”

Professor Alistair Paterson, ARC Future Fellow in Social Sciences/Archaeology at UWA, said digital visualisation was emerging as a

significant area of research into better methods to record archaeological and heritage places and bring them to widening audiences.

“Heritage sites are increasingly being recorded using innovative digital methods – *Beacon Virtua* is a great ongoing research experiment into visualisation methods on a National Heritage Listed place,” he said.

The full visualisation includes 3D models of significant sites on the island and more than 120 photographic panorama bubbles that allow users to experience a photorealistic view. Users can step inside the bubbles and look around to see a 360-degree view from each panorama location.

Pop-ups provide information about points of significance and historical background about the island’s *Batavia* shipwreck past, its recent history as a fishing base, and its future as part of a new national park for WA.

Dr Woods said *Beacon Virtua* had been created using audio and photography captured during multiple expeditions to the island.

“Several of the 3D models in the simulation have been generated through a technique called photogrammetric 3D reconstruction; a process which uses multiple photographs of an object to build an accurate and detailed 3D model,” Dr Woods said.

“The simulation also gives life to the many seagulls that fly around the island. It seems as if you’re actually on the island – just don’t expect to get your feet wet.”

There are multiple versions available for download including a simplified demonstration version that can be explored within a web browser; the full version (700MB) with full graphics, set of panorama bubbles, 3D models of graves and audio which will run on Windows and Mac computers; and a version that will run on head-mounted displays such as the Google Cardboard VR viewer.

The simulation can be previewed and/or downloaded from www.museum.wa.gov.au/BeaconVirtua.

“Dirk Hartog” - 7.8m (26’) Air Rider

Vessel Type: **NSCV 2C (4+2) Dive/Research**
Marine Kit Number: **MK 15021**



Global Marine Design Pty Ltd
5/43 Burlington Street
Naval Base, Western Australia 6162

International Numbers
Phone +61 8 9437 1319
Fax +61 8 9437 2030

Australian Numbers
Phone 08 9437 1319
Fax 08 9437 2030

“Dirk Hartog” - 7.8m (26’) Air Rider

Vessel Type: **NSCV 2C (4+2) Dive/Research**

Marine Kit Number: **MK 15021**

The 7.8m Air Rider(R) ‘Dirk Hartog’ is the Western Australian Maritime Museums latest acquisition and will be used to support divers researching historic sites.

The vessel was assembled by Saltwater Marine of Fremantle from a custom Global Marine Design aluminium Marine Kit. Designed and built to NSCV 2C (4+2) for diving personnel, the rugged ‘Dirk Hartog’ is destined to provide many years of service to the museum.

Sea trialled off the coast of Fremantle, Western Australia, the vessel achieved 32 knots sprint from the economical twin Yamaha 150hp outboards.

MK 15021

Vessel Specifications	metric	imperial
Hull Length	7.80 m	25’ 7”
Overall Length	9.13 m	29’ 11”
Waterline Length	7.00 m	23’
Beam	3.1 m Moulded	10’ 2”
Draft @ Working Displ.	0.57 m	1’ 10”
Working Displacement	4.32 Tonnes	9,525 lb
Light Displacement	3.30 Tonnes	7,275 lb
Deck height above Waterline	0.26 m	10”
Bow Freeboard at rest	1.14 m	3’ 9”
Fuel Capacity	400 Litres	105 Us. Gal.
Engine/s	Twin Yamaha 150hp outboards	
Total Installed Power	224 kW	300hp
Sprint Speed	59 km/hr	32 Knots
Cruise Speed	46 km/hr	25 Knots

Structure	metric	imperial
Bottom Plates	5 mm	3/16”
Side Plates	4 mm	5/32”
Main Deck Plates	4 mm	5/32”
Foredeck Plates	4 mm	5/32”
Superstructure Plating	4 mm3 mm Roof	5/32”
Nominal Frame Spacing	600 mm	2’

Aluminium Delivery Pack Dimensions

Length
Breathth

metric

9.0m

2.2m

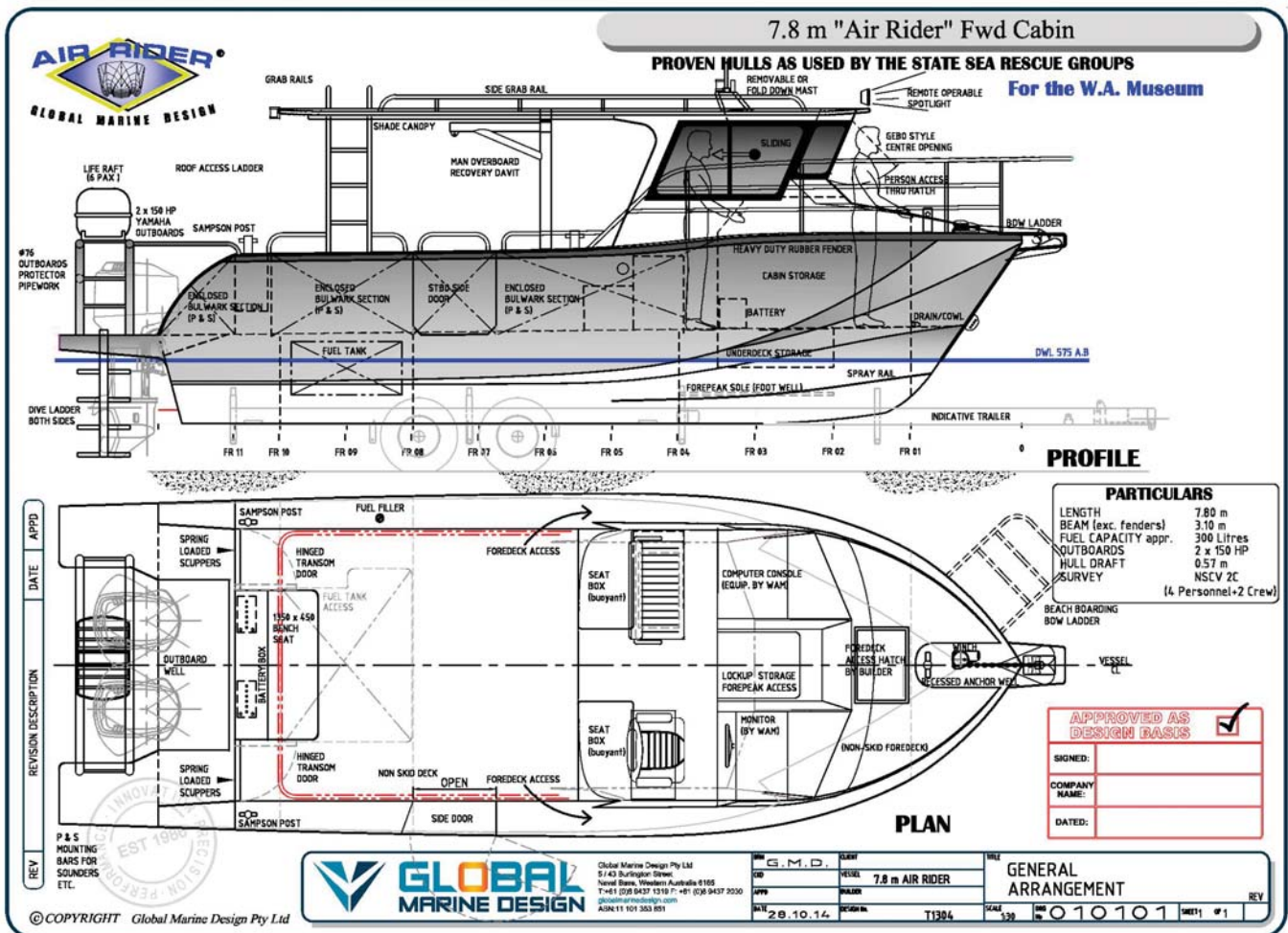
3.05 Tonnes

imperial

30'

7' 3"

6,725 lb















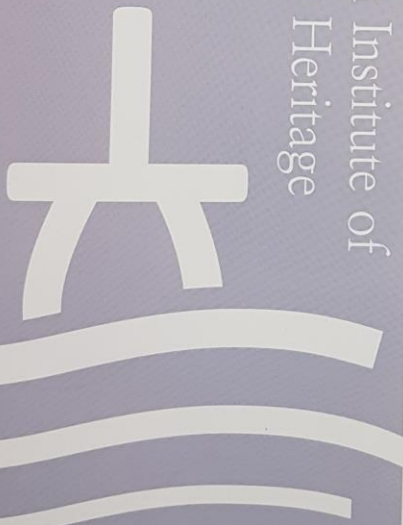




영어 English

Cultural Heritage Administration

National Research Institute of Maritime Cultural Heritage



National Research Institute of Maritime Cultural Heritage



National Research Institute of Maritime Cultural Heritage

The Korea's only national museum specialized in maritime history, the National Research Institute of Maritime Cultural Heritage guides visitors to the wisdom and achievements of Korean people in the past with collections arranged by the themes of the sea · people · culture · exchange and history. The main attractions of the Research Institute are the relics excavated from under the sea including old vessels that had been sunken for over a millennium. Reproduction of old Korean boats · preservation of wooden relics · collection and management of maritime relics, studies of regional maritime exchanges and folk life in the ancient period are also among the major interests of the Research Institute. The distinguished achievements made by the Research Institute in these areas are provided to the general public via various exhibition, education and support programs.

We may conclude that the sea is a museum full of mystery and vividness of human history. The National Research Institute of Maritime Cultural Heritage will continue to spend much of its resources to shed new light on the cultural heritage hidden under the deep sea and to restore the ancient maritime exchange routes connecting people in the region.

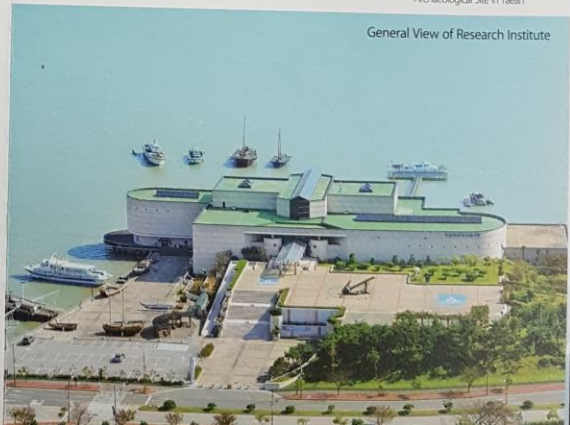
What Is the Underwater Cultural Heritage?

The term Underwater Cultural Heritage refers to the legacy of human activities buried under the sea, river, lake and marsh. The area of academic study focused on the legacy is called Underwater Archaeology. The world's most famous underwater cultural remains include Viking ships excavated in Norway, the Song Dynasty shipwreck called "Nanhai-1" and another Song shipwreck from the Quanzhou Bay, the Mary Rose Shipwreck of Britain, the Vasa Shipwreck of Sweden and the Titanic of the USA. In Korea, archaeologists discovered about 250 underwater archaeological sites in the Korean seas and performed extensive excavations at 20 sites to recover over about 100,000 relics including 13 wrecked ships. The precious relics have been actively exploited by experts seeking after the restoration of Korean maritime history and culture.



Daeseom Underwater Archaeological Site in Taean

General View of Research Institute



Exhibition Room 1 / Goryeo Shipwrecks //

The first exhibition room is a cabin that exhibits and tells a story about ancient ships and vessels from the Goryeo Dynasty. These submerged cultural treasures were found underwater and excavated from 1983 to 2010. They were buried under the sea for long time, as there have been a number of shipwrecks in the sea route between the West Sea and South Sea of Korea. The themes of the different exhibits here are "Sailing lives during the Goryeo Dynasty", "Tough Sea Route in the West Sea", and "The Celadon Porcelain Found from Wrecks". You will see several interesting and astonishing cultural treasures taken out of the sea under each theme.



Restoration drawing of Dallido Shipwreck (Goryeo Dynasty, 13-14th C)



Celadon Bottle (Mado#2 Shipwreck, Goryeo Dynasty, 1208)



Celadon Ewer, Bowl, Stand (Mado#1 Shipwreck, Goryeo Dynasty, 1208)



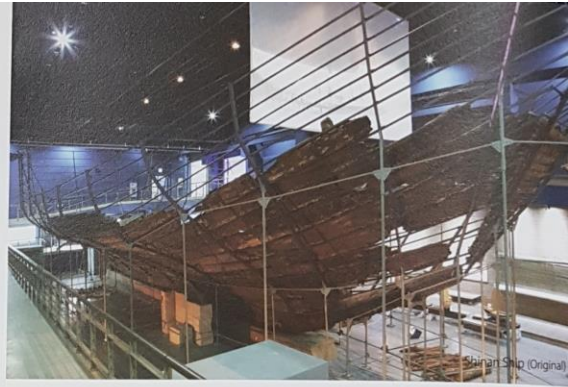
Celadon Drum (Wando Shipwreck, Goryeo Dynasty, 11-12th C)



Celadon Incense Burner (Taean Shipwreck, Goryeo Dynasty, 12th C)



A Restored Wando Ship (Goryeo Dynasty, 11-12th C)



Shinan Ship (Original)

Exhibition Room 2 / Shinan Shipwreck //

The second exhibition room guides visitors to a Chinese merchant shipwreck (Shinan Ship) and the East Asian maritime trade. The Shinan Ship refers to a Chinese merchant ship suken off the coast of Shinan on her way to Japan in 1323. When it was excavated, the shipwreck contained a variety of Chinese artifacts - Goryeo celadon works - Japanese Seto ware - Southeast Asian spices - medicinal herbs - red sandalwood - game tools and kitchen utensils.



Shinan Ship (Imaginary Picture)



Celadon water dropper in the shape of a fish (China Yuan Dynasty, 14th C)



Celadon Vase (China Yuan Dynasty, 14th C)



Wooden figure (China Yuan Dynasty, 14th C)



Wooden Tag with record of "東福寺" (China Yuan Dynasty, 14th C)



Trade case (China Yuan Dynasty, 14th C)

Exhibition Room 3

History of Boats and Ships in the World

Exhibition room 3 displays 'ships around the world' that were used by humankind in world history. The display starts with primal forms of ship from North America and Africa in the prehistoric age. The development of ships of ancient Greece and the Mediterranean shows how civilization progressed in Europe. The room also displays models of famous ships and charts for maritime navigation that illustrate the activities of the Vikings and the spread of European civilization during the Middle Ages, the use of sailboats during the Age of Discovery, and the Industrial Revolution and the advancements in maritime transport that came with it.



Santa Maria
(1495, Spain)



Navigational charts and publications



Clermont
(1807, the US)



Pictures and navigation aids



View of Exhibition Room



Scene of a Korean Traditional Shipyard

Exhibition Room 4

History of Boats and Ships in Korea

The fourth exhibition room provides visitors a general introduction of Korean vessels from the prehistoric times to the modern period. The collection on display includes drawings of boats and the whale hunting scene from the Bangudae rock art, an ancient boat-shaped pottery and reproductions of various traditional Korean ships made during the Goryeo, Joseon and modern periods.



Mado No.1
(Goryeo Dynasty)



War ship
(Pan ok seon, Joseon Dynasty)



Diplomatic Ship
(Tongsansa-seon, Joseon Dynasty)



Turtle Ship
(Geobuk-seon, Joseon Dynasty)



| Special Exhibition Room |

The museum's Special Exhibition Room provides a venue for special events on various specific themes. The events may include newly discovered underwater cultural heritage and the latest academic achievements in the field of maritime history and culture.

| Children's Maritime Museum |

The museum's Children's Activity Center is a surprisingly happy place full of exciting programs designed for kids to experience human history and culture buried in the seas. Much of the children's desire to learn more about the rich cultural heritage buried in the deep waters will be satisfied in the center.



| Coastal Exhibition Area |

Located at a site giving a scenic coastal view, the Coastal Exhibition Area is designed to offer visitors a rare opportunity to have a tour to various traditional Korean boats and related items made by local shipbuilders, carpenters and fishermen. Other attractions include a traditional fishing net thrown onto the tidal wetland and Sea Muse, a research ship for underwater archaeological investigation.



Jounseon (Transport ship for tax grain)

| Admission Information |

Admission_ Free

Closing Days_ Mondays

Opening Hours_ 9:00 am to 06:00 pm

※ Last admission is one hour before closing.

※ The opening hours are extended by one hour and the museum closes at seven pm on Saturdays and public holidays between March and October.

Tour Hours_ 1 hr - 2 hr

| Further Information |

· Visit & Tour_ Tel. 061 270 3001

· Special Exhibitions & Cultural Events_ Tel. 061 270 2040

· Collections & Donations_ Tel. 061 270 2040

· Excavation of Underwater Cultural Heritage_ Tel. 061 270 2060

· Maritime History & Folk Life_ Tel. 061 270 2080

※ Volunteer Activities_ Tel. 061 270 2020 (students), 2040 (adults)

※ Museum Shop_ Tel. 061 270 3070

※ In case of no Guided Tour, Audio Guide is available free of charge on time for Guided Tours at the Information desk on the first floor.

| Museum Policies |

· Smoking is prohibited on the museum grounds.

· Please do not bring food, beverages into the museum.

· Pets are not allowed. Guided dogs, however, are welcome.

· Please refrain from using your cell phone and kindly set it to silent mode while visiting the galleries.

· Please be careful not to damage museum property or artifacts on display.

· The use of a flash camera is strictly prohibited.

· Please ensure your children behave properly for their safety and out of consideration to others.

| Internet |

· National Research Institute of Maritime Cultural Heritage

- www.seamuse.go.kr

· National Palace Museum

- www.gogung.go.kr

· Cultural Heritage Administration of Korea

- www.cha.go.kr

· Ministry of Culture, Sports & Tourism


- www.mcst.go.kr

· Mokpo City Tour

- www.tour.mokpo.go.kr

· Jeollanamdo Tour

- www.namdokorea.com

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Tel. 061 270 2000 Fax 061 270 2059

韓國考古挖掘表列

Table 2-1 Major Underwater Archaeological Excavations in Korea.

No.	Year	Site (Period)	Excavation Parties	Reference
1	1971~	Petroglyphs of Bangudae (Neolithic Era -)	Discovered by M. D. Moon and others	National Treasure. Whale and boats.
2	1973~2003 2003~ 2007~2009 2010/2011	Chilcheon Strait and etc. - Admiral Lee's Relics of Naval Warfare -	Cultural Property Preservation Bureau (CPPB), SSU, ROKN and etc. GyeongNam Provincial Office. NRIMCH ¹	Beginning of the underwater archaeology in Korea Search & excavation South coast
3	1975~1976	Anapji Wooden Boat (8~9 C.)	CPPB	Excavation & restoration
4	1976~1984 1994~2004	Sinan Shipwreck (14 C.)	CPPB, Ship Salvage Unit(SSU), ROKN	Excavation & restoration (China). Underwater excavation
5	1980/83/96	Sinchangri, JeJudo	Jeju Nat'l University Museum	Underwater excavation
6	1981~1987	Sea off Taeon	Cultural Heritage Administration.	Underwater excavation
7	1983~1984 1995	Wando shipwreck (Early - mid 12 C.)	CPPB Ship Salvage Unit, ROKN.	Excavation & restoration
8	1991~1992	Jindo Byeokpari shipwreck (13~14 C.)	Mokpo Maritime Heritage Conservation Center, NRICP	Excavation & restoration (China).
9	1995	Mokpo Dalido Shipwreck (13 C.)	National Maritime Museum, Cultural Heritage Administration.	Excavation & restoration
10	1995~1996	Muan Doripo	National Maritime Museum	CHA, SSU
11	1999~2003	Cruiser <i>Dmitri Donskoi</i> (Sunken in 1905, 400 msw)	Korea Ocean Research and Development Institute	Sponsored by private co. (Russian armoured cruiser)
12	2000	Goheung Sisando	National Maritime Museum	Underwater excavation
13	2001	Sinan Dangjado	National Maritime Museum	Underwater excavation
14	2002~2003	Gunsan Blando	National Maritime Museum	Ship Salvage Unit, ROKN.
15	2003~2004	Gunsan Sibidongpado S/w (Late 11 C. ~ Early 12 C.)	National Maritime Museum	Excavation, Under conservation.
16	2004	Naju Shipwreck at Yeongsan River (Early Goryeo-period)	Namdo Institute of C.P, Dongshin University Museum	Big ship, L 32~42m
17	2004~2005	Wonsando	National Maritime Museum	Underwater excavation
18	2004~2005	Bibongri wooden boat No.1 & No.2 (7,700 BP)	Gimhae National Museum	Shell mound Terrestrial excavation.
19	2005	Anjado shipwreck, Sinan (Late 14C.)	National Maritime Museum	Underwater excavation, Biggest and developed.
20	2005~2009	Gunsan Yamido	National Maritime Museum	2005 Robber's confession.
21	2006	Ansan Daebudo shipwreck (13 C.)	National Maritime Museum	Excavation, Under conservation.
	2014~2015	Daebudo shipwreck No.2	National Maritime Museum	Mid - late 12 C.
22	2007~2008	Taeon Shipwreck (12C.)	NRIMCH	Wooden tablets (1131) 1st
23	2008~2010	Taeon Mado Shipwreck No.1 (Early 13 C.)	NRIMCH	Wooden tablets (1208) & etc.
24	2009~2010	Sea off Taeon Mado	NRIMCH	Exploration & excavation
25	2009~2011	West Coast.	NRIMCH	Exploration over 20 sites
26	2010	Taeon Wonan Beach	NRIMCH	Excavation
27	2009~2010	Taeon Mado Shipwreck No.2 (Early 13 C.)	NRIMCH	Wooden tablets & etc.
28	2009~2011	Taeon Mado Shipwreck No.3	NRIMCH	Excavation & will be raised.
29	2010~2013	Yeongheungdo Shipwreck	NRIMCH	Unified Silla era
30	2012~2016	Waters off the Jindo Myeongnyangdaechop-ro	NRIMCH	Sososeungja-chongtong of Imjin War
31	2014~	Taeon Mado Shipwreck No.4	NRIMCH	Joseon Dynasty

The Number is given considering the year of discovery and excavation.

*1 National Research Institute of Maritime Cultural Heritage

Shipwrecks of Goryeo Dynasty (한선, 韓船, Hanseon, 11 shipwrecks). -do: Island

Petroglyphs(Rock arts) of Bangudae (No. 1) is included because of the heritage value and etc.



The numbers on this figure are same as the numbers on Table 2-1.

Unified Silla Dynasty : 676-935
 Goryeo Dynasty : 936(918)-1392
 Joseon Dynasty : 1392-1910

Geomorphological Characteristics of Korean Peninsular

West : Plain
 East(-North) : Mountains

Fig. 2-2 Locations of the underwater exploration & excavation including terrestrial sites in Korea.

PROTECTING AND PRESERVING THE UNDERWATER CULTURAL HERITAGE IN THE PHILIPPINES:

A BACKGROUND PAPER

Bobby C. Orillaneda¹ and Wilfredo P. Ronquillo²

Abstract

The archipelagic nature of the Philippines and its strategic maritime location in the South China Sea gives an indication of the country's significant underwater cultural heritage. Indigenous and foreign watercraft dating from the 3rd century C.E. has been discovered, excavated, exhibited and published by the National Museum of the Philippines and in collaboration with local and foreign research entities.

However, the management and protection of this cultural heritage is far from perfect. Inadequate financial support from the government, weak legislation and enforcement and lack of qualified personnel are cited as some of the reasons. This is coupled with the ever active threat of pillage and destruction from treasure hunters, illegal fishing methods and the dive tourism industry. As such, the National Museum's role as the leading government agency tasked with the conduct and management of the country's underwater cultural heritage and the advance of underwater archaeology to an academic practice remains a challenge.

The introduction of the 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage in the Asia-Pacific Region through the Regional Workshop in Hong Kong in 2003 with the aim of ratification has been an uphill battle, with Cambodia the only country to ratify the said convention in the Southeast Asian region thus far. This paper examines the impact of the 2001 Convention in the Philippines and examines the prospects for its ratification.

INTRODUCTION

The Philippines is an archipelago composed of approximately 7,107 islands, with a coastline of 36,289 kilometers, the fifth longest coastline in the world and surrounded by large bodies of water; the West Philippine Sea (South China Sea) on the west, the Philippine Sea that stretches to the Pacific Ocean on the east, the Sulu Sea on the southwest and the Celebes Sea on the south. There are 31 principal river basins and over 50 lakes scattered all over the archipelago (Cuevas *et al.* 2004). Considering the distribution of different land masses over vast waterways that have been utilized as a source of livelihood, migration, exchange, trade and other maritime cultural activities, it is unsurprising that the country has a rich underwater cultural heritage.

Archaeological excavations inside Callao Cave in Peñablanca, Cagayan Valley, Northern Luzon unearthed the earliest human evidence dated to 67,000 years ago (Mijares *et al.* 2010). During the Neolithic period, after about the 4th

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millennium BCE (Before Common Era), Austronesian speaking people began occupying the Philippines bringing with them material culture consisting of pottery and stone artefacts (Bellwood 1997; Solheim 1994-95).

The oldest archaeological evidence of indigenous watercraft in the Philippines are wooden lashed-lug, planked-boats termed *balangay* that was excavated in Butuan, northeastern Mindanao in the late 1970s (Scott 1982; Ronquillo 1989). Radiocarbon dates from one of the boats yielded a date between 260 to 550 CE (Common Era) while a similar vessel gave a date of 1270 to 1410 CE after calibration. The earlier radiocarbon date is purported to be unreliable, but further tests have yet to be conducted to validate or disprove this. Analysis of the boat building technology identified the Butuan boats as used for transporting people and goods over short-distance, inter-island travel that did not venture from the coast. By the 9th century, the Belitung shipwreck (Flecker 2000; Flecker 2001; Guy 2001-2002) excavated off Indonesia showed the development of maritime trade between Arab, Indian and Persian states with China. The West Philippine Sea used as a maritime highway along which they may have utilized the Philippines as a vidual stop and a site for low level trade and exchange. The 10th century Chinese texts, specifically the official Sung History for the year 972 CE, mentioned trade relations with Ma-i, thought to be located in the present day Mindoro Island in southwest of the archipelago. Tribute bearing missions from Luzon and Butuan journeyed to China less than a hundred years later (Scott 1984). Chinese and Southeast Asian shipwrecks have been located in Philippine waters beginning with the 13th century CE until the early 16th century CE, indicating the participation of the Philippines in the regional Southeast Asian maritime trade network prior to the advent of the Europeans.

The arrival of a Spanish expedition led by Portuguese captain Ferdinand Magellan in 1521 CE ushered in the colonial period and the fabled galleon trade that lasted 250 years (1565 – 1815 CE). During this period, indigenous watercraft and foreign ocean-sailing commercial vessels carried spices, forest and sea products, textiles and ceramics from all over the Philippine archipelago, China, Japan and other Southeast Asian countries to Manila and then brought these to Acapulco in Mexico, the entry point for the transshipment of goods for Spain via the *naos de china* or the 'Manila Galleons'. In exchange, the galleons' return voyage primarily carried silver metal mined from South America that was in high demand in China and Southeast Asia as currency (Schurtz 1985).

The post galleon trade era during the 19th century saw the rise of Philippine exports such as sugar, abaca, tobacco and coffee that accounted for about 90 percent of the total export volume during that period (Legarda 1999). The commercial role of colonial Spain diminished and was replaced by trading partners such as Great Britain, the United States of America and China. This continued until the Philippine revolution in the last years of the 19th century.

During the Second World War, the Philippines became the site of numerous naval engagements between the United States of America and Japan that resulted in huge loss of life and ships. To date, hundreds of World War II shipwrecks are scattered all over the Philippines.

HISTORY OF UCH MANAGEMENT

Although the country's Underwater Cultural Heritage (UCH) consists of varied material deposits from diverse sites such as an underwater cemetery in Camiguin, stone boat-shaped burials in Batanes (Dizon *et al.* 1995-1997) and reported submerged habitation sites and structures, research and management of UCH have been largely confined to shipwrecks.

The earliest recorded shipwreck investigation occurred in 1967 at Santo Domingo, Albay in southeast Luzon (Lopez 1967), and then again in the 1970s (Conese 1989), but these early forays were purely salvage efforts unsupervised by qualified personnel or institution. In an effort to preserve and protect the country's cultural properties, the Philippine government formulated Republic Act (RA) 4846, *Cultural Properties Preservation and Protection Act*, passed on June 18 1966. It was later amended by Presidential Decree (PD) 374, *Amending Certain Sections of Republic Act No. 4846, Otherwise Known as the 'Cultural Properties Preservation and Protection Act'* on January 10 1974. The National Museum was appointed as the lead government agency in implementing the provisions of these laws, including archaeological research and management.

The Underwater Archaeology Unit (UAU) was created in 1979 with support from the Southeast Asian Minister of Education Organization Special Projects in Archaeology and the Fine Arts (SEAMEO-SPAFA) (Ronquillo 1989). In the absence of an underwater archaeologist or a diving archaeologist, UAU was staffed with people from other disciplines such as zoology and engineering with scuba diving skills. The practice of collaborating with private entities that could financially support exploration and excavation projects in exchange for a share of recovered materials started, reflecting the fact that the government could not provide funds for fieldwork and stop the rising incidence of shipwreck looting.

The bases for such collaborative agreements between the National Museum and private proponents were stated in the Underwater Archaeology Policy Guideline. Contained in the guidelines were the rules and regulations for the issuance of permits for parties who wished to engage in underwater archaeological activities within the archipelago's maritime territory, as well as establish guidelines on the methodology of survey, exploration, excavation and post excavation activities that should be strictly adhered to. These guidelines have been improved and expanded to its present form as the Rules and Regulations for Underwater Archaeology in Exploration and Excavation in Philippine Waters. Appended in the rules and regulations is a Memorandum of Agreement (MOA) that serves as the binding legal instrument between the National Museum and the proponent.

The first project of the UAU was the excavation of the 16th century Marinduque³ shipwreck in 1982 (Conese *et al.* 1981; Alba 1999). This was followed by survey and exploration projects around the country and the

³ The shipwrecks listed in this text that have not been identified have adopted titles based on nearby place-names and so are not italicized. Italics indicate known ship names.

excavations of the following: Puerto Galera wreck in Mindoro in 1983 and 1989 (Conese 1983; Conese 1989; Alba 1984; Ronquillo 1998); the Royal Captain Junk, a 16th century Asian trade vessel in 1985, (Goddio and Jay 1988; Ronquillo 1998); the British East Indiaman *Griffin* (1761) that sunk off Basilan Island from 1985 – 87 (Goddio and Jay 1988); the *Nuestra Señora de la Vida* (1620) that sunk off Isla Verde, Mindoro from 1985 - 88 (Conese 1989); and the *San Jose* galleon (1694) that sunk off Lubang Island Mindoro from 1986 – 88 (Sorapora and Michael 1987; Cuevas 1988; Conese 1989; Ronquillo 1998).

In 1988, UAU was renamed the Underwater Archaeology Section (UAS), headed by archaeologist Eusebio Z. Dizon. UAS members participated in advanced underwater archaeology training in Thailand (Conese 1989). Fittingly, the primary project of UAS was the re-investigation of the Marinduque shipwreck in 1989 (Henson 1989; Alba 1990). The objective was to improve excavation and recording methodology and undertake first-aid conservation treatment of recovered archaeological specimens.

The 1990s was considered the 'peak' of Philippine underwater archaeology following the excavation of a number of important shipwrecks and the creation of a university program in archaeology:

- in 1990 and 1991 The Breaker Reef (Dupoizat 1994) and Investigator Shoal shipwrecks (Goddio 1997; Dizon 2003), both dated to the 13th century;
- in 1991 and 1992 the *San Diego* (Goddio 1996), a *nao* that was converted into a warship that sunk on December 14, 1600 during the naval engagement with the Dutch ship *Mauritius* off Nasugbu Island in Batangas;
- in 1993 the mid-15th century Pandanan shipwreck, a trade vessel that contained more than 70% of Vietnamese ceramics (Diem 1996; Dizon 1996);
- in 1996 the San Isidro, a 16th century trade vessel (Goddio 1997a);
- and in 1997 the Lena Shoal shipwreck, another trade vessel (Goddio 2002; Orillaneda 2003);
- in 1996 the creation of the Archaeological Studies Program at the University of the Philippines (UP-ASP) at Diliman, Quezon City that offers a diploma and masters program in archaeology (Barretto 1997). *This is of particular importance because this marked the entry of university-trained archaeologists into underwater archaeology.*
- In 1999 two vessels were excavated: *Royal Captain*, a British East Indiaman vessel that sunk in the Royal Captain Shoal, West Philippine Sea in 1773 (Goddio *et al.* 2001); and the *Española* underwater site where Chinese and Southeast Asian ceramics along with metal, wood and animal bones were recovered but the ship itself was not found (Dizon *et al.* 2000; Orillaneda 2000; Orillaneda 2004).
- At the turn of the century, the first major project during this period was the excavation of the late 15th – early 16th century Santa Cruz shipwreck. Revealed to be a trading vessel that carried mostly porcelain and

stoneware ceramics from China, Thailand, Vietnam and Myanmar that was excavated off Santa Cruz municipality, Zambales.

- The last major project, thus far, was the excavation of the Tagbita Bay shipwreck, a late 19th century European vessel discovered off the shores of Sitio Tagbita, Barangay Taburi, Rizal Municipality, southwestern Palawan from 2003 – 07 (Santiago 2003; Santiago *et al.* 2006; Orillaneda 2007).

There were other non-shipwreck projects that occurred during this period: the investigation of reported submerged stone ruins of former towns of Batangas Province beneath the waters of Lake Taal (Lacsina and Faylona 2002) and the investigation of a deep underwater cave site in Mactan Island, Cebu in March 2005 (Batoon and Lacsina 2005) and its subsequent mapping and excavation in May 2011 in collaboration with archaeologist John Peterson. Despite the difficulty in collecting sediment samples in a relatively deep underwater environment, an adequate number of sediment, core and rock samples were taken and sent to a laboratory for dating and environmental analysis and studies (Lacsina and Orillaneda 2011).

The new UAS staff also underwent training to further enhance their understanding and skill in underwater archaeology. In January 2003, the primary author of this paper and Sheldon Clyde Jago-on, another National Museum archaeologist, attended an underwater training workshop on “Archaeology: Principles and Practice” sponsored by SEAMEO-SPAFA in Chonburi Province, Thailand.

In September 2009, a workshop on underwater archaeological artefact collections and management was held in Manila as part of the Collections Asia (COLLASIA) 2010 initiative (Lacsina and Orillaneda 2010). Sponsored by SEAMEO-SPAFA and the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM), with funding from the Getty Institute, COLLASIA’s aim was to address specific challenges facing Southeast Asian countries in managing and conserving their rich and diverse heritage collections originating from underwater archaeological sites. One of the objectives of the workshop was the upgrade of storage facilities.

LEGAL PROTECTION OF UNDERWATER CULTURAL HERITAGE IN THE PHILIPPINES

Republic Act (RA) 4846 and Presidential Decree (PD) 374 recognize the importance of the Philippines’ cultural heritage as well the threats it faces from illegal excavations and cultural property commercialization. Section 2 of both laws states that, “It is hereby declared to be the policy of the state to preserve and protect the important cultural properties and National Cultural Treasures of the nation and to safeguard their intrinsic value.” Under Section 3, “ships or boats in part or in whole,” are part of the definition of cultural properties. Section 4 designates the National Museum as, “the agency of the government which shall implement the provisions of the Act.” Part of Section 12 of both laws states that:

It shall be unlawful to explore, excavate or make diggings on archaeological or historical sites for the purpose of obtaining materials of cultural historical value without the prior written authority from the Director of the National Museum. No excavation or diggings shall be permitted without the supervision of an archaeologist certified as such by the Director of the National Museum, or of such other person who, in the opinion of the Director, is competent to supervise the work, and who shall, upon completion of the project, deposit with the Museum a catalogue of all the materials found thereon, and a description of the archaeological context in accordance with accepted archaeological practices.

Also contained are the penal provisions for violations of the law.

Republic Act 8492, the *National Museum Act of 1998*, defines the role of the National Museum in the cultural development of the Filipino people. Section 4 establishes the National Museum Complex that included the Executive House Building, the Department of Tourism Building and the Finance Building. Section 7 defines the duties and responsibilities of the National Museum. Sections 7.8 through 7.9 emphasizes in the definition of archaeology to include research through controlled archaeological excavations on land and underwater, monitoring and regulation of archaeological activities and the collection of a national archaeological collection. Sections 7.15 through 7.23 mention information, dissemination and exhibition activities as well as establishing linkages with similar institutions to promote Philippine culture.

The Cultural Properties Division (CPD) of the National Museum implements laws on the protection of the Philippine cultural heritage and conducts information dissemination activities throughout the country. To further strengthen the implementation of its mandate, the National Museum coordinates with other Philippine government agencies such as the Philippine Navy, Philippine Coast Guard, the Department of Environment and Natural Resources and Local Government Units (LGUs) that could be tapped for policing, monitoring and management purposes. The National Museum is also a member of the National Law Enforcement Coordinating Committee (NALECC), Sub-Committee on Environment and Natural Resources, composed of directors of concerned government agencies. This is a venue for discussing environmental and cultural concerns at the senior level for immediate action.

The latest legislation related to UCH is Republic Act 10066, the *National Cultural Heritage Act of 2009*, this was approved on March 26, 2010. Article III Section 11 is a very important amendment to the previous laws since it states:

No cultural property shall be sold, resold, or taken out of the country without first securing a clearance from the cultural agency concerned. In case the property shall be taken out of the country, it shall solely be for the purpose of scientific scrutiny.

Article VI Section 23d further strengthens the previous section:

The grant of permit export shall be based on the following conditions: (i) the cultural property is exported on a temporary basis; and (ii) the export of cultural property is necessary for scientific scrutiny or exhibit.

These provisions led to modified policies embodied in the National Museum Office Order 2011-108 entitled Guidelines Governing Categorization and Dealings of Archaeological and Traditional Ethnographic Materials. Section 5 of the Office Order categorizes archaeological and traditional ethnographic materials and assigns 'grades' based on levels of significance with the aim to, "rationalize the system of categorization," and, "provide appropriate guidelines for dealings of cultural property and disposition," while protecting the interest of the cultural heritage of the Filipino people. Grade I materials are National Cultural Treasures with the highest significance, Grade II are Important Cultural Properties while Grade III are Cultural Properties. The National Museum defines the criteria for the categorization. Article III Section 11 and Article VI Section 23d of RA 10066 are applicable to Grades I and II, while Grade III materials may be taken out of the country with the Permit to Export issued by the National Museum. These provisions aim to limit parties who wish to engage in archaeological projects with commercial intentions.

Section 29 empowers the National Museum to, "recover or retrieve cultural properties which are under the custody of foreign nationals or entities and to bring these properties back to Philippine custody". Section 30, much like the RA 4846 and PD 374, assigns the National Museum to, "regulate and control archaeological exploration, excavation and research and to deputize other agencies to protect archaeological sites".

THE UNESCO 2001 CONVENTION on the Protection of Underwater Cultural Heritage (2001 Convention)

On the international level, the Philippines, along with other countries, has actively participated in drafting an international treaty that deals with the protection of UCH. This effort began in 1993 and was spearheaded by the United Nations Educational, Scientific and Cultural Organization (UNESCO). This culminated in the *2001 UNESCO General Convention* that aimed to write a comprehensive framework of rules for the protection of the UCH. In the Asia-Pacific Workshop in Hong Kong in November 2003, a Philippine delegation was sent composed of Alberto Encomienda, then Secretary General of the Maritime and Oceans Affairs of the Department of Foreign Affairs, UAS Head Dr. Eusebio Z. Dizon, Maharlika Cuevas, Deputy Director for Operations of the National Museum of the Philippines as well as Attorneys Rose Beatrix Cruz-Angeles and Wylie Paler, ICOMOS representatives. Another UNESCO Experts Meeting on the Protection of Underwater Cultural Heritage held in Galle, Sri Lanka from 9th to 11th April 2007 was attended by Ms. Corazon S. Alvina, then Director of the National Museum. In this meeting the Philippines, through the Museum, made the position of actively preparing for the ratification of the *2001 Convention*. In a recent UNESCO meeting in December 2009, Director Alvina was named as part of the technical working group to examine closely the text and implementation of the *2001 Convention*. In 2010, Dr. Eusebio Z. Dizon was assigned to write on Rule

26 on Documenting a Site, and Rule 27 on Documentation Standards, of the *2001 Convention Annex on the Rules Concerning Activities Directed at Underwater Cultural Heritage*.

One of the main objectives of the Convention is developing heritage professionals through training and research programs. In line with this, UNESCO sponsored three Foundation Courses (October 2009, March 2010 and February 2011) and one Advanced Course (September 2010) in the newly established Regional Training Centre in Chanthaburi, Thailand under the auspices of the Underwater Archaeology Division of Thailand and funded by the Royal Government of Norway (Orillaneda and Lacsina 2010). The training program was entitled Safeguarding the Underwater Cultural Heritage of Asia and the Pacific: Building Regional Capacities to Protect and Manage Underwater Archaeological Sites through the Establishment of a Regional Centre of Excellence Field Training Facility and Programme of Instruction. The Philippines sent five participants to these courses, including the secondary author of this paper who was a participant of the first Foundation Course and who afterwards became a resource speaker on the 2nd and 3rd Foundation Course and assistant dive supervisor during the 3rd Foundation Course.

Thus far, the courses have produced 72 graduates from 17 countries in Southeast Asia, South Asia, Africa, Central Asia and the Pacific. These graduates are expected to advance the goals and objectives of the *2001 Convention* to their respective countries.

The *2001 Convention* provides a comprehensive framework for the protection of UCH and the Philippines recognizes its importance. However, its ratification and implementation in the Philippines remains a difficult task with the following reasons. Firstly, the timeliness of ratification by the Philippine government needs to be considered. This involves not only the National Museum but also the Department of Foreign Affairs, the Office of the President, and the Philippine Senate. Preliminary talks between these agencies have been carried out after the *2001 Convention* but have been put on hold due to what were reported as more pressing matters. The National Museum is currently re-establishing links to stimulate talks on the *2001 Convention*. Secondly, the National Museum does not have adequate resources to carry out underwater archaeology projects on its own. This is a perennial problem for developing countries where funds for cultural research come second to economic priorities. There is also an urgency to protect submerged sites from fishermen and treasure hunters who are discovering and looting sites at an alarming rate⁴.

This increasing incidence of uncontrolled looting has forced the National Museum into a dilemma. On the one hand, letting commercially-motivated individuals and companies destroy everything in the absence of funding or, on the other hand, reach a compromise with private entities that can bear the exploration and excavation costs in exchange for a share of the recovered pieces. The second scenario was adopted because it was deemed more advantageous to the National Museum and the UCH of the Philippines. This

⁴ This is based on numerous reports that the National Museum received but there has not been a specific study regarding numbers of looting activities.

arrangement at least guaranteed that the method of recovery followed archaeological procedures during excavation and post-excavation research contrary to letting aggressive treasure hunters and unaware fishermen destroy underwater sites for economic reasons.

However, with the passing of RA 10066 and the possible adoption of the *2001 Convention* by the Philippines, it is expected that there will be a shift from undertaking joint projects with profit-oriented proponents to collaborative projects with academic institutions and non-profit, research-g geared, agencies and organizations in the management, preservation and protection of UCH. The National Museum would strongly welcome and support such an outcome.

SOME CONCLUDING REMARKS

As shown above, the Philippines possess a rich and significant UCH that has been managed by the National Museum. However, the present framework needs to be improved and the Philippines has taken necessary measures in the form of strengthened legislation and training of personnel to conform to the principles and standards set forth in the *2001 Convention*. However, the adoption of the *2001 Convention* remains challenging. Socio-political and economic problems will continue to influence decision making in undertaking underwater archaeological projects. At this time, no work on shipwreck preservation and protection, management and monitoring has yet been undertaken. There are numerous shipwrecks from the turn of the century to Second World War wrecks that are very vulnerable to looting and other forms of destruction. These submerged cultural resources need to be managed in conjunction with other stakeholders, such as the diving industry and local communities.

There is a need to enhance information dissemination and public awareness through the Internet, television, books, journals, magazine articles and other media in order to reach a wider audience. Some National Museum projects have been televised but not widely or during primetime. More projects that have media coverage can be expected to provoke more public interest.

The scuba diving community is a very important resource that needs to be tapped. In many cases divers possess first-hand information about shipwreck locations and most have the best intentions but not the knowledge of the process of shipwreck research and protection. This group has the most exposure to shipwrecks and can be a very valuable ally against UCH destruction if made more aware of the benefits of the preservation of heritage and if they can be involved in preservation programs.

Finally, as the Philippines and the rest of the world face the challenges and opportunities in the preservation and protection of UCH, it is hoped that this Asia-Pacific Regional Conference on Underwater Cultural Heritage and similar meetings will be instrumental to formulating effective plans, establishing links and forming partnerships that could save this very important, but highly threatened, cultural resource.

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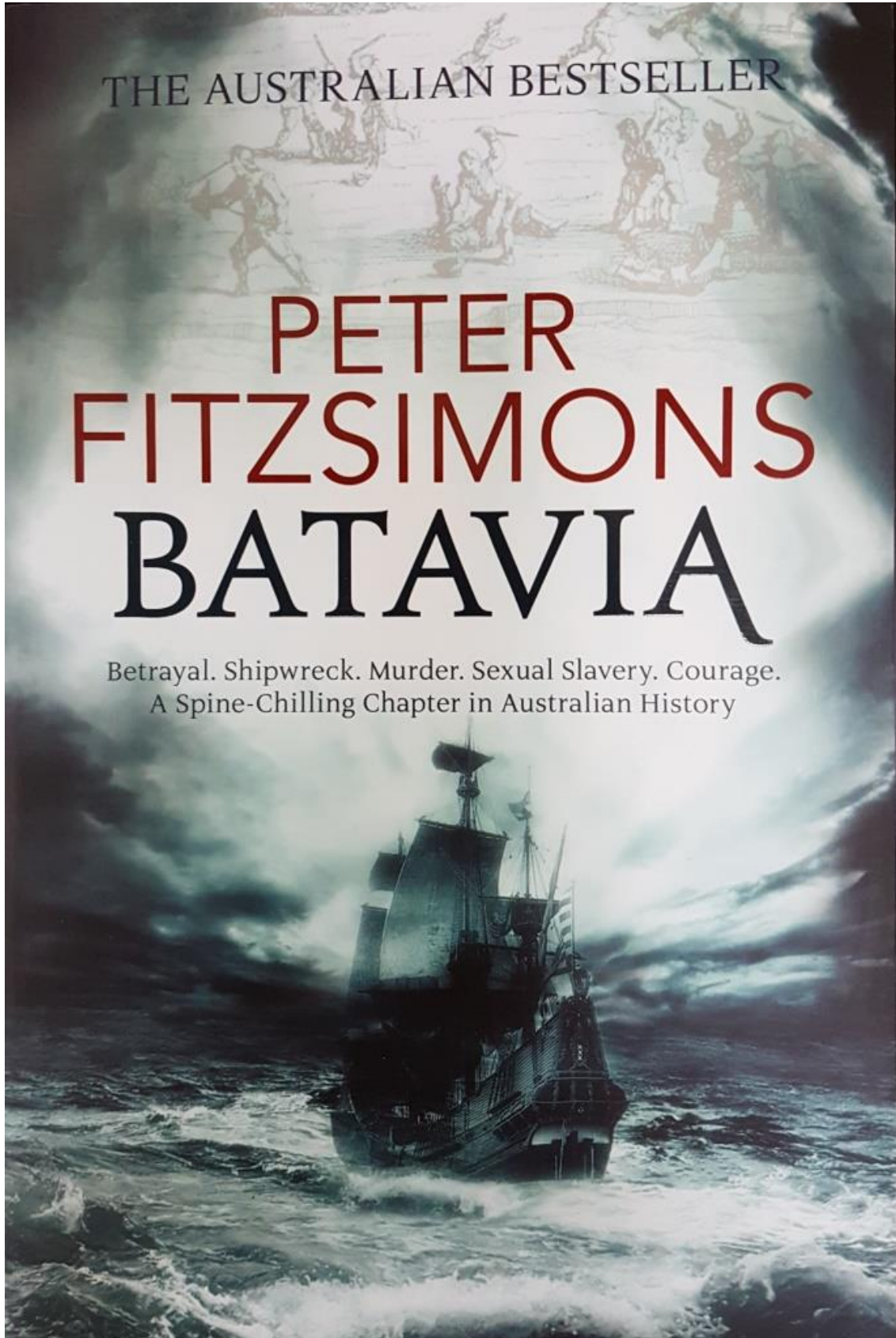
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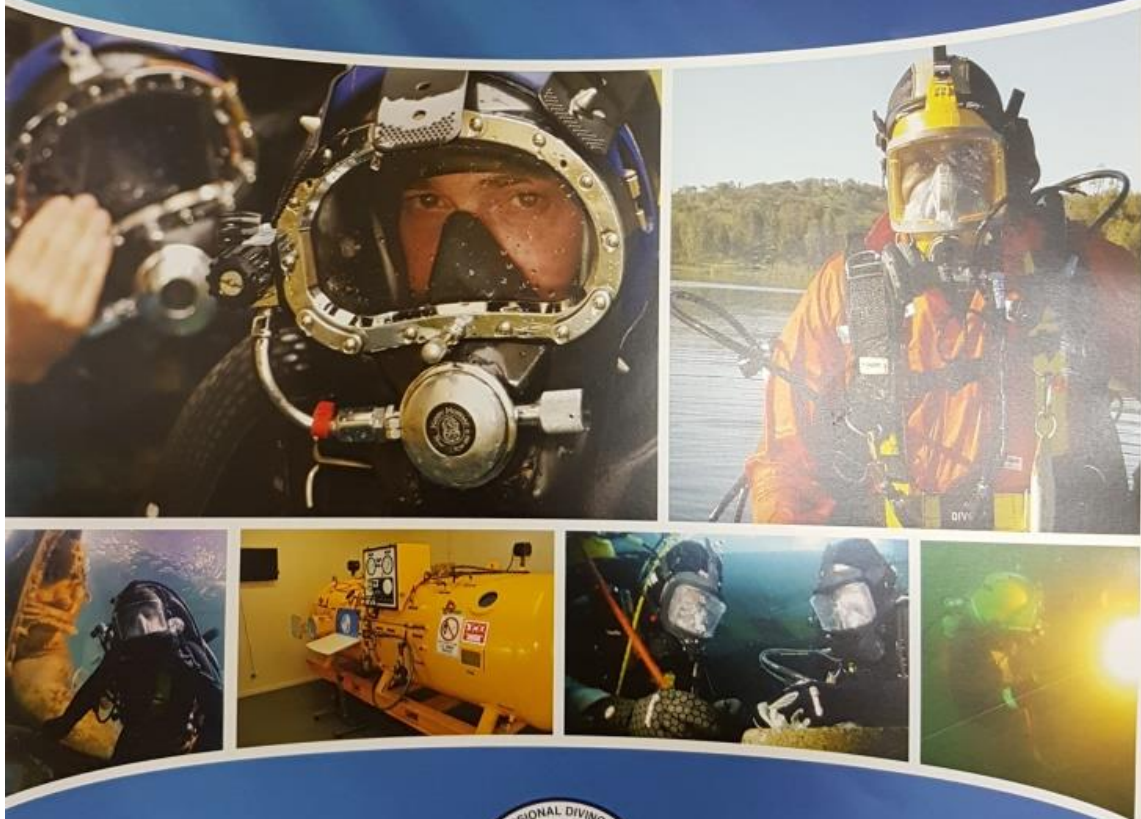
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Professional Divers Training Academy

Forging skilled commercial diving professionals.





Put your recreational diving experience to work and learn from industry leaders with more than 30 years' experience.

Professional Divers Training Academy (PDTA) is part of the Professional Divers Group, and is an industry leader in the training and education of commercial divers. PDTA conduct training from its Melbourne, Sydney and Vanuatu office locations and also work with its corporate clients to, where possible, bring the training into their workplace.

PDTA, in partnership with its sister company Professional Diving Services, have applied over thirty years of occupational diving industry experience and expertise along with highly professional training staff to offer you first class occupational diver training.

PDTA prides itself on keeping class sizes to a minimum to optimise teacher student interaction. PDTA also has access to the latest diving equipment and systems to offer students a superior dive training experience. Professional Diving Services continues to employ a selection of students from PDTA courses and actively encourages students to follow a rewarding career path in the industry.

"PDTA is an extremely well run organisation with professional staff who are willing to show students the real aspects of the diving industry"

ABOUT ADAS

The Australian Diver Accreditation Scheme aims to provide people who are required to carry out diving as part of their occupation with the means to have their competency measured and registered. It also aims to provide people and organisations that may need to utilise divers with a quality assurance that the person they engage has all the skills necessary to carry out the required tasks to the agreed standards of competency and safety.

"Very safe and thorough training was provided in what were sometimes more difficult conditions than we will normally experience. This gave me much more confidence for work diving"

A world leader in providing career paths in occupational diving, ADAS is proudly one of a small number of internationally accepted and sought after occupational diver certifications. All ADAS courses are conducted under stringent quality controlled environments that exceed industry requirements while emphasising occupational health and safety.

Professional Divers Training Academy is accredited by ADAS to supply Commercial diver training. Find out more about ADAS on their website www.adas.org.au.

ADAS Dive Supervisor Training Simulator now available at PDTA

PDTA has secured the ADAS dive supervisor training simulator for use as part of its supervisor training. The Dive supervisor training simulator was a \$1.4 million project led by ADAS and is a world first for the commercial diving industry. The project manufactured two purpose-built simulators based on offshore air and bell dive supervisor control stations and a standard chamber panel using existing airline and maritime simulator technologies.

In recognition of this, PDTA have incorporated the simulator into its range of capabilities to complement its offering of first class equipment and training standards to its students.



Professional Diving Services

PDS has been an industry leader in the implementation of innovative commercial diving solutions for more than three decades. Since its inception, PDS has established itself as one of the leading onshore commercial diving companies in Australia and built a strong reputation as a provider of quality services whilst meeting and exceeding the occupational diving industry's highest quality and safety standards.



Experience is Everything

PDTA OFFER THE FOLLOWING ADAS COURSES

- ADAS Restricted Occupational SCUBA to 20m (Aquarium Diver)
- ADAS Restricted Occupational SCUBA to 30m (Part 1R Scientific)
- ADAS Occupational SCUBA to 30m (Part 1)
- ADAS Restricted Occupational SSBA to 30m (Part 2R Scientific)
- ADAS Occupational SSBA to 30m (Part 2)
- ADAS Occupational SSBA to 50m (Part 3) *
- ADAS Onshore Diving Supervisor (Supervision of Part 1, 2 & 3 Diving Operations)
- ADAS Dive Project Management
- ADAS Diver Medical Technician (DMT) *
- ADAS Chamber Operator and Advanced Chamber Operator
- Equipment Technician (Kirby Morgan, OTS & Interspiro)

"Excellent instruction and facilities. Terrific teacher to student ratio so good amount of personal contact and assistance. Learnt a huge amount."



WHY CHOOSE US

Professional Divers Training Academy uses realistic conditions in often cold, deep and low visibility water so you are prepared for the reality of construction diving in both the onshore and offshore occupational diving industry.

We teach a variety of tasks associated within the construction industry, including the use of cutting and welding equipment and pneumatic and hydraulic tools. We always run small class groups to cater for individual learning needs and to maximise your time and training experience.

Professional Diving Services are a contracting company who employ in excess of forty commercial divers, and are actively seeking new divers to join our diving crews.

We offer you experienced specialised trainers who are industry recognised as leaders in:

- Ship surveys, salvage and repairs.
- Underwater welding, cutting and non-destructive testing of steel structures.
- Underwater construction and demolition.
- Marine science, maritime heritage and environmental monitoring.
- Occupational Health and Safety and First Aid specific to the diving industry.
- Diving and construction project management.
- Police diving (search and rescue).
- Film and television.

Following training we will help you develop a CV and PDTA can offer you links and contacts with diving companies Australia wide, as well as a chance to commence your career with us.

Courses marked with * are conducted in conjunction with other ADAS training establishments. Comments in orange font are testimonials provided by past students.

Diving Career Path

Choose a level of training that will give you the best opportunity to gain employment within the diving sector of your choice.

ADAS Restricted Occupational SCUBA to 20m (Aquarium Diver)

The course is designed specifically for divers working in aquariums or zoos. The focus of the course is to prepare these divers to work in confined and open water environments undertaking research, underwater maintenance, cleaning, feeding and collection work associated with the running of these facilities. Aquarium and Zoological diving work is one of the largest employers of divers in the industry worldwide and this qualification is quickly becoming the standard for those entering the industry.

Equipment Technician (Kirby Morgan, OTS & Interspro)

The course allows those in the industry or those wanting to enter the industry to gain a high level of training and understanding in the operation and maintenance of occupational diving systems. The course includes Kirby Morgan helmet and brand mask, Interspro AGA and OTS Guardian full face mask certified full face mask training, servicing of first and second stage regulator, high and low pressure compressor, air quality testing, low level testing, diving umbilical and lift/p hose servicing and testing, low and high pressure panel testing and servicing and maintenance, and repair of diving communication systems. Additional components can be completed on diving boots and hydraulic systems.

ADAS Restricted Occupational SCUBA to 30m (Part 1R Scientific)

The course is designed to cater for scientific divers that work in environments that are relatively non-threatening or find out about in conducting, freshwater habitat dives, marine biological investigations and environmental science studies. The course has been designed for Part 1R and work safely in a team in the occupational diving industry where there is a limited risk of entrapment. Untrained decompression of being expected to make from equipment or the environment. Divers are expected to use and understand a variety of scientific and technical equipment while being exposed to what is regarded as a safe level of occupational diving industry.

ADAS Occupational SCUBA to 30m (Part 1)

The Occupational SCUBA to 30m qualification (Part 1) is the first level of certification as a commercial diver. This course is a pre-requisite for Part 2 (Occupational SSBA to 60m) and the theory component of the course applies to the student for the role of a commercial diver during occupational diving. The qualification is most suited to those conducting occupational dives for photographic, media and inspection services.

The qualification takes the diver to using hand tools or cordless power tools in no decompression dives with direct access to the surface. The diver cannot operate a surface compressed power tool, or dive in currents where the use of overhead lifting or other similar activities is required. The qualification also includes the use of nitrox and has a nitrox endorsement.



"Safety aspects will always be identified and highlighted. All aspects of the course will be covered in a safe and professional manner."



ADAS Occupational SCUBA to 30m (Part 2)

The course covers the training activities and competencies required for accreditation of divers to work safely and competently using surface supplied breathing apparatus (SSBA) to depths of up to 30m. This is the second level of accreditation as an occupational diver and it covers Occupational Onshore Air Diving. Divers certified in this level are competent in the use of surface supplied breathing apparatus, cutting and welding equipment, pneumatic and hydraulic tools, digital video and still photography, and ultrasonic and non-destructive testing equipment. This is a good level to complete and start an onshore diving career, gain experience and develop further training and an offshore career is what you are seeking. It is equivalent to HSE Part 3 (L4).

ADAS Dive Project Management

The ADAS Dive Project Management course is designed to appeal to 'go ahead' divers who want to develop a career at the managerial level involved in the planning, implementation, direction and supervision of commercial diving projects. The student will offer positive value to personnel involved in construction, scientific, fisheries, police and military diving activities. The ADAS Dive Project Management course is a relatively recognised qualification at a Diploma level and successful candidates directly need to be qualified and working ADAS operators or onshore supervisors. The course will provide working dive supervisors with project management skills and would be particularly relevant to any divers starting their own business or managing a diving division. It is also relevant to people working in a business/supplier support role in a diving organisation at a management level.

ADAS Onshore Diving Supervisor (Supervision of Part 1, 2 & 3 Diving Operations)

The course covers activities and competencies required for the training and accreditation of dive supervisors who are required to supervise diving work safely and competently using either SCUBA to 30m, nitrox, or SSBAs to depths down to 30 or 50 metres, in accordance with AS/NZS 2299.1, 12015 and AS 2815.5. It should be noted that there are four separate qualifications under the onshore supervisor's qualification scheme.

POVA offer the first three of these being:

ADAS Occupational Dive Supervisor 30m on air using SCUBA (Part 1)

As a minimum, the candidate should present logged evidence of 100 logged dives and 1000 hours logged bottom time during occupational diving, deep diving in the range 30 – 50m, dives involving compression chambers and radiology specialist equipment such as hot water suits and ancillary service equipment gained over at least twelve (12) months.

ADAS Occupational Dive Supervisor 30m on air using SSBAs (Part 2)

As a minimum, the candidate should present logged evidence of 100 logged dives and 1000 hours logged bottom time during occupational diving that include a broad range of sea states across the range of depths to 30 metres gained over at least twelve (12) months.

ADAS Occupational Dive Supervisor 50m on air using SSBAs (Part 3)

As a minimum, the candidate should present logged evidence of 100 logged dives and 1000 hours logged bottom time during occupational SSBAs dives that include a broad range of high complexity dives involving decompression diving, deep diving in the range 30 – 50m, dives involving compression chambers and radiology specialist equipment such as hot water suits and ancillary service equipment gained over at least twelve (12) months.

ADAS Chamber Operator and Advanced Chamber Operator

The Chamber Operator course is a start-up program for divers and non-divers. However, the program is recognized in the Part 2 SSBAs Part to 60 metre course. This course includes the operation and maintenance of decompression chambers. All Part 1 and Part 3 (freediver) divers will be certified specifically as Chamber Operators and this certification is relevant to non-diving hyperbaric operators. ADAS Part 1 or Part 2 divers may be certified as an ADAS Chamber Operator following a minimum of ten days of training. The aim of the course is to prepare personnel with appropriate diving physics and theory/competence and the practical skills necessary to safely operate a range of Multi-chamber decompression chamber for decompression and recompression operations for diving operations and therapeutic treatments.

Engagement of trainers with candidates was fantastic. In my opinion, the small group size aided this."

Course Resources

Equipment

Your next job could depend on your ability to use a particular piece of equipment that your employer owns and operates safely and correctly. So it's important that you are trained to use an extensive range of modern, industry standard equipment.

Our equipment inventory



PDTA has an extensive range of diving helmets and full face masks. The equipment inventory includes but is not limited to Kirby Morgan Superlite 17, 27, KM 37, 47, 57, 77 helmets, Kirby Morgan 10, 18 & 28 Bandmasks, AGA full face masks, OTS Guardian, Kirby Morgan 48 (Supermask) and Exo 26, Poseidon and Scubapro full face masks. All Scuba and SSBA training is conducted using belt/side block EGS (Emergency Gas Supply) systems.



You'll be trained in the use of, and exposed to construction tools such as Broco underwater cutting and welding equipment, and hydraulic and pneumatic tools specially designed for underwater use. These include, chainsaws, cut off saws, grinders, jackhammers, hull scrubbers, drills, rattle guns and coring rigs to mention a few.

"Excellent instructors with enormous experience and amazing ability to keep theory interesting, informative and easy to understand. A credit to PDTA."

All PDTA ADAS Part 2 students will also complete the Kirby Morgan Operator/User Course for all KMDSI Helmets. In addition, we have a number of purpose built twin lock recompression chambers to provide you with the necessary training and give you hands on experience.



"Enthusiastic trainers with good knowledge of course topics. Plenty of dives during the course"



You will also use ultrasonic thickness testers, magnetic particle inspection and specialised recording and monitoring equipment. Students will not only be taught the use of this equipment but also the reporting and documentation systems that are required by clients. Diver training is monitored with state of the art surface monitored video systems and you will be trained in the use of underwater video and digital still photography.



Instructors



PDTA staff instructors have over 100 years of combined commercial dive teaching and occupational diving experience. Each staff member is a fully trained and qualified working construction supervisor that brings to each course a vast knowledge base relating to every facet of the occupational diving industry.

PDTA staff instructors have been involved in the setup of commercial diver training facilities in, New Zealand, Turkey, South Australia, Victoria and create a teaching environment that fully prepares students for the occupational diving industry. Professional Diving Services actively encourages all employees to assist on PDTA courses giving students unique exposure to what is required to create a successful career as a commercial diver.



"The instructors were patient & gave great direction, tutoring & guidance throughout all the practical & theory assessments."

Accommodation

For Melbourne course students, the Frankston and Carrum Downs areas offer a variety of accommodation types whilst Sydney course students will have plenty of options in the suburbs of Mascot, Botany and Maroubra.

Check with our friendly staff for a list of accommodation alternatives to suit your needs and budget.

Course Requirements

1) **Age:** Minimum age is 18 years

2) **Education Standard:** Students must be able to add, subtract, multiply and divide whole numbers, decimals and fractions, calculate percentages and transpose and solve simple formulas. Students must be able to understand written and verbal communications and be able to communicate fluently in English, to perform their work safely.

3) **LLN Test – Language, Literacy & Numeracy:** ADAS requires all students to undertake LLN testing prior to commencing their course. The purpose of the questionnaire is to identify that prospective students can read, write, listen and calculate sufficiently to complete the training. The ADAS LLN site is at <http://ln.adas-online.org>

4) **Underwater Experience:** Applicants must have completed a recognised recreational diver course. A PADI, SSI, NAUI, BSAC or NASDS Open Water Certification or equivalent recognised course is satisfactory. Applicants must have also completed 10 dives within the 6 months prior to the course commencing. PDTA will require a copy of these.

5) **Swimming Test:** Swimming competence should be demonstrated by the trainee completing a 200m swim on the surface using mask, fins and snorkel while wearing SCUBA equipment and neutrally buoyant within eight minutes, and by the trainee treading water for 10 min while fully clothed (i.e. wearing a long sleeved shirt and long pants).

6) **Medical:** Applicants must be in possession of a valid AS/NZS2299.1:2015 occupational diver certificate of medical fitness to dive, issued after examination by a doctor experienced in underwater medicine and approved by the relevant regulatory authority. Medical

"We worked for this qualification in demanding environments preparing us well for future work."

certificates issued for sport diving or by a local GP are not acceptable. Check with us for a list of approved hyperbaric doctors in your locality, or log onto the South Pacific

Underwater Medicine Society (SPUMS) website www.spums.org.au for a list of commercial diving doctors in Australia. This medical must be completed prior to starting your course.

7) **First Aid and Oxygen Administration:** Each student must be in possession of a First Aid Certificate, issued within the previous 12 months of the commencement of the course. The student's First Aid qualifications must include Administer oxygen in an emergency situation.

8) **Photo Identification:** Applicants must provide photographic proof of identity, either a valid passport or drivers licence.

9) **Practical Requirements:** Dry suit or wetsuit, wetsuit hood, wetsuit boots, dive gloves, mask, fins, weight belt, diving knife, diving torch, computer/depth gauge, work clothing, work boots and work gloves.

10) **Theory Requirements:** Writing pads, pens, pencils, highlighters, ruler, and a calculator. A full set of theory notes will be supplied.



Professional Divers Training Academy

For all training enquiries regardless of location email pdta@profdivers.com.

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